American Society for Microbiology

FINAL PROGRAM

asm2012

American Society for Microbiology
June 16–19, 2012

112th General Meeting
San Francisco

FINAL PROGRAM

asm2012

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Table of Contents

ASM Officers 2
Letter from the ASM President 2
Letter from the Program Chairs 3
asm2012 General Meeting Program Committee 3
Professional Development Committee 3
Week-at-a-Glance 4
Daily Schedule-at-a-Glance 5
- Workshops 5
- General Program 6
- Diagnostic Microbiology and Epidemiology Program 12

Student and Postdoctoral Program 14
Student and Postdoctoral Opportunities 15
Division Lectures 16
Division Business Meetings 19
Division Officers 20
Committee and Board Meetings 21
2012 Awards 23
asm2012 Corporate Supporters 24
American Academy of Microbiology 26
Education Board Research Fellows 27
Student Travel Grant Recipients 28
ABMM and ABMLI 29
International Exchange Programs and Grants 29
Shuttle Bus Information 30
Hotel Map and Listing 31
Convention Center Maps 32
General Information 34
Continuing Education 38
Scientific Sessions 41
Posters 97
Index 229

AMERICAN SOCIETY FOR MICROBIOLOGY

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Dear fellow asm2012 attendees,

I would like to personally welcome you to San Francisco for asm2012, the 112th General Meeting of the American Society for Microbiology. We are excited about the days ahead, the scientific discoveries that await you, the ideas you'll be able take away, and the new and old friends that you will be able to meet.

The General Meeting Program Committee has worked diligently to ensure that asm2012 continues its success and meets the needs of the attendees. After asm2011 we turned to you, members and attendees, to learn how we could continue to enhance this event. As a result of your feedback, this year's event will include presentations and speakers that cover a broader range of topics, along with new opportunities for you to experience the breadth, vision and impact of microbiology. New features of asm2012 include:

- Division and Award Lectures that are now integrated into the plenary sessions and symposia. Please see pages 16 and 23 for specific details of these presentations,
- Evening Poster Hall Receptions on Sunday and Monday (5:30 p.m. – 6:30 p.m.) that will provide additional time for you to network with your peers and discuss the latest scientific discoveries,
- And new opportunities for Student and Postdocs to interact with their mentors and participate in session that focus on career opportunities in microbiology. See page 14 for complete details.

The asm2012 scientific program will also continue to present diverse offering of educational formats. Morning plenary sessions will focus on interdisciplinary topics of broad interest, while afternoon symposia will delve deeply into specific areas of research. In addition, this year's program will once again offer a Diagnostic Microbiology and Epidemiology Program to meet the needs of ASM's clinical microbiology community. See page 12 for details.

I encourage you to join me for the joint President's Forum and Membership Meeting on Monday, June 18 from 12:15 p.m. – 2:00 p.m. The session will begin with the ASM Membership Meeting where I will provide a "State of the Society" address that will highlight ASM's accomplishments over the past year and discuss future initiatives of the Society. This will be followed by the President's Forum, "A Brave New World of Technology — Informing Science and Health," where Dr. Eric E. Schadt and Dr. John Mekalanos will discuss the impact of technology on research.

In conclusion, I would like to express my thanks to Dr. Margaret McFall-Ngai, Chair of the Program Committee, and Dr. Arturo Casadevall, Vice-Chair of the Program Committee, for all of their time and effort in developing asm2012. I am also grateful to the members of the General Meeting Program Committee who worked with Margaret and Arturo to bring together this amazing slate of speakers.

I hope you have an extremely rewarding experience here at asm2012 and you come away with new ideas and new friends. Please also be sure take some time to enjoy all that the wonderful city of San Francisco has to offer. Thank you for your continued support of ASM and the General Meeting.

Yours,

Dr. David C. Hooper, *ASM President*

ASM Officers

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President

Jeffery F. Miller
President-Elect

Joseph M. Campos
Secretary

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Treasurer

Welcome!

On behalf of the American Society for Microbiology and the General Meeting Program Committee, welcome to asm2012, ASM's 112th General Meeting. We hope this year's meeting provides the utmost opportunities for the exchange of leading edge research in the field of microbiology and time for you to network with colleagues, old and new.

asm2012 continues with the same format unveiled last year at asm2011 in New Orleans. Each morning features concurrent plenary sessions focusing on interdisciplinary topics of broad interest while afternoon symposia explore specific topics in greater depth. Within these afternoon symposia are young investigators who, based on the quality and relevance of their submitted research, have been selected to orally present their abstracts. These future leaders of microbiology join a superb list of invited speakers to round out these symposia. In addition, twenty-six sessions have been specifically designed to serve the needs of the Diagnostic Microbiology and Epidemiology community. This year we have also incorporated the ASM Award and Division Lecturers into the plenary sessions and symposia. Another important element of asm2012 are the more than 3,000 posters being presented in the Poster Hall. Please take time to visit the Hall each day for one-on-one discussion with the authors and be sure to attend the evening poster receptions on Sunday and Monday for additional networking opportunities with your colleagues. In addition to all the scientific program has to offer, asm2012 also provides the opportunity to interact with over 215 companies who will be displaying the latest laboratory products, current technologies, and services in the Exhibit Hall.

The Program officially begins on Saturday evening, June 16, with the Opening Session, "Harnessing the Power of Microbes for Biomedicine" aimed at exploring the microbial world and its benefits to biomedicine. The Session begins with lectures by two very outstanding researchers; Scott O'Neill from Monash University, Melbourne, Australia, "Infections of Insects and a Potential Role in Reducing the Transmission of Dengue"; followed by Dianne Newman from the California Institute of Technology, Pasadena, CA., "From Iron Oxides to Infections: Linking Geo- and Medical Microbiology." To close out the session, James Collins from the Center for Biodynamics in Boston, MA, will deliver this year's ASM Lecture "Biology by Design: The Emergence of Synthetic Biology." We hope you will join us at the Opening Session.

We would also like to bring to your attention that asm2012 has moved to providing Professional Acknowledgment for Continuing Education credits (P.A.C.E.®), in lieu of AMA PRA Category 1 Credit™ credits for select sessions. We recommend you check page 38 of the *Final Program* to familiarize yourself with these new offerings.

We also encourage you to join the discussion taking place online. Using the Twitter hashtag #asm2012 you can join your fellow microbiologists from around the world in conversations about microbiology and all that is occurring at asm2012. We also hope you download our mobile and tablet application to help you navigate the meeting and enhance your experience. Within each session listing in the app we have provided you with the opportunity to rate the session and provide comments. Your feedback will be reviewed after the meeting and used in the planning of asm2013.

Lastly, we hope you take the time to explore the many attractions San Francisco has to offer from Fisherman's Wharf and the San Francisco Bay Bridge to the great restaurants within steps of your hotel. The city has a great spirit and we are eager to share it with you.

We hope you take home great experiences and new ideas; and we thank you for your continued support. Enjoy the Meeting.

Margaret McFall-Ngai
Chair, General Meeting Program Committee

Arturo Casadevall
Vice-Chair, General Meeting Program Committee

asm2012 General Meeting Program Committee

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Friday, June 15

	7 a.m. – 8 p.m.
Workshop Registration	11:00 a.m. – 2:00 p.m.
Workshop Program	1:00 p.m. – 4:30 p.m.

Saturday, June 16

	7 a.m. – 8 p.m.
Workshop Registration	7:30 a.m. – 12:00 p.m.
General Registration	11:00 a.m. – 8:00 p.m.
Workshop Program	8:30 a.m. – 4:30 p.m.
Scientific Program	1:00 p.m. – 4:30 p.m.
Opening Session	5:00 p.m. – 7:00 p.m.
Opening Reception (Hall D)	7:00 p.m. – 8:30 p.m.

Sunday, June 17

	7 a.m. – 8 p.m.
General Registration	7:00 a.m. – 6:00 p.m.
Scientific Program	8:15 a.m. – 10:45 a.m. / 11:30 a.m. – 1:30 p.m. / 3:00 p.m. – 5:30 p.m.
Poster Presentations	10:45 a.m. – 12:30 p.m. / 1:00 p.m. – 2:45 p.m.
Poster Viewing	9:00 a.m. – 6:30 p.m.
Poster Reception	5:30 p.m. – 6:30 p.m.
Exhibit Hall	10:45 a.m. – 4:00 p.m.
Grand Opening of the Exhibit Hall (Refreshments Included)	10:45 a.m. – 11:45 a.m.

Monday, June 18

	7 a.m. – 8 p.m.
General Registration	7:30 a.m. – 6:00 p.m.
Scientific Program	8:15 a.m. – 10:45 a.m. / 11:00 a.m. – 12:30 p.m. / 3:00 p.m. – 5:30 p.m.
State of the Society Address/President's Forum	12:15 p.m. – 2:00 p.m.
Poster Presentations	10:45 a.m. – 12:30 p.m. / 1:00 p.m. – 2:45 p.m.
Poster Viewing	9:00 a.m. – 6:30 p.m.
Poster Reception	5:30 p.m. – 6:30 p.m.
Exhibit Hall	10:45 a.m. – 4:00 p.m.

Tuesday, June 19

	7 a.m. – 8 p.m.
General Registration	7:30 a.m. – 3:30 p.m.
Scientific Program	8:15 a.m. – 10:45 a.m. / 11:00 a.m. – 1:30 p.m. / 3:00 p.m. – 5:30 p.m.
Poster Presentations	10:45 a.m. – 12:30 p.m. / 1:00 p.m. – 2:45 p.m.
Poster Viewing	9:00 a.m. – 5:30 p.m.
Exhibit Hall	10:45 a.m. – 2:45 p.m.

All workshops will be held at the Moscone North and South (Convention Center).

Posters are available for viewing on Sunday and Monday from 9:00 a.m. – 6:30 p.m. and Tuesday from 9:00 a.m. – 5:30 p.m. Morning poster presenters are available for questions between 10:45 a.m. – 12:30 p.m. Afternoon presenters are available for questions between 1:00 p.m. – 2:45 p.m.

Workshops Program

This section of the *Final Program* provides an at a glance look of the Workshop Program for asm2012. Please reference the page numbers listed under each session title to view the session's description, conveners, and faculty.

All Workshops will take place at the Moscone North and South (Convention Center).

Friday, June 15

WORKSHOPS

1:00 p.m. – 4:30 p.m.

WS-01 Clinical Impact and Laboratory Detection of Newer β-Lactamases
Esplanade Ballroom 304 | See Page 41

WS-03 Laboratory Operations During a Disaster: Are You Prepared?
Esplanade Ballroom 302 | See Page 41

WS-04 Clinical Trials Microbiology: From Drug Discovery to Delivery
Esplanade Ballroom 303 | See Page 41

WS-05 The Gram-Stain: Making the Most of the Original Real-Time Multiplex Test
Esplanade Ballroom 301 | See Page 41

Saturday, June 16

WORKSHOPS

8:30 a.m. – 4:30 p.m.

WS-06 The BioCyc Collection of Pathway/Genome Databases
Esplanade Ballroom 310 | See Page 42

WS-07 Case Studies and Statistics for the Verification and Validation of Molecular Methods in the Clinical Laboratory
Room 232 | See Page 42

WS-08 Update on Molecular Diagnostics for Clinical Virology
Esplanade Ballroom 302 | See Page 42

WS-09 Administration in Clinical Microbiology: A Tool Kit for Supervisors and Managers
Esplanade Ballroom 304 | See Page 43

WS-10 Laboratory Diagnosis and Identification of Blood and Selected Tissue Parasites
Room 270 | See Page 43

WS-11 Select Topics in Pediatric Clinical Microbiology
Room 204 | See Page 44

WS-12 Verification and Validation of Diagnostic Tests Used in the Clinical Microbiology Lab
Esplanade Ballroom 306 | See Page 44

WS-13 Pharmaceutical Microbiology: Current Issues in Sterile Manufacturing and Product Development
Esplanade Ballroom 308 | See Page 44

WS-14 2012 Clinical Mycobacteriology Update
Esplanade Ballroom 309 | See Page 45

WS-15 Laboratory Diagnosis of Fungal Infections: Identification of Filamentous Fungi
Room 254 | See Page 45

WS-16 Problem Bugs, Resistant Drugs 2012
Esplanade Ballroom 300 | See Page 45

WS-17 Molecular Typing of Bacterial Pathogens in 2012: Mining the Data and Interpreting the Results
Esplanade Ballroom 301 | See Page 46

WS-18 Modern Molecular Clinical Microbiology for Beginners
Esplanade Ballroom 303 | See Page 46

WS-19 Trends in Clinical Laboratory Identification of Microbes in 2012: MALDI ToF MS
Esplanade Ballroom 305 | See Page 46

Join the asm2012 discussion!

Participate in the asm2012 conversations taking place on the web. Receive immediate updates, chat with fellow attendees, and exchange ideas.

facebook.com/ASMfan #asm2012

HIGHLIGHTS

Plenary Sessions

Each morning will feature concurrent plenary sessions focused on interdisciplinary topics of broad interest. The goal is to showcase the transcendent science, with topics selected for minimal overlap and maximum appeal. Here's your chance to expand your knowledge and better understand new trends in microbiology.

Symposia

Symposia, held in the morning and afternoon, will focus on more specialized topics. asm2012 symposia will include sessions from the General Program, Diagnostic Microbiology and Epidemiology Program, and Special Interest Sessions. Symposia will also host Division Lectures, Award Lectures, and 15-minute presentations of selected abstracts.

Oral Presentations of Selected Abstracts

Select afternoon symposia at asm2012 will include four 15-minute oral presentations from the submitted abstracts of graduate students, postdoctoral fellows, assistant professors and other young scientists.

Division Lectures, Division Business Meetings, and Award Lectures

Division and Award Lectures at asm2012 have been incorporated into sessions within the meeting's scientific program, unless otherwise noted. Division Business Meetings will be held alongside the scientific program throughout asm2012. Please visit the following pages for complete details on each:

Division Lectures—Page 16

Division Business Meetings—Page 19

Award Lectures—Page 23

General Program

This section of the *Final Program* provides an at a glance look of the General Microbiology Program for asm2012. Please reference the page numbers listed under each session title to view the session's description, conveners, and speakers.

All events will take place at the Moscone North and South (Convention Center) unless otherwise noted.

Note: *The Diagnostic Microbiology and Epidemiology Program's sessions are included in the Schedule-at-a-Glance starting on page 12.*

Saturday, June 16

SYMPOSIUM

1:00 p.m. – 4:30 p.m.

Special Interest Session

Microbiology Career Choices: Learn What's Available and How to Succeed

Developed by the Education Board

Room 103 | See Page 47

OPENING SESSION

5:00 p.m. – 7:00 p.m.

Harnessing the Power of Microbes for Biomedicine

Hall E | See Page 47

Sunday, June 17

PLENARY SESSIONS

8:15 a.m. – 10:45 a.m.

Avoidance and Subversion of Host Cell Defenses by Intracellular Pathogens

Room 104 | See Page 49

Microbiology in 2022: The Single-cell Point of View

Developed by the Junior Advisory Group

Room 103 | See Page 50

Sculpting the Bacterial Cell

Room 102 | See Page 50

Who's Doing What in Microbial Communities

Esplanade Ballroom 305 | See Page 50

SYMPOSIA

11:00 a.m. – 1:00 p.m.

Special Interest Session

Striking the Balance in Fresh Produce: Food Safety, Animal Control, Water Sourcing and Environmental Impact—Research Issues in Microbiology

Developed by the Committee on Agricultural and Food Microbiology

Room 132 | See Page 54

11:00 a.m. – 1:30 p.m.

Special Interest Session
Careers for Microbiologists
Developed by the Membership Board
Esplanade Ballroom 304 | See Page 54

Special Interest Session
The Culture of Rice: From Farm to Fermentation
Developed by the Center for the History of Microbiology/ASM Archives
Room 102 | See Page 54

Special Interest Session
Laboratory Capacity Building: Challenges and Successes
Developed by the International Board
Esplanade Ballroom 308 | See Page 55

Special Interest Session
Microbiome: Racial and Ethnic Differences
Developed by the Committee on Microbiological Issues Impacting Minorities
Esplanade Ballroom 306 | See Page 55

Special Interest Session
In the Year 2525: Survival Strategies and Clinical Microbiology's Leadership Role in Tomorrow's Healthcare Teams
Developed by the Public and Scientific Affairs Board
Esplanade Ballroom 305 | See Page 56

3:00 p.m. – 5:30 p.m.

Divide and Conquer! The Evolution of Diverse Microbial Division Mechanisms
Esplanade Ballroom 310 | See Page 57

Getting Down to the Nuts and Bolts of Pathogenesis
Room 104 | See Page 57

The Great Indoors: Recent Advances in the Ecology of Built Environments
Esplanade Ballroom 300 | See Page 58

Special Interest Session
The Highway to Success for Women in Microbiology: Avoiding the Potholes and Roadblocks
Developed by the Committee on the Status of Women in Microbiology
Room 254 | See Page 58

Ion Homeostasis in Bacteria
Esplanade Ballroom 301 | See Page 59

Mechano-Microbiology: How Bacteria Sense and Respond to Physical Forces
Esplanade Ballroom 305 | See Page 59

Microbial Colonization and the Host: Do the Colonists Reshape the Landscape?
Room 102 | See Page 60

New Data Shed New Light on Old Questions
Room 133 | See Page 60

New Insights into Fungal Pathogenesis
Room 132 | See Page 61

Recent Advances in RNA Polymerase Structure/Function and Transcriptional Regulation
Esplanade Ballroom 302 | See Page 62

HIGHLIGHTS

Opening Session

SATURDAY, JUNE 16

5:00 p.m. – 7:00 p.m. | Hall E

Harnessing the Power of Microbes for Biomedicine

Conveners:

Margaret McFall-Ngai; University of Wisconsin-Madison, Madison, WI

Arturo Casadevall; Albert Einstein College of Medicine, Bronx, NY

David C. Hooper; Massachusetts General Hospital, Boston, MA

Presentations:

Inherited Wolbachia Infections of Insects and a Potential Role in Reducing the Transmission of Dengue
Scott O'Neill; Monash University, Melbourne, Australia

From Iron Oxides to Infections: Linking Geo- and Medical Microbiology
Dianne Newman; California Institute of Technology, Pasadena, CA

Biology by Design: The Emergence of Synthetic Biology
James Collins; *ASM Lecturer;* Center for BioDynamics, Boston, MA

Opening Reception

SATURDAY, JUNE 16

7:00 p.m. – 8:30 p.m. | Hall D

Network with your peers from around the globe, discuss this year's program, and kick-off asm2012, all while enjoying light hors d'oeuvres and drinks. *Name badges required.*

Exhibit Hall Hours

SUNDAY, JUNE 17 ..... 10:45 a.m. – 4:00 p.m.

MONDAY, JUNE 18 ..... 10:45 a.m. – 4:00 p.m.

TUESDAY, JUNE 19 ..... 10:45 a.m. – 2:45 p.m.

HIGHLIGHTS

Poster Hall Networking Receptions

SUNDAY, JUNE 17 and MONDAY, JUNE 18

5:30 p.m. – 6:30 p.m. | Hall C

To enhance the networking opportunities offered at asm2012, the General Meeting Program Committee has introduced cash bar receptions in the Poster Hall on Sunday and Monday evenings. This is your opportunity to tour the Poster Hall, discuss the latest discoveries in the field, and network with old and new friends, all while enjoying light hors d'oeuvres and drinks.

Microbiology in 2022: The Single-cell Point of View

SUNDAY, JUNE 17

8:15 a.m. – 10:45 a.m. | Room 103

Developed by the Junior Advisory Group

Recent technological advances have revolutionized our ability to examine microbes at their most fundamental unit: the single cell. Striking developments in fluorescence microscopy, microfluidics, next-generation sequencing, and mathematical modeling now let us explore the essential mechanisms driving diversity, activity, and interactions among individual cells within populations and communities. Our newly-founded Junior Advisory Group for the ASM General Meeting has designed its inaugural plenary session to highlight the research of interdisciplinary scientists using these exciting new approaches. Their work explores the marvelous microbial adaptations that allow individual cells to respond to the world they encounter; approaches that will help define the direction of research in microbiology over the next decade.

See Page 50 for complete details.

Symbiosis as a Driver of Ecology and Evolution
Esplanade Ballroom 303 | See Page 63

What's for Dinner? Connecting Bacterial Metabolism with Host Interaction
Room 130 | See Page 64

When Good Bugs Go Bad: Microbiome Dynamics and Disease
Room 103 | See Page 64

Monday, June 18

PLENARY SESSION

8:15 a.m. – 10:45 a.m.

Biogeochemical Cycling: Past, Present and Future
Esplanade Ballroom 305 | See Page 67

Interrogating the Genome
Room 102 | See Page 68

Microbes Trigger and Shape Immunity
Room 104 | See Page 68

One Health: Humans, Animals and the Environment
Room 103 | See Page 68

Unseen Forces: Microbes Shape Animal Biology
Room 130 | See Page 69

SYMPOSIA

11:00 a.m. – 12:30 p.m.

Special Interest Session
A Century of Bacteriophages
Developed by the Center for the History of Microbiology/ASM Archives
Room 130 | See Page 72

3:00 p.m. – 5:30 p.m.

Chromosome Structure and Dynamics
Esplanade Ballroom 302 | See Page 73

Cooperation and Conflict in Microbes
Room 102 | See Page 74

CRISPR Interference: RNA-directed Adaptive Immunity in Bacteria and Archaea
Esplanade Ballroom 303 | See Page 75

Ecology and Evolution of Unicellular Eukaryotes
Room 254 | See Page 76

Enviable Microbial Powers to Tap Earth's Energy
Esplanade Ballroom 301 | See Page 76

Evolution and Development of the Microbiome
Room 103 | See Page 77

Expanding the Metabolic Blueprint
Esplanade Ballroom 310 | See Page 78

The Microbiome of Nature's Vampires: Roles in Health and Disease
Room 130 | See Page 78

New Biological Questions Brought by Species Pan-genomes
Room 104 | See Page 79

Parallels in Innate Immune Responses to Bacterial and Viral Infections
Room 132 | See Page 80

Phagocytes: Heroes and Victims of Infection
Room 133 | See Page 80

Small Words, Big Impact: Intercellular Communication Among Bacteria
Esplanade Ballroom 305 | See Page 81

Tuesday, June 19

PLENARY SESSIONS

8:15 a.m. – 10:45 a.m.

Friend or Foe: Interorganismal Interactions in the Microbial World
Room 104 | See Page 83

Imagine a World without Viruses
Room 102 | See Page 84

Synthetic Biology
Room 103 | See Page 84

Who's in Charge? How Microbes Affect Animal Behavior
Room 130 | See Page 84

SYMPOSIA

11:00 a.m. – 1:30 p.m.

Special Interest Session
H5N1: Research Controversy and Dual Use Research Issues
Developed by the Public and Scientific Affairs Board
Room 104 | See Page 87

Special Interest Session
ASM Partnering with the CDC for Evidenced-based Medicine Projects
Developed by the Committee on Professional Practice
Esplanade Ballroom 305 | See Page 87

Special Interest Session
The Practice of Clinical Microbiology in Pediatrics
Developed by the Public and Scientific Affairs Board
Esplanade Ballroom 306 | See Page 88

3:00 p.m. – 5:30 p.m.

All's Well that Ends and Mends Well: Maintenance of Genomic Integrity
Room 104 | See Page 88

Beyond the Central Dogma: Diversity in Regulation of Gene Expression
Room 130 | See Page 89

Biodegradation: Application of Basics to Real-world Problems
Esplanade Ballroom 310 | See Page 90

Frontiers in Experimental Evolution
Esplanade Ballroom 301 | See Page 90

The Limits of Microbial Life
Esplanade Ballroom 302 | See Page 92

Microbial Glycobiology and Glycobiotechnology
Room 102 | See Page 92

HIGHLIGHTS

State of the Society Address

MONDAY, JUNE 18

12:15 p.m. – 1:00 p.m. | Room 103

ASM President David Hooper will deliver a "State of the Society" address that highlights many of the new and innovative programs that are offered by the Society, as well as discuss some of ASM's greatest accomplishments over the past year.

This General Membership Meeting also offers members a chance to voice their opinions on ASM activities and other related matters. Take this opportunity to share your views on policy proposals, comment on emerging issues, and pose questions to ASM leadership.

President's Forum

MONDAY, JUNE 18

1:00 p.m. – 2:00 p.m. | Room 103

A Brave New World of Technology: Informing Science and Health

Convener:

David C. Hooper; Massachusetts General Hospital, Boston, MA

Presentations:

Whole-genome Characterization of Methyladenine Residues in Highly Pathogenic Strains of *E. coli* and *V. cholerae* and Their Impact on Function

Eric E. Schadt; Mount Sinai School of Medicine, New York, NY

New Technological Approaches to Understanding Bacterial Virulence

John Mekalanos; Harvard Medical School, Boston, MA

HIGHLIGHTS

Outstanding Student Poster Program

Poster Hall Hours | Hall C

Dedicated to showcasing the exceptional research efforts of future leaders of Microbiology, this program will offer extraordinary students an opportunity to put their research on the center stage. In addition to including their poster in a special highlighted area of the Poster Hall, outstanding student posters will also be presented on the assigned dates and times of the category to which they were submitted. We encourage all asm2012 attendees to stop by and support the next generation of the profession.

New Paradigms in Bacterial Second Messenger Signaling
Room 254 | See Page 93

Novel Cell Surface and Cell Interaction Targets for Antimicrobial Therapeutics
Room 103 | See Page 93

Patterns and Maintenance of Microbiology Diversity
Esplanade Ballroom 303 | See Page 94

Real-time Analysis of Host-Pathogen Interactions
Room 132 | See Page 95

The Role of Lipids in Bacterial Pathogenesis: Offensive and Defensive Strategies
Room 133 | See Page 96

Your Topics, Your Voice, Your Choice: An Experiment in Collaborative Filtering
Esplanade Ballroom 305 | See Page 96

ASM Live

Come be part of the studio audience for the General Meeting's live internet talk show, ASM Live.

HOT TOPICS!

Host **Stanley Maloy,** Chair of the Communications Committee will discuss hot topics at the meeting with presenters and will take questions from audience and the internet.

Tapings will take place in Room 121 in the convention center and registrants are encouraged to attend.

ASM Live will be broadcast live online at http://microbeworld.org/asmlive and will be archived on YouTube for future viewing.

PLEASE NOTE: The following program is preliminary and subject to change. Please check the program addendum for the final ASM Live program.

Sunday, June 17

10:00 a.m.
Microbial Colonization and the Host: Do the Colonists Reshape the Landscape?

11:00 a.m.
Microbial Analysis of Environmental Surfaces in Hotel Rooms

12:00 p.m.
Microbiome Dynamics and Disease

Monday, June 18

10:00 a.m.
Antibiotic Exposure, The Microbiome and Obesity

11:00 a.m.
The Role of Non-Food Animals in the Spread of Antibiotic Resistance

12:00 p.m.
One Health: Humans, Animals and the Environment

Tuesday, June 19

9:30 a.m.
A Precious Metal: The Future Role of Silver in Antibiotics

11:00 a.m.
The Biotic Fringe: Where Does Life Not Exist on Earth

12:00 p.m.
A World without Viruses

HIGHLIGHTS

Quiz Busters

SUNDAY, JUNE 17

3:00 p.m. – 5:30 p.m. | Esplanade Ballroom 304

This is the ultimate test of knowledge in the clinical microbiology laboratory. Which experts are truly experts and where should questions be sent? Upon completion of this exciting Quiz Busters Session, the participants should be able to: Identify those conventional and unconventional methods of identifying microorganisms from clinical specimens worth maintaining; Determine new procedures that clinical microbiology laboratories should consider utilizing to identify organisms more rapidly and more accurately; Discern those tests that may need to be incorporated to identify newly discovered types of antimicrobial resistance.

Late Breaker Diagnostic Microbiology and Epidemiology Posters

SUNDAY, JUNE 17 – TUESDAY, JUNE 19

Poster Hall Hours | Hall C

Late Breaker Diagnostic Microbiology and Epidemiology Posters will be showcased in a specially designated area in the Poster Hall and available for viewing throughout all Poster Sessions.

Poster presenters are available for questions on Monday, June 18 from 10:45 a.m. – 12:30 p.m.

Clinical Microbiology Lounge

SUNDAY, JUNE 17 – MONDAY, JUNE 18

7:00 a.m. – 5:30 p.m. | Room 112

TUESDAY, JUNE 18

7:00 a.m. – 3:00 p.m. | Room 112

The Evidence-based Medicine Subcommittee of the Professional Practice Committee will be available in the Clinical Microbiology Lounge on Sunday and Monday from 1:00 p.m. – 2:00 p.m. to answer questions about the two projects that ASM is working on.

Diagnostic Microbiology and Epidemiology Program

This program, designed specifically by and for clinical and diagnostic microbiologists, was created to meet the needs of the clinical microbiology community.

This section of the *Final Program* provides an at a glance look of the Diagnostic Microbiology and Epidemiology Program for asm2012. Please reference the page numbers listed under each session title to view the session's description, conveners, and speakers.

All events will take place at the Moscone North and South (Convention Center) unless otherwise noted.

Sunday, June 17

8:15 a.m. – 10:45 a.m.

Best Practices Session

Best Practices Antimicrobial Susceptibility Testing: An Update from CLSI
Esplanade Ballroom 304 | See Page 51

Diagnostic Challenges in Gastroenteritis: Emerging Methodologies Meet Emerging Pathogens
Esplanade Ballroom 306 | See Page 51

Diagnostic Molecular Parasitology: Revising the Gold Standard?
Esplanade Ballroom 309 | See Page 52

Management of Invasive Fungal Infections in High Risk Groups: Interface Between Clinical Microbiology and Direct Patient Care
Esplanade Ballroom 303 | See Page 52

New Insights in Global Surveillance of Current and Emerging Infectious Diseases
Esplanade Ballroom 308 | See Page 53

3:00 p.m. – 5:30 p.m.

Controversies in Transplantation Microbiology
Esplanade Ballroom 308 | See Page 56

QUIZ BUSTERS: So You THINK You Know Microbiology! An Interactive Quiz
Esplanade Ballroom 304 | See Page 62

Sound Bites to Superbugs: How to Communicate Risk to the Public and Physicians
Esplanade Ballroom 306 | See Page 63

Zoonoses in Companion and Farm Animals
Esplanade Ballroom 309 | See Page 65

Monday, June 18

8:15 a.m. – 10:45 a.m.

Best Practices Session

Best Practices in STI Testing for HIV, Syphilis, GC and Chlamydia
Esplanade Ballroom 303 | See Page 69

Diagnostic and Therapeutic Implications of Novel Mechanisms of Resistance
Esplanade Ballroom 309 | See Page 70

Getting By or Getting Along? Multidisciplinary Cases in Enhancing Patient Care from the Laboratory to the Bedside
Esplanade Ballroom 304 | See Page 70

The Gut Microbiome: Using the "Rest of the Story" to Inform Patient Care
Esplanade Ballroom 306 | See Page 71

New Technology: Is the Juice Worth the Squeeze?
Esplanade Ballroom 308 | See Page 72

3:00 p.m. – 5:30 p.m.

Best Practices Session

Best Practices for Rapid and Emerging Diagnostic Techniques
Esplanade Ballroom 308 | See Page 73

The Continuing Plague of Foodborne-associated Outbreaks
Esplanade Ballroom 304 | See Page 74

Downsides of Really Sensitive (and Not So Sensitive) New Technologies
Esplanade Ballroom 309 | See Page 75

Microbiology Literature Review 2012
Esplanade Ballroom 306 | See Page 78

Tuesday, June 19

8:15 a.m. – 10:45 a.m.

Best Practices Session

Best Practices in the Work-up of Specimens from the CNS and Other Sites: How Far Should You Go?
Esplanade Ballroom 308 | See Page 85

Complications and Implications of New Technologies for Diagnosis of Infectious Diseases
Esplanade Ballroom 304 | See Page 85

Pathogen Discovery: Linking a Novel Microbe to Human Disease
Esplanade Ballroom 303 | See Page 86

Screening and Surveillance for Antibiotic Resistance: Global, Local and Bedside Considerations
Esplanade Ballroom 306 | See Page 86

3:00 p.m. – 5:30 p.m.

Best Practices Session

Best Practices in Clinical Microbiology: Beyond the Routine Culture, What Micro Labs Could be Doing to Further Patient Care
Esplanade Ballroom 308 | See Page 89

Immunological Tools and Biomarkers for Infectious Diseases
Esplanade Ballroom 309 | See Page 91

Interactive Controversies in Antimicrobial Resistance Detection: Can You and Experts Agree?
Esplanade Ballroom 304 | See Page 91

On Top of Outbreaks: New Rapid Next Generation Sequencing Deployed for Public Health and Clinical Microbiology
Esplanade Ballroom 306 | See Page 94

asm2012

Diagnostic Microbiology & Epidemiology

DIGITAL VIDEO LIBRARY

Bringing the sessions to you – anytime, anyplace

Highlights:

- Full-motion videos, slides and MP3 audio of the Diagnostic Microbiology & Epidemiology Track
- Convenient online and mobile viewing – iPad®, iPhone® & Android™ devices
- Optional DVD-ROM for on-the-go access*
- **Purchase and demo onsite on the Second Level near the Bookstore**

**A companion DVD (if selected) will begin shipping after 7/31/12.*

Don't Miss Sessions!

www.asm.org/asm2012dvl

Schedule-at-a-Glance

Saturday, June 16	7 a.m.	8 a.m.	9 a.m.	10 a.m.	11 a.m.	12 p.m.	1 p.m.	2 p.m.	3 p.m.	4 p.m.
Microbiology Career Choices: Learn What's Available and How to Succeed							1:00 p.m. – 4:30 p.m.			

Sunday, June 17	
Student/Postdoc Lounge	7:00 a.m. – 4:00 p.m.
General Meeting Orientation Breakfast	7:30 a.m. – 8:00 a.m.
ASM Career Connections	10:45 a.m. – 4:00 p.m.
Careers for Microbiologists	11:00 a.m. – 1:30 p.m.
Student/Postdoc Lounge Lunch Session	12:00 p.m. – 1:00 p.m.
Student/Postdoc In-Lounge Mentoring	1:00 p.m. – 4:00 p.m.

Monday, June 18		
Student/Postdoc Lounge	7:00 a.m. – 4:00 p.m.	
Postdoc Career Breakfast	7:00 a.m. – 8:00 a.m.	
ASM Career Connections	10:45 a.m. – 4:00 p.m.	
Student/Postdoc Lounge Lunch Session	12:00 p.m. – 1:00 p.m.	
Student/Postdoc In-Lounge Mentoring	8:00 a.m. – 12:00 p.m.	1:00 p.m. – 4:00 p.m.
Postdoc Award Presentation		4:30 p.m. – 6:30 p.m.

Tuesday, June 19		
Student/Postdoc Lounge	7:00 a.m. – 4:00 p.m.	
Mentoring Breakfast	8:00 a.m. – 10:00 a.m.	
ASM Career Connections	10:45 a.m. – 2:45 p.m.	
Student/Postdoc Lounge Lunch Session	12:00 p.m. – 1:00 p.m.	
Student/Postdoc In-Lounge Mentoring	8:00 a.m. – 12:00 p.m.	1:00 p.m. – 4:00 p.m.

All sessions are sponsored by the ASM Membership or Education Board.

Microbiology Career Choices: Learn What's Available and How to Succeed

Saturday, June 16 | 1:00 p.m. – 4:30 p.m.
Moscone Convention Center, Room 103

This session will inform microbiologists about the diversity in career options in microbiology. It will provide examples of successful career paths followed by accomplished microbiologists in a diverse array of fields.

General Meeting Orientation Breakfast

Sunday, June 17 | 7:30 a.m. – 8:00 a.m.
Moscone Convention Center, Room 124

Join your peers at the Student and Postdoctoral Lounge for a light breakfast and a briefing by ASM Membership Board members discussing how to get the most out of asm2012.

Careers for Microbiologists

Sunday, June 17 | 11:00 a.m. – 1:30 p.m.
Moscone Convention Center, Esplanade Ballroom 304

This session will provide specific examples of accomplished microbiologists, who have followed disparate paths and found success in diverse careers. In addition to formal presentations by these speakers, time will be devoted to meeting and personally interacting with them. The goal is to provide information on some of the typical and less typical career opportunities in microbiology.

Student and Postdoctoral Lounge and In-Lounge Mentoring

Sunday, June 17 – Tuesday, June 19 | 7:00 a.m. – 4:00 p.m.
Moscone Convention Center, Room 124

The Lounge will offer students and postdocs the opportunity to socialize, network and relax between sessions, as well as learn about ASM activities and programs.

4th Annual Postdoctoral Breakfast

Monday, June 18 | 7:00 a.m. – 8:00 a.m.
Moscone Convention Center, Room 254

The 4th Annual Postdoctoral Breakfast is open to all postdoctoral members of ASM.

29th Annual Minority Microbiologists' Mixer

Monday, June 18 | 9:00 p.m. – 10:30 p.m.
San Francisco Marriott Marquis, Atrium

Enjoy this mixer co-sponsored by ASM's minority committees and network with your peers!

2012 Mentoring Breakfast

Tuesday, June 19 | 8:00 a.m. – 10:00 a.m.
San Francisco Marriott Marquis, Golden Gate A

The Mentoring Breakfast will provide students, postdoctoral scientists and other professionals with the opportunity to meet with volunteer mentors to discuss potential career transitions across all areas of microbiology. The Mentoring Breakfast is sponsored by the Underrepresented Members Committee and the Committee on Microbiological Issues Impacting Minorities.

ASM Career Connections

ASM Career Connections provides you with access to ASM's onsite placement service at asm2012, allows you to view and apply for current job postings, and enables you to set up interviews with employers in San Francisco. The ASM Career Connections Booth will be located in the Exhibit Hall in Booth #1613 adjacent to the ASM Booth during Exhibit Hall Hours. Computers and meeting space are available for candidate and employer use. Visit www.asmcareerconnections.org for more information and to register as an attending candidate!

Division Lectures at asm2012 have been incorporated into the sessions within the meeting's scientific program, unless otherwise noted. Below you will find information on each Lecture, as well as a page number to view complete details on the session.

DIVISION A

Session Name:
227. Novel Cell Surface and Cell-Cell Interaction Targets for Antimicrobial Therapeutics *(See Page 93)*

Tuesday, June 19 | 3:00 p.m. – 5:30 p.m. | Room 103

Division Lecturer:
Bonnie Bassler; Princeton University, Princeton, NJ

Lecture Title:
Quorum Sensing and its Control in Pathogenic Bacteria

DIVISION B

Session Name:
084. What's for Dinner? Connecting Bacterial Metabolism with Host Interaction *(See Page 64)*

Sunday, June 17 | 3:00 p.m. – 5:30 p.m. | Room 130

Division Lecturer:
Victor J. DiRita; University of Michigan Medical School, Ann Arbor, MI

Lecture Title:
***Campylobacter* in the Chicken Gut: Tales from the Zinc Age**

DIVISION C

Session Name:
093. Diagnostic and Therapeutic Implications of Novel Mechanisms of Resistance *(See Page 70)*

Monday, June 18 | 8:15 a.m. – 10:45 a.m. | Esplanade Ballroom 309

Division Lecturer:
Patrice Courvalin; Institut Pasteur, Paris, France

Lecture Title:
The Failure Story of Vancomycin-resistant *S. aureus*

DIVISION D

Session Name:
089. Microbes Trigger and Shape Immunity *(See Page 68)*

Monday, June 18 | 8:15 a.m. – 10:45 a.m. | Room 104

Division Lecturer:
Jeff Weiser; University of Pennsylvania, Philadelphia, PA

Lecture Title:
....and Immunity Shapes Microbes

DIVISION E

Session Name:
159. Phagocytes: Heroes and Victims of Infections *(See Page 80)*

Monday, June 18 | 3:00 p.m. – 5:30 p.m. | Room 133

Division Lecturer:
Daniel Portnoy; University of California, Berkeley, CA

Lecture Title:
Macrophage Cytosolic Surveillance Pathways during Infection and Immunity

DIVISION F

Session Name:
079. New Insights into Fungal Pathogenesis *(See Page 61)*

Sunday, June 17 | 3:00 p.m. – 5:30 p.m. | Room 132

Division Lecturer:
Jim Kronstad; The University of British Columbia, Vancouver, British Columbia, Canada

Lecture Title:
Fungal Virulence and Iron Homeostasis in *Cryptococcus neoformans*

DIVISION G

Session Name:
157. New Biological Questions Brought by Species Pan-genomes *(See Page 79)*

Monday, June 18 | 3:00 p.m. – 5:30 p.m. | Room 104

Division Lecturer:
Christine Citti; Institut National de la Recherche Agronomique, Toulouse, France

Lecture Title:
Changing Paradigm on the Evolution of Mycoplasmas by Exploring Their Pan-genome

DIVISION H

Session Name:
217. All's Well that Ends and Mends Well: Maintenance of Genomic Integrity *(See Page 88)*

Tuesday, June 19 | 3:00 p.m. – 5:30 p.m. | Room 104

Division Lecturer:
Vicki Lundblad; Salk Institute for Biological Studies, San Diego, CA

Lecture Title:
Telomeres

DIVISION I

Session Name:
156. The Microbiome of Nature's Vampires: Roles in Health and Disease *(See Page 78)*

Monday, June 18 | 3:00 p.m. – 5:30 p.m. | Room 130

Division Lecturer:
Clay Fuqua; Indiana University, Bloomington, IN

Lecture Title:
Dynamics and Interactions of Bacterial Symbionts in Bloodsucking Ixodid Ticks

DIVISION J

Session Name:
005. Sculpting the Bacterial Cell *(See Page 50)*

Sunday, June 17 | 8:15 a.m. – 10:45 a.m. | Room 102

Division Lecturer:
William Margolin; University of Texas Medical School-Houston, Houston, TX

Lecture Title:
***E. coli* Cell Division, from A to Z**

DIVISION K

Session Name:
154. Expanding the Metabolic Blueprint *(See Page 78)*

Monday, June 18 | 3:00 p.m. – 5:30 p.m. | Esplanade Ballroom 310

Division Lecturer:
Joseph Krzycki; Ohio State University, Columbus, OH

Lecture Title:
An Enlarged Genetic Code Increases the Substrate Range of Methanogenic Archaea

DIVISION L

Session Name:
166. Complications and Implications of New Technologies for Diagnosis of Infectious Diseases *(See Page 85)*

Tuesday, June 19 | 8:15 a.m. – 10:45 p.m. | Esplanade Ballroom 304

Division Lecturer:
Dan Diekema; University of Iowa Carver College of Medicine, Iowa City, IA

Lecture Title:
Rapid Detection on Multidrug Resistant Bacteria; Progress and Challenges

DIVISION M

Division M Lecture will be held during the Division M Business Meeting

Sunday, June 17 | 1:00 p.m. – 2:30 p.m. | Room 270

Division Lecturer:
Michael Feiss; University of Iowa, Iowa City, IA

Lecture Title:
DNA Packaging in the λ-like Bacteriophages

DIVISION N

Session Name:
229. Patterns and Maintenance of Microbial Diversity *(See Page 94)*

Tuesday, June 19 | 3:00 p.m. – 5:30 p.m. | Esplanade Ballroom 303

Division Lecturer:
Martin Polz; Massachusetts Institute of Technology, Cambridge, MA

Lecture Title:
Ecology and Evolution of Bacterial Populations in the Wild

DIVISION O

Session Name:
225. Microbial Glycobiology and Glycobiotechnology *(See Page 92)*

Tuesday, June 19 | 3:00 p.m. – 5:30 p.m. | Room 102

Division Lecturer:
Douglas S. Clark; University of California-Berkeley, Berkeley, CA

Lecture Title:
Exploring the Limits of Biomass Degradation: From Sampling Pools to Pooling Genes

DIVISION P

Division P Lecture will be held during the Division P Business Meeting

Monday, June 18 | 11:00 a.m. – 12:30 p.m. | Room 133

Division Lecturer:
David Acheson; Food and Drug Administration, Silver Spring, MD

Lecture Title:
Navigating Current Food Safety Challenges in a Global Market

DIVISION Q

Session Name:
006. Who's Doing What in Microbial Communities *(See Page 50)*

Sunday, June 17 | 8:15 a.m. – 10:45 a.m. | Esplanade Ballroom 305

Division Lecturer:
Jonathan Zehr; University of California, Santa Cruz, Santa Cruz, CA

Presentation Title:
Molecular and Genomic Insights into Species Interactions and Functions of Oceanic Microbial Communities

DIVISION R

Session Name:
083. Symbiosis as a Driver of Ecology and Evolution *(See Page 63)*

Sunday, June 17 | 3:00 p.m. – 5:30 p.m. | Esplanade Ballroom 303

Division Lecturer:
Cameron Currie; University of Wisconsin-Madison, Madison, WI

Lecture Title:
Symbiosis as Evolutionary Innovation in Agriculture in Ants

DIVISION S

Session Name:
158. Parallels in Innate Immune Responses to Bacterial and Viral Infections *(See Page 80)*

Monday, June 18 | 3:00 p.m. – 5:30 p.m. | Room 132

Division Lecturer:
Laimonis Laimins; Northwestern University, Chicago, IL

Lecture Title:
Human Papillomaviruses Suppress Innate Immune Surveillance during Persistent Infections

DIVISION T

Session Name:
158. Parallels in Innate Immune Responses to Bacterial and Viral Infections *(See Page 80)*

Monday, June 18 | 3:00 p.m. – 5:30 p.m. | Room 132

Division Lecturer:
John Patton; National Institutes of Health, National Institute of Allergy and Infectious Diseases, Bethesda, MD

Lecture Title:
Cells Lose their Inhibitions: Rotavirus Repression of the Interferon Response

DIVISION U

Session Name:
230. Real-time Analysis of Host-Pathogen Interactions
(See Page 95)

Tuesday, June 19 | 3:00 p.m. – 5:30 p.m. | Room 132

Division Lecturer:
Joanne Flynn; University of Pittsburgh School of Medicine, Pittsburgh, PA

Lecture Title:
Seeing is Believing: PET/CT Imaging Reveals the Dynamics of Tuberculosis

DIVISION V

Session Name:
222. Immunological Tools and Biomarkers for Infectious Diseases *(See Page 91)*

Tuesday, June 19 | 3:00 p.m. – 5:30 p.m. | Esplanade Ballroom 309

Division Lecturer:
Bruce Rabin; University of Pittsburgh Medical Center, Pittsburgh, PA

Lecture Title:
The Contribution of "YOU" to your Immunological Health: Postive or Negative

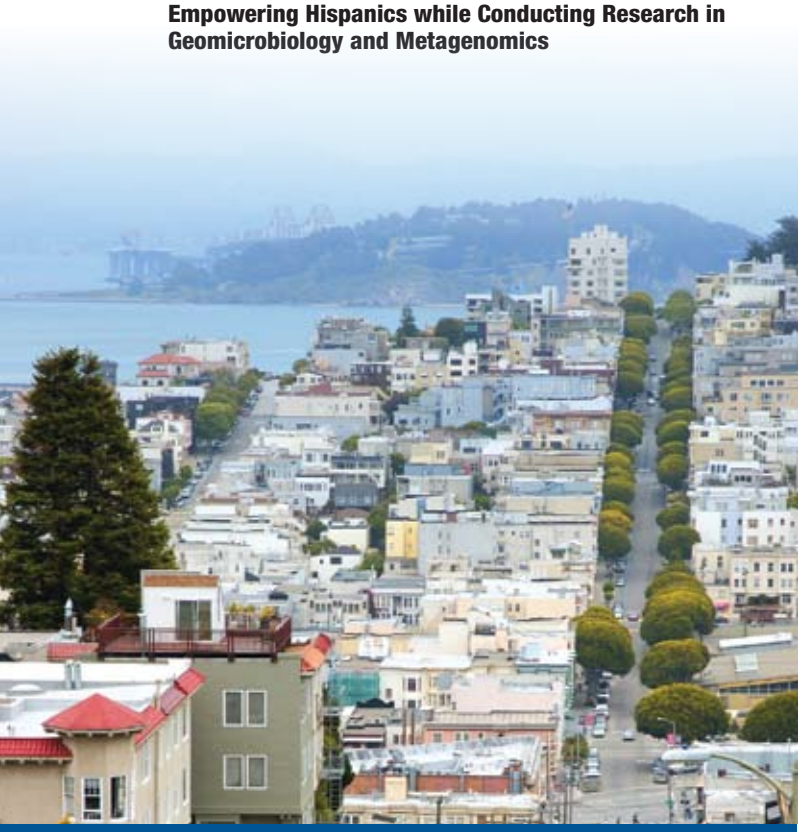
DIVISION W

Session Name:
078. New Data Shed New Light on Old Questions *(See Page 60)*

Sunday, June 17 | 3:00 p.m. – 5:30 p.m. | Room 133

Division Lecturer:
Lilliam Casillas-Martinez; University of Puerto Rico, Humacao, Puerto Rico

Lecture Title:
Empowering Hispanics while Conducting Research in Geomicrobiology and Metagenomics



DIVISION X

Session Name:
151. Ecology and Evolution of Unicellular Eukaryotes
(See Page 76)

Monday, June 18 | 3:00 p.m. – 5:30 p.m. | Room 254

Division Lecturer:
Laura Katz; Smith College, Northampton, MA

Lecture Title:
Germline-Soma Distinctions across the Eukaryotic Tree of Life

DIVISION Y

Session Name:
011. New Insights in Global Surveillance of Current and Emerging Infectious Diseases *(See Page 53)*

Sunday, June 17 | 8:15 a.m. – 10:45 a.m. | Esplanade Ballroom 308

Division Lecturer:
Sir Roy Anderson; Imperial College, University of London, London, United Kingdom

Lecture Title:
Global Patterns of Infectious Disease Prevalence: The Creation of Electronic Databases

DIVISION Z

Session Name:
090. One Health: Humans, Animals and the Environment
(See Page 68)

Monday, June 18 | 8:15 a.m. – 10:45 a.m. | Room 103

Division Lecturer:
Patricia Conrad; University of California, Davis, Davis, CA

Lecture Title:
One Health Approach to Otters, Oocysts and Oceans

DIVISION AA

Session Name:
222. Immunological Tools and Biomarkers for Infectious Diseases *(See Page 91)*

Tuesday, June 19 | 3:00 p.m. – 5:30 p.m. | Esplanade Ballroom 309

Division Lecturer:
Patrick Duffy; National Institutes of Health, National Institute of Allergy and Infectious Diseases, Bethesda, MD

Lecture Title:
Malaria Immunology and Vaccines

DIVISION A

Business Meeting

Tuesday, June 19 | 12:00 p.m. – 2:00 p.m.
Esplanade Ballroom 300

DIVISIONS B, D AND E

Business Meeting and Richard and Mary Finkelstein Student Travel Grant Presentations

Tuesday, June 19 | 11:00 a.m. – 1:00 p.m.
Esplanade Ballroom 302

DIVISION C

Business Meeting

Sunday, June 17 | 5:30 p.m. – 7:00 p.m.
Esplanade Ballroom 304

DIVISION F

Business Meeting

Sunday, June 17 | 12:00 p.m. – 1:00 p.m.
Esplanade Ballroom 301

DIVISION G

Business Meeting and Student Presentations

Monday, June 18 | 11:00 a.m. –12:00 p.m.
Esplanade Ballroom 302

DIVISION H

Business Meeting

Tuesday, June 19 | 2:00 p.m. – 2:30 p.m.
Room 104

DIVISION I

Business Meeting

Monday, June 18 | 11:00 a.m. – 11:30 a.m.
Esplanade Ballroom 303

DIVISION M

Business Meeting and Division Lecture and Student Presentations

Sunday, June 17 | 1:00 p.m. – 2:30 p.m.
Room 270

DIVISION N

Business Meeting

Tuesday, June 19 | 2:15 p.m. – 2:45 p.m.
Room 270

DIVISION O

Business Meeting and Student Presentations

Tuesday, June 19 | 12:30 p.m. – 2:00 p.m.
Esplanade Ballroom 304

DIVISION P

Business Meeting and Division Lecture

Monday, June 18 | 11:00 a.m. – 12:30 p.m.
Room 133

DIVISION Q

Business Meeting

Monday, June 18 | 11:00 a.m. – 11:30 a.m.
Esplanade Ballroom 304

DIVISION U

Business Meeting

Sunday, June 17 | 11:00 a.m. – 12:00 p.m.
Esplanade Ballroom 303

DIVISION V

Business Meeting

Sunday, June 17 | 11:30 a.m. – 12:30 p.m.
Esplanade Ballroom 300

DIVISION W

Business Meeting

Sunday, June 17 | 2:00 p.m. – 2:30 p.m.
Room 133

DIVISION X

Business Meeting

Monday, June 18 | 11:00 a.m. – 12:00 p.m.
Esplanade Ballroom 301

DIVISION Y

Business Meeting

Monday, June 18 | 7:00 a.m. – 8:00 a.m.
Esplanade Ballroom 301

DIVISION Z

Business Meeting

Sunday, June 17 | 1:00 p.m. – 2:00 p.m.
Esplanade Ballroom 302

DIVISION A
Antimicrobial Chemotherapy

Hanna M. Wexler, *Chair*
Jeffrey D. Alder, *Chair-Elect*
Linda A. Miller, *Councilor*

DIVISION B
Microbial Pathogens

Karen Ottemann, *Chair*
Nicholas P. Cianciotto, *Chair-Elect*
John M. Leong, *Councilor*

DIVISION C
Clinical Microbiology

Barbara Ellen Robinson-Dunn, *Chair*
Sheldon M. Campbell, *Chair-Elect*
Robert L. Sautter, *Councilor*

DIVISION D
Microbe-Host Interactions

Kevin S. McIver, *Chair*
Marvin Whiteley, *Chair-Elect*
Michael S. Gilmore, *Councilor*

DIVISION E
Immunology

Peter J. Murray, *Chair*
Maya Saleh, *Chair-Elect*
Mary O'Riordan, *Councilor*

DIVISION F
Medical Mycology

Jennifer K. Lodge, *Chair*
John R. Perfect, *Chair-Elect*
Thomas J. Walsh, *Councilor*

DIVISION G
Mycoplasmology

Lawrence K. Silbart, *Chair*
John I. Glass, *Chair-Elect*
Laura Regassa, *Councilor*

DIVISION H
Genetics and Molecular Biology

Susan Rosenberg, *Chair*
Sidney R. Kushner, *Chair-Elect*
Valerie A. De Crecy-Lagard, *Councilor*

DIVISION I
General Microbiology

Esther Angert, *Chair*
Joerg Graf, *Chair-Elect*
Joanne M. Willey, *Councilor*

DIVISION J
Cell and Structural Biology

Zemer Gitai, *Chair*
Daniel B. Kearns, *Chair-Elect*
Arash Komeili, *Councilor*

DIVISION K
Microbial Physiology and Metabolism

Mechthild Pohlschroder, *Chair*
Tyrrell Conway, *Chair-Elect*
Michael G. Thomas, *Councilor*

DIVISION L
Healthcare Epidemiology

Stephen G. Weber, *Chair*
Connie S. Price, *Chair-Elect*
Sharon B. Wright, *Councilor*

DIVISION M
Bacteriophage

Graham Hatfull, *Chair*
Carlos E. Catalano, *Chair-Elect*
Rodney A. King, *Councilor*

DIVISION N
Microbial Ecology

Joel E. Kostka, *Chair*
Karsten Zengler, *Chair-Elect*
Slava Epstein, *Councilor*

DIVISION O
Fermentation and Biotechnology

Zonglin Liu, *Chair*
George M. Garrity, *Chair-Elect*
Prakash S. Masurekar, *Councilor*

DIVISION P
Food Microbiology

Frank Burns, *Chair*
Francisco Diez-Gonzalez, *Chair-Elect*
Hua Wang, *Councilor*

DIVISION Q
Environmental and General Applied Microbiology

Gerben J. Zylstra, *Chair*
Jill Stewart, *Chair-Elect*
Steven E. Lindlow, *Councilor*

DIVISION R
Evolutionary and Genomic Microbiology

Nicole Perna, *Chair*
Rachel J. Whitaker, *Chair-Elect*
Jonathan Eisen, *Councilor*

DIVISION S
DNA Viruses

Lou A. Laimins, *Chair*
Lindsey M. Hutt-Fletcher, *Chair-Elect*
Rozanne M. Sandri-Goldin, *Councilor*

DIVISION T
RNA Viruses

John T. Patton, *Chair*
Leslie J. Parent, *Chair-Elect*
Adolfo Garcia-Sastre, *Councilor*

DIVISION U
Mycobacteriology

Miriam Braunstein, *Chair*
Sabine Ehrt, *Chair-Elect*
Padmini Salgame, *Councilor*

DIVISION V
Clinical and Molecular Diagnostic Immunology

Deshratn Asthana, *Chair*
Moon H. Nahm, *Chair-Elect*
Yun F. Wang, *Councilor*

DIVISION W
Microbiology Education

Laura Mays Hoopes, *Chair*
Robert W. Bauman, *Chair-Elect*
Ruth A. Gyure, *Councilor*

DIVISION X
Molecular, Cellular and General Biology of Eukaryotes

Michael Levandowsky, *Chair*
George F. Sprague, Jr., *Chair-Elect*
Joseph C. Reese, *Councilor*

DIVISION Y
Public Health

Michael Pentella, *Chair*
Denise (Dee) A. Pettit, *Chair-Elect*
Heather Green, *Councilor*

DIVISION Z
Animal Health Microbiology

Shelley C. Rankin, *Chair*
Shawn Bearson, *Chair-Elect*
Mark L. Lawrence, *Councilor*

DIVISION AA
Free-Living, Symbiotic and Parasitic Protists

Upinder Singh, *Chair*
Peter J. Myler, Jr., *Chair-Elect*
William J. Sullivan, *Councilor*

Friday, June 15

Start Time	End Time	Event	Location	Room
8:30 a.m.	4:30 p.m.	Membership Board Meeting	San Francisco Marriott Marquis	Pacific Suite J

Saturday, June 16

8:00 a.m.	2:00 p.m.	Publications Board Meeting	San Francisco Marriott Marquis	Golden Gate B
9:00 a.m.	12:00 p.m.	ABMLI Board Meeting	San Francisco Marriott Marquis	Juniper
11:00 a.m.	2:00 p.m.	Committee on Professional Affairs	San Francisco Marriott Marquis	Walnut
1:30 p.m.	4:00 p.m.	Branch Officers Forum	San Francisco Marriott Marquis	Club Room
2:00 p.m.	5:00 p.m.	ABMM Board Meeting	San Francisco Marriott Marquis	Willow
2:00 p.m.	4:00 p.m.	Joint Publications Board and ASM Press Advisory Committee	San Francisco Marriott Marquis	Golden Gate B
2:30 p.m.	4:30 p.m.	ASM Communications Committee Meeting	San Francisco Marriott Marquis	Foothill E

Sunday, June 17

7:00 a.m.	9:00 a.m.	JCM Editorial Board Meeting	San Francisco Marriott Marquis	Foothill F
10:00 a.m.	12:00 p.m.	Education Board Meeting	San Francisco Marriott Marquis	Foothill E
11:00 a.m.	1:45 p.m.	CPEP & Program Directors Meeting	San Francisco Marriott Marquis	Club Room
12:00 p.m.	2:00 p.m.	JB Editorial Board Meeting	San Francisco Marriott Marquis	Juniper
12:00 p.m.	2:00 p.m.	MicrobeLibrary Meeting	San Francisco Marriott Marquis	Willow
12:00 p.m.	3:00 p.m.	IAI Editors' Meeting	San Francisco Marriott Marquis	Walnut
1:00 p.m.	3:00 p.m.	Committee on Minority Education Meeting	San Francisco Marriott Marquis	Pacific Suite J
6:00 p.m.	9:00 p.m.	AEM Editors' Meeting	San Francisco Marriott Marquis	Foothill E

Monday, June 18

7:00 a.m.	8:00 a.m.	Meeting Committee on Diversity	San Francisco Marriott Marquis	Laurel
7:00 a.m.	9:00 a.m.	AEM Editorial Board Meeting	San Francisco Marriott Marquis	Club Room
7:00 a.m.	9:00 a.m.	IAI Editorial Board Meeting	San Francisco Marriott Marquis	Foothill G
8:00 a.m.	10:00 a.m.	Committee on Undergraduate Education Meeting	San Francisco Marriott Marquis	Willow
10:30 a.m.	12:30 p.m.	Committee on Agricultural and Food Microbiology	San Francisco Marriott Marquis	Foothill E
11:00 a.m.	1:00 p.m.	Committee on Microbiological Issues Impacting Minorities	San Francisco Marriott Marquis	Foothill F
12:30 p.m.	2:00 p.m.	Meeting of the Committee on Awards	San Francisco Marriott Marquis	Pacific Suite J
3:00 p.m.	4:30 p.m.	Committee on the Status of Women in Microbiology Open Forum Meeting	San Francisco Marriott Marquis	Foothill E
4:30 p.m.	6:30 p.m.	Committee on the Status of Women in Microbiology Reception	San Francisco Marriott Marquis	Club Room
5:30 p.m.	6:30 p.m.	ABMM/ABMLI Diplomate Reception	San Francisco Marriott Marquis	Foothill G

Tuesday, June 19

7:00 a.m.	10:00 a.m.	Committee on the Laboratory Practices	San Francisco Marriott Marquis	Walnut
12:00 p.m.	2:00 p.m.	Committee on Environmental Microbiology	San Francisco Marriott Marquis	Walnut
5:30 p.m.	7:30 p.m.	ASM Council Meeting	San Francisco Marriott Marquis	Golden Gate A

Award Laureates Presenting Lectures

ASM congratulates the 2012 General Meeting Award laureates and encourages General Meeting attendees to come and listen to their award lectures. The awards are listed alphabetically by day of presentation.

Sunday, June 17

ABMM/ABMLI Professional Recognition Award

Recognizes significant contributions to the professional recognition of clinical microbiologists and/or immunologists.

Session Name:
080. QUIZ BUSTERS: So You THINK You Know Microbiology! An Interactive Quiz *(See Page 62)*

3:00 p.m. – 5:30 p.m. | Esplande Ballroom 304

Award Lecturer:
L. Barth Reller; Duke University School of Medicine, Durham, NC

Lecture:
Enteric Epidemics: History Revisited and Lessons Learned

Lecture Time: 3:00 p.m.

bioMérieux Sonnenwirth Award for Leadership in Clinical Microbiology

Honors the promotion of innovation in clinical laboratory science, dedication to ASM, and the advancement of clinical microbiology as a profession.

Session Name:
007. Best Practices Antimicrobial Susceptibility Testing: An Update from CLSI *(See Page 51)*

8:15 a.m. – 10:45 a.m. | Esplanade Ballroom 304

Award Lecturer:
Susan E. Sharp; Kaiser Permanente Northwest, Oregon Health and Sciences University, Portland, OR

Lecture:
My Journey from a Medical Technologist to a Sonnenwirth Award Recipient: A Time to Remember... and Give Thanks

Lecture Time: 8:15 a.m.

asm2013 Awards Deadline July 1!

The deadline is fast approaching for awards to be presented at asm2013! To submit a nomination, please visit: http://bit.ly/2013gmawards. The deadline is July 1.

Carski Foundation Distinguished Undergraduate Teaching Award

Recognizes exceptional teaching of microbiology to undergraduate students.

Session Name:
078. New Data Shed New Light on Old Questions *(See Page 60)*

3:00 p.m. – 5:30 p.m. | Room 133

Award Lecturer:
Lilliam Casillas-Martinez; University of Puerto Rico-Humacao, Humacao, PR

Lecture:
Empowering Hispanics while Conducting Research in Geomicrobiology and Metagenomics

Lecture Time: 4:00 p.m.

GlaxoSmithKline International Member of the Year Award

Recognizes exemplary leadership in the international microbiology community.

Session Name:
003. Avoidance and Subversion of Host Cell Defenses by Intracellular Pathogens *(See Page 49)*

8:15 a.m. – 10:45 a.m. | Room 104

Award Lecturer:
Geoffrey L. Smith; University of Cambridge, Cambridge, UK

Lecture:
How does Vaccinia virus inhibit innate immune signaling?

Lecture Time: 9:15 a.m.

USFCC/J. Roger Porter Award

Honors the outstanding efforts of a scientist who has demonstrated the fundamentals of culture collections and related resources and the rich biodiversity that such collections preserve.

Session Name:
006. Who's Doing What in Microbial Communities *(See Page 50)*

8:15 a.m. – 10:45 a.m. | Esplanade Ballroom 305

Award Lecturer:
Stephen J. Giovannoni; Oregon State University, Corvallis, OR

Lecture:
Expanding the Boundaries of the Cultured Microbial World

Lecture Time: 10:15 a.m.

Monday, June 18

BD Award for Research in Clinical Microbiology

Honors research accomplishments that form the foundation for important applications in clinical microbiology.

Session Name:
093. Diagnostic and Therapeutic Implications of Novel Mechanisms of Resistance *(See Page 70)*

8:15 a.m. – 10:45 a.m. | Esplanade Ballroom 309

Award Lecturer:
Patrice Courvalin; Insitut Pasteur, Paris, France

Lecture:
The Failure Story of Vancomycin-resistant *S. aureus*

Lecture Time: 10:15 a.m.

Eli Lilly and Company Research Award

Recognizes fundamental research of unusual merit in microbiology or immunology.

Session Name:
089. Microbes Trigger and Shape Immunity *(See Page 68)*

8:15 a.m. – 10:45 a.m. | Room 104

Award Lecturer:
Akiko Iwasaki; Yale University, New Haven, CT

Lecture:
Antiviral Immunity at Mucosal Surfaces

Lecture Time: 8:15 a.m.

Gen-Probe Joseph Public Health Award

Honors exemplary leadership and service in the field of public health.

Session Name:
147. The Continuing Plague of Foodborne-associated Outbreaks *(See Page 74)*

3:00 p.m. – 5:30 p.m. | Esplanade Ballroom 304

Award Lecturer:
I. Kaye Wachsmuth; International Public Health Consultant, DeLand, FL

Lecture:
Foodborne Illness and Microbial Risk

Lecture Time: 3:00 p.m.

Tuesday, June 19

Maurice Hilleman/Merck Award

Honors major contributions to vaccinology.

Session Name:
090. One Health: Humans, Animals and the Environment *(See Page 68)*

8:15 a.m. – 10:45 a.m. | Room 103

Award Lecturer:
Myron M. Levine; University of Maryland School of Medicine, Baltimore, MD

Lecture:
Vaccines to Prevent Emerging Invasive *Salmonella* Infections of Humans

Lecture Time: 9:15 a.m.

Promega Biotechnology Research Award

Honors distinguished contributions to the application of biotechnology through fundamental microbiological research and development.

Session Name:
154. Expanding the Metabolic Blueprint *(See Page 78)*

3:00 p.m. – 5:30 p.m. | Esplanade Ballroom 310

Award Lecturer:
Bernhard Palsson; University of California, San Diego, CA

Lecture:
Microbial Metabolic Systems Biology

Lecture Time: 5:00 p.m.

Abbott-ASM Lifetime Achievement Award

ASM's premier award for sustained contributions to the microbiological sciences.

Session Name:
168. Screening and Surveillance for Antibiotic Resistance: Global, Local and Bedside Considerations *(See Page 86)*

8:15 a.m. – 10:45 a.m. | Esplanade Ballroom 306

Award Lecturer:
Stuart B. Levy; Tufts University School of Medicine, Boston, MA

Lecture:
Predicting the Future for Antibiotics

Lecture Time: 10:15 a.m.

Procter & Gamble Award in Applied and Environmental Microbiology

Recognizes distinguished achievement in research and development in applied and environmental microbiology.

Session Name:
087. Biogeochemical Cycling: Past, Present and Future *(See Page 67)*

8:15 a.m. – 10:45 a.m. | Esplanade Ballroom 305

Award Lecturer:
Bess Ward; Princeton University, Princeton, NJ

Lecture:
Microbial Nitrogen Transformations Control the Ocean N Budget: Perspectives on Nitrate Consumption in Surface and Low Oxygen Waters

Lecture Time: 8:45 a.m.

D.C. White Research and Mentoring Award

Recognizes distinguished accomplishments in interdisciplinary research and mentoring in microbiology.

Session Name:
160. Small Words, Big Impact: Intercellular Communication Among Bacteria *(See Page 81)*

3:00 p.m. – 5:30 p.m. | Esplanade Ballroom 305

Award Lecturer:
E. Peter Greenberg; University of Washington School of Medicine, Seattle, WA

Lecture:
Acyl-homoserine Lactone Quorum Sensing and Bacterial Cooperation

Lecture Time: 3:00 p.m.

Abbott Award in Clinical and Diagnostic Immunology

Recognizes outstanding contributions in clinical or diagnostic immunology.

Session Name:
222. Immunological Tools and Biomarkers for Infectious Diseases *(See Page 91)*

3:00 p.m. – 5:30 p.m. | Esplanade Ballroom 309

Award Lecturer:
Bruce S. Rabin; University of Pittsburgh, University of Pittsburgh Medical Center, Pittsburgh, PA

Lecture:
The Contribution of "YOU" to Your Immunological Health: Positive or Negative

Lecture Time: 5:00 p.m.

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Award Laureates Not Presenting

The award laureates below should also be congratulated. These awards do not include a lecture presentation.

ASM Founders Distinguished Service Award

Recognizes a member for outstanding contributions and commitment to the ASM as a volunteer at the national level.

Ellen Jo Baron
Stanford University School of Medicine
Stanford, CA

ASM Graduate Microbiology Teaching Award

Honors exemplary teaching of microbiology and mentoring of graduate and postgraduate students.

Joanna B. Goldberg
University of Virginia
Charlottesville, VA

ASM Public Communications Award

Recognizes outstanding achievement in increasing public awareness, knowledge and understanding of microbiology.

Jon Cohen
Science Magazine
Washington, DC

Martin Enserink
Science Magazine
Washington, DC

William A. Hinton Research Training Award

Recognizes exceptional contributions toward fostering the research training of underrepresented minorities in microbiology.

LaJoyce H. Debro
Jacksonville State University
Jacksonville, AL

Roche Diagnostics Alice C. Evans Award

Recognizes sustained contributions toward the full participation and advancement of women in microbiology.

Micah I. Krichevsky
Bionomics International
Wheaton, MD

Merck Irving S. Sigal Memorial Awards

Honor basic research excellence in medical microbiology and infectious diseases.

Joseph D. Mougous
University of Washington
Seattle, WA

Anthony Richardson
University of North Carolina Chapel Hill School of Medicine
Chapel Hill, NC

Raymond W. Sarber Awards

Honor undergraduate and predoctoral students for research excellence and potential.

Jeff Chen
University of California
Davis, CA

Sandeep Kishore
Harvard Medical School
Boston, MA

Scherago-Rubin Award

Recognizes a stellar, bench-level clinical microbiologist.

Brent Barrett
Indiana State Department of Health
Indianapolis, IN

Moselio Schaechter Distinguished Service Award

Honors exemplary leadership and commitment towards the furthering of the profession of microbiology in research, education or technology in the developing world.

Jayaraman Gowrishankar
Centre for DNA Fingerprinting & Diagnostics
Hyderabad, India

Siemens Healthcare Diagnostics Young Investigator Award

Honors outstanding applied research in clinical microbiology or antimicrobial therapy.

Aaron R. Jex
The University of Melbourne
Victoria, Australia

Membership Board 2012 Career Development Grants For Postdoctoral Women Awardees

Magdia De Jesus
Wadsworth Center
New York State Department of Health
Albany, NY

Nikki Dellas
Montana State University
Bozeman, MT

Katherine S. Ralston
University of Virginia
Charlottesville, VA

American Academy of Microbiology

RECOGNIZING SCIENTIFIC EXCELLENCE

American Academy of Microbiology Fellows are invited to come enjoy the **Academy Lounge** in **Room 125** of the convention center. In the lounge you may meet and mingle with other Academy Fellows and Academy Staff. The lounge will be open on Sunday and Monday from 7:00 a.m. to 5:00 p.m. and on Tuesday from 7:00 a.m. to 3:00 p.m. Be sure to stop by!

The American Academy of Microbiology is honored to welcome the following 80 new Fellows, elected in recognition of their records of scientific achievement and original contributions that have advanced microbiology. These new Fellows will be honored at the annual Fellows Luncheon and Meeting, held Tuesday, June 19 at 11:45 a.m., in a hotel near the convention center. If you're an Academy Fellow, stop by the lounge for more details or to pick up an invitation.

James B. Anderson; University of Toronto, Mississauga, ON, Canada

Dan I. Andersson; Uppsala University, Sweden

Raul Andino; University of California, San Francisco, CA

Brenda J. Andrews; University of Toronto, BC, Canada

Charles Barlowe; Dartmouth Medical School, Hanover, NH

Joel B. Baseman; University of Texas Health Science Center, San Antonio, TX

Ruth L. Berkelman; Emory University, Atlanta, GA

Robert E. Blankenship; Washington University, St. Louis, MO

James B. Bliska; Stony Brook University, Stony Brook, NY

Kerry S. Bloom; University of North Carolina, Chapel Hill, NC

Jef D. Boeke; Johns Hopkins School of Medicine, Baltimore, MD

Charles M. Boone; University of Toronto, BC, Canada

Stephen Buratowski; Harvard Medical School, Boston, MA

George Church; Harvard Medical School, Boston, MA

Daniel G. Colley; University of Georgia, Athens, GA

Patricia A. Conrad; University of California, Davis, CA

Ross E. Dalbey; Ohio State University, Columbus, OH

Roger J. Davis; Howard Hughes Medical Institute and University of Massachusetts Medical School, Worcester, MA

Piet A.J. de Boer; Case Western Reserve University School of Medicine, Cleveland, OH

Mark R. Denison; Vanderbilt University Medical Center, Nashville, TN

Shou-Wei Ding; University of California, Riverside, CA

Jonathan Eisen; University of California, Davis, CA

Luis Enjuanes; National Center of Biotechnology-Spanish National Research Council (CNB-CSIC), Campus Universidad Autonoma, Madrid, Spain

Tom Fenchel; University of Copenhagen, Denmark

Robert L. Garcea; University of Colorado, Boulder, CO

Reid Gilmore; University of Massachusetts Medical School, Worcester, MA

Douglas T. Golenbock; University of Massachusetts Medical School, Worcester, MA

Robert M. Goodman; School of Environmental and Biological Sciences, Rutgers University, New Brunswick, NJ

Daniel E. Gottschling; Fred Hutchinson Cancer Research Center, Seattle, WA

Glenda Gray; Perinatal HIV Research Unit, Baragwanath Academic Hospital, Soweto and University of the Witwatersrand, Johannesburg, South Africa

F. Ulrich Hartl; Max Planck Institute of Biochemistry, Martinsried, Germany

Regine Hengge; Freie Universität Berlin, Berlin, Germany

John E. Heuser; Washington University, St. Louis and Kyoto University, Japan

Wolf-Dietrich Heyer; University of California, Davis, CA

Edward A. Hoover; Colorado State University, Fort Collins, CO

Barbara J. Howlett; The University of Melbourne, Melbourne, Australia

Philip Hugenholtz; University of Queensland, St. Lucia, Australia

James M. Hughes; Emory University School of Medicine, Atlanta, GA

Eric Hunter; Emory University, Atlanta, GA

Regine Kahmann; Max Planck Institute for Terrestrial Microbiology, Marburg, Germany

Albert Z. Kapikian; NIAID, NIH, Bethesda, MD

Patrick Keeling; University of British Columbia, Vancouver, Canada

Karla Kirkegaard; Stanford University, Stanford, CA

Eugene V. Koonin; NCBI, NLM, NIH, Bethesda, MD

Thomas M. Kristie; National Institutes of Health, Bethesda, MD

Nirbhay Kumar; Tulane University, New Orleans, LA

Ching Kung; University of Wisconsin, Madison, WI

Jean-Paul Latge; Institut Pasteur, Paris, France

Jeffrey G. Lawrence; University of Pittsburgh, Pittsburgh, PA

Jared R. Leadbetter; California Institute of Technology, Pasadena, CA

Maxine L. Linial; Fred Hutchinson Cancer Research Center, Seattle, WA

Alison McBride; NIH, Bethesda, MD

Xiang-Jin Meng; Virginia Polytechnic Institute and State University, Blacksburg, VA

Hiroaki Mitsuya; National Cancer Institute, NIH, Bethesda, MD

Edward Mocarski; Stanford University School of Medicine, Stanford, CA

Jens Nielsen; Chalmers University of Technology, Gothenburg, Sweden

Victor Nizet; University of California, San Diego, CA

Paul A. Offit; Children's Hospital of Philadelphia, Philadelphia, PA

Joseph S. Pagano; University of North Carolina, Chapel Hill, NC

Julian Parkhill; The Sanger Institute, Cambridge, United Kingdom

Robin Patel; Mayo Clinic, Rochester, MN

John T. Patton; NIAID, NIH, Bethesda, MD

Martin Polz; Massachusetts Institute of Technology, Cambridge, MA

Markus Ribbe; University of California, Irvine, CA

Naomi Rosenberg; Tufts University, Boston, MA

Eric J. Rubin; Harvard School of Public Health, Boston, MA

Peter Sarnow; Stanford University School of Medicine, CA

Christa M. Schleper; University of Vienna, Vienna, Austria

Olaf Schneewind; University of Chicago, Chicago, IL

David M. Serwadda; Makerere University School of Public Health, Kampala, Uganda

Eric J. Snijder; Leiden University Medical Center, Netherlands

Roger E. Summons; Massachusetts Institute of Technology, Cambridge, MA

Michele S. Swanson; University of Michigan Medical School, Ann Arbor, MI

Rudolf K. Thauer; Max Planck Institute for Terrestrial Microbiology, Marburg, Germany

Kenneth L. Tyler; University of Colorado School of Medicine, Denver, CO

Rytas Vilgalys; Duke University, Durham, NC

Peter R. Williamson; NIAID, NIH, Bethesda, MD

Thomas A. Wynn; NIAID, Bethesda, MD

X. Sunney Xie; Harvard University, Cambridge, MA

Arturo Zychlinsky; Max Planck Institute for Infection Biology, Berlin, Germany

For information about election to the Fellowship in the American Academy of Microbiology, please visit: **http://academy.asm.org/.**

Funds are provided by The American Society for Microbiology

2011–2013 ASM/CDC Postdoctoral Research Fellows

Angela Bosco-Lauth, CDC, Fort Collins
Xiangyu Deng, CDC, Atlanta
Janna Futch, CDC, Atlanta
Tammi Johnson, CDC, Fort Collins
Joan Kenney, CDC, Fort Collins
Luke Kingry, CDC, Fort Collins
Theodros Tsegaye, CDC, Atlanta
Jacklyn Wong, CDC, Atlanta

2010–2012 ASM/CDC Postdoctoral Research Fellows

Sheila Akinyi, CDC, Atlanta
Haileeyesus Belay, CDC, Atlanta
Shaw Gargis, CDC, Atlanta
Sean Griffing, CDC, Atlanta
Segundo Lascano, CDC, Atlanta
Shannon McNulty, CDC, Atlanta
Janice Van Zee, CDC, Fort Collins

2009–2011 ASM/CDC Postdoctoral Research Fellows

Sarah Billeter, CDC, Fort Collins
Bethany Bolling, CDC, Fort Collins
Tracy Hazen, CDC, Atlanta
Nnaemeka Iriemenam, CDC, Atlanta
Ryan Jones, CDC, Fort Collins
Michael Lo, CDC, Atlanta
Troy Querec, CDC, Atlanta
Tara Randolph-Henning, CDC, Atlanta
Todd Smith, CDC, Atlanta

2011–2014 ASM Robert D. Watkins Graduate Research Fellows

Corrie Ortega, University of Washington
Jennnifer Juarez*, University of Texas Health Science Center at Houston
Nana Wilson, Morehouse School of Medicine
Sophonie Jean, Virginia Commonwealth University
Rodrigo Gonzalez*, University of North Carolina at Chapel Hill
Alexis Valentin-Vargas*, The University of Arizona
Khavong Pha, University of California, Davis

2011–2014 ASM Robert D. Watkins Graduate Research Fellows — Honorable Mentions

Carmen Dickinson, Morehouse School of Medicine
Alexander King, University of California, Davis
Kelechi Chikere, University of California, Los Angeles

2010–2013 ASM Robert D. Watkins Graduate Research Fellows

Jennifer Abrams*, University of Texas Health Science Center at Houston
Shandee Dixon*, University of Michigan Medical School
Matthew Gaynor*, The University of Texas at El Paso
Jeremy Gilbreath*, Uniformed Services University
Alisa Lehman*, Stanford University
Nyree Maes, Yale University
Ekaette Mbong*, University of Alabama

2010–2013 ASM Robert D. Watkins Graduate Research Fellows — Honorable Mentions

Greetchen Diaz, The Ohio State University
Rodrigo Gonzalez, University of North Carolina at Chapel Hill
Jennfier Juarez, University of Texas Health Science Center at Houston
Caleb McKinney, NYU Sackler Institute of Biomedical Sciences
Marcus Rushing, University of Illinois at Urbana-Champaign
Emi Sei, UT Southwestern Medical Center

2009–2012 ASM Robert D. Watkins Graduate Research Fellows

Tawanna Childs, University of Massachusetts, Amherst
Jasmine Clark*, Emory University
Emilee Colon, University of Puerto Rico-Medical Sciences Campus
Pascale Guiton*, Washington University in St. Louis
Camille Hardiman*, Yale University
Shandra Justicia Leon*, Georgia Institute of Technology

2009–2012 ASM Robert D. Watkins Graduate Research Fellows — Honorable Mentions

James Kelley, John A. Burns School of Medicine
Alisa Lehman, Stanford University
Karyna Rosario, University of South Florida
Maria Vizcaino, Medical University of South Carolina

2008–2011 Robert D. Watkins Graduate Research Fellows

Felicia Barriga, Yale University
Joyce Cueto*, University of California, Berkeley
Barbara Juncosa*, The Rockefeller University
Jose Ramirez, The Johns Hopkins Bloomberg School of Public Health
Christopher Williams*, Georgetown University

2008–2011 ASM Robert D. Watkins Graduate Research Fellows — Honorable Mentions

Amaya Garcia Costas, The Pennsylvania State University
Tawanna Childs, University of Massachusetts, Amherst
Lawrence David, Massachusetts Institute of Technology
Enrique Durand, Tufts University

2011 ASM Undergraduate Research Fellows

Nazrin Abd Aziz, Rochester Institute of Technology
William Adkins, Louisiana State University
Selime Aksit*, Drew University
Kartika Angriani, University of West Georgia
Jonathan Barrett, James Madison University
Kathryn Barretto*, California State University, Fresno
Andrea Binnebose*, Marian University
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Clarissa Dubie, Susquehanna University
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Josiah Gerber*, Indiana University Purdue University Fort Wayne
Matthew Goulet, Providence College
Lory Henderson, University of New Mexico
David Huang*, Carnegie Mellon University
Katherine Hummels*, University of Iowa
Fernanda Jimenez Otero, Western Michigan University
Nathan Kahre, East Tennessee State University
Megan Kelly*, Washington University in St. Louis
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Talia Lester, University of California, Los Angeles
Kevin Lewis, The University of Arizona
Caroline Linke*, The Ohio State University
Aaron Louie, University of California, San Diego
Lena Lupey, Saint Joseph's University
Scott Mellon, Lafayette College
Jarett Miller*, Keene State College
Mary Ojukwu, University of Connecticut
Neil Patel*, Pace University
Alyxandra Pikus*, University of Richmond
Daniel Simon*, University of Kansas
Megan Treadwell*, Florida Agricultural & Mechanical University
Sonia Trevino-Dopatka*, University of Wisconsin
Nhat Trinh, University of Illinois at Urbana-Champaign
Douglas Zuill*, Point Loma Nazarene University

2012 ASM Undergraduate Research Capstone

Miles Black, Washington University, St. Louis
Joshua Brown, University of West Florida
Stephanie DeLeon, South Plains College
Jordan Krebs, Lycoming College
Alexandra Lopez, Interamerican University of Puerto Rico
Maria Ortiz, California State University, Long Beach

* Institution participated in Education Board Fellowship Cost Sharing Program

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Nicole Tarlton

DIVISION X
Greetchen Diaz

DIVISION Y
Felix Botchway
Tyler Nelson
Wenfei Wang

DIVISION Z
Yu Pan
Katie Smith
Samantha Terhorst

DIVISION AA
Ebot Tabe

RICHARD AND MARY FINKELSTEIN AWARDS
Melissa Anderson
Adam Caulfield
Shandee Dixon
Kristen Lokken
Mary Moore
Derrick Samuelson

GISELA MOSIG AWARD (DIVISION M)
Meng-Lun Hsieh

NESTLE PHAGE AWARD (DIVISION M)
Nhi Khuong
Sho Yano

GUT CHECK FOUNDATION AWARD
Saeed Banawas
Andrew Karalewitz
Jordan Mar

DIVISION G SPONSORED TRAVEL GRANT AWARD
Kishore Das
Jayodita Sanghri

OUTSTANDING STUDENT POSTER
Nancy Allard
Aaron Au
Dongryeoul Bae
Aleigh Beahm
Stephanie Bouley
Todd Cameron
Holly Cardoso
Adam Caulfield
Chi Chan
Alison Conrad
Søren Damkiær
Livia Da-Silva
Raluca Datcu
Greetchen Diaz
Alex Emch
Devon Fitzgerald
Mahbod Hajighasemi
Yosuke Harada
Laura Hug
Brandon Iker
Dazhi Jin
Nhi Khuong
JuHee Kim
Aaron Louie
Aimee Marceau
Natacha Martins
Mary Moore
Donald Pan
Blair Paul
Srisombat Puttikamonkul
Chao Ran
Rebecca Renberg
Alexandra Salvador
Gregoire Seyrig
Adam Spaulding
Alexander Speer
Ebot Tabe
Parameth Thiennimitr
Seiji Yamasaki
Xiaomin Yu

ABMM and ABMLI Announce Newly Certified Microbiologists

The American Board of Medical Microbiology (ABMM) certifies the expertise of doctoral-level microbiologists seeking to direct public health or clinical microbiology laboratories. The American Board of Medical Laboratory Immunology (ABMLI) certifies the expertise of doctoral-level immunologists seeking to direct laboratories engaged in the practice of medical laboratory immunology. ABMM and ABMLI certifications are recognized by federal and state governmental agencies as significant components toward meeting licensure requirements to direct laboratories engaged in the microbiological diagnosis of human disease. They are recognized under the Clinical Laboratory Improvement Amendments of 1988 final rule and in all 12 states that require licensure.

To learn more about the ABMM and ABMLI and how to certify your worth, visit **www.microbiologycert.org.**

The American Board of Medical Microbiology (ABMM) is pleased to welcome the following newly certified Diplomates:

April Abbott; University of Washington, Seattle, WA

Sameera Al Johani; King Saud Bin Abdulaziz University for Health Science and King Abdulaziz Medical City, Riyadh, Saudi Arabia

Adnan Alatoom; University of Texas Southwestern Medical Center, Dallas, TX

Lei Ang; Royal Inland Hospital, Interior Health Authority, British Columbia, Canada

Robin Chamberland; Saint Louis University, St. Louis, MO

Wilson Chan; Calgary Laboratory Services, Calgary, Alberta, Canada

Marc Roger Couturier; University of Utah, Salt Lake City, UT

Anand Deshmukh; Hamad Medical Corporation, Doha, Qatar

Syeda Nusheen Fathima; Premier Diagnostics, Dubai, United Arab Emirates

Deepjyoti Gadre; Hendrick Regional Laboratory, Hendrick Medical Center, Abilene, TX

Nicole M. Green; Los Angeles County Department of Public Health, Downey, CA

Romney M. Humphries; UCLA David Geffen School of Medicine, Los Angeles, CA

Stefan Juretschko; Kaleida Health Center for Laboratory Medicine, Williamsville, NY

Pankaj Lal; University Hospital Aintree NHS Foundation Trust and Walton Neurology & Neurosurgery Centre NHS Trust, Liverpool, United Kingdom

Alexander McAdam; Children's Hospital Boston, Boston, MA

Vellore P. Mohan; Osceola Regional Medical Center, Kissimmee, FL

Nicole Parrish; Johns Hopkins School of Medicine, Baltimore, MD

Nira Pollock; Harvard Medical School and Beth Israel Deaconess Medical Center, Boston, MA

Sharon Reed; UCSD School of Medicine, San Diego, CA

Ryan Saffert; Beckman Coulter, Inc., Chaska, MN

Audrey Schuetz; Weill Cornell Medical College and New York-Presbyterian Hospital, New York, NY

Ebtehal Soliman; United Doctors Hospital, Jeddah, Saudi Arabia

Hiroshi Takahashi; East-West Diagnostics/Theranostics, LLC, San Francisco, CA, Tokyo, Japan

Susan M. Novak-Weekley; SCPMG Regional Reference Laboratories, North Hollywood, CA

Dongxiang Xia; Virginia Department of Health, Manassas, VA

The American Board of Medical Laboratory Immunology (ABMLI) is pleased to welcome the following newly certified Diplomates:

Mohamed M. Elrefaei; Puget Sound Blood Center, Seattle, WA

Ashraf E. Hassaballa; University of Kansas Medical Center, Kansas City, KS

Aaruni Khanolkar; University of Utah, Salt Lake City, UT

Evangelos Ntrivalas; Rosalind Franklin University of Medicine and Science, North Chicago, IL

Mark T. Preissler; Albany Medical Center, Albany, NY

Chong Wang; Covance Central Laboratory Services, Inc., Indianapolis, IN

International Exchange Programs and Grants

Millis-Colwell Exchange Program for Early Career Scientists

Funded jointly by ASM and the Australian Society for Microbiology, this grant enables one member from each society to present an abstract at the annual General Meeting of the other society and to spend a week at a nearby research laboratory.

Lee Hudek; Centre for Cellular and Molecular Biology, Deakin University, Burwood, Australia

Poster Session—Board #2597

188. Microbes and Metals (Division Q)

Tuesday, June 19 I 10:45 a.m. – 12:30 p.m.

Carlyn Halde Latin American Student Travel Grant

This travel grant, administered in collaboration with the Medical Mycological Society of the Americas, supports the travel of a medical microbiologist from Latin America, Puerto Rico or the Caribbean to present an abstract and participate in the ASM General Meeting.

María M. González Dávila; University of Puerto Rico, Rio Piedras, PR

Poster Session—Board #2362

178. Clinical Mycology—Diagnosis, Treatment and Epidemiology (Division F)

Tuesday, Jun19 I 10:45 a.m. – 12:30 p.m.

asm2012

112th General Meeting | American Society for Microbiology
June 16–19, 2012 | San Francisco, California

Shuttle Service to Moscone Center

Complimentary shuttle service is provided between the Moscone Center and select official asm2012 hotels as listed on this flyer. Signs will be posted in the lobby of each shuttle hotel. Please check the sign in your hotel lobby for additional information and changes.

Hotels and Boarding Locations

Route #1	Boarding Location
5. Hilton Union Square	Curbside on Taylor
6. Holiday Inn Civic Center	Curbside on 8th St.
7. Hotel Monaco (Kimpton)	Across the street on Geary
8. Hotel Nikko San Francisco	At Hilton Union Square
10. Hotel Whitcomb	At Holiday Inn Civic Center
12. King George Hotel	At Hilton Union Square
20. Serrano Hotel (Kimpton)	At Hilton Union Square

Route #2	Boarding Location
2. Galleria Park Hotel	At Palace Hotel
3. Grand Hyatt	At Westin St. Francis
4. Handlery Union Square Hotel	At Westin St. Francis
14. Marriott Union Square	At Westin St. Francis
16. Palace Hotel	Curbside on New Montgomery
21. Sir Francis Drake Hotel (Kimpton)	At Westin St. Francis
23. Westin St. Francis	Curbside on Post

Walk Hotels

The following hotels are located within walking distance of Moscone Center, therefore, shuttle service is not provided.

1. Courtyard Marriott Downtown San Francisco
9. Hotel Palomar (Kimpton)
11. InterContinental San Francisco
13. Marriott Marquis San Francisco
15. The Mosser Hotel
17. Parc 55 Wyndham San Francisco Union Square
18. The Pickwick Hotel
19. The Powell Hotel
22. W San Francisco

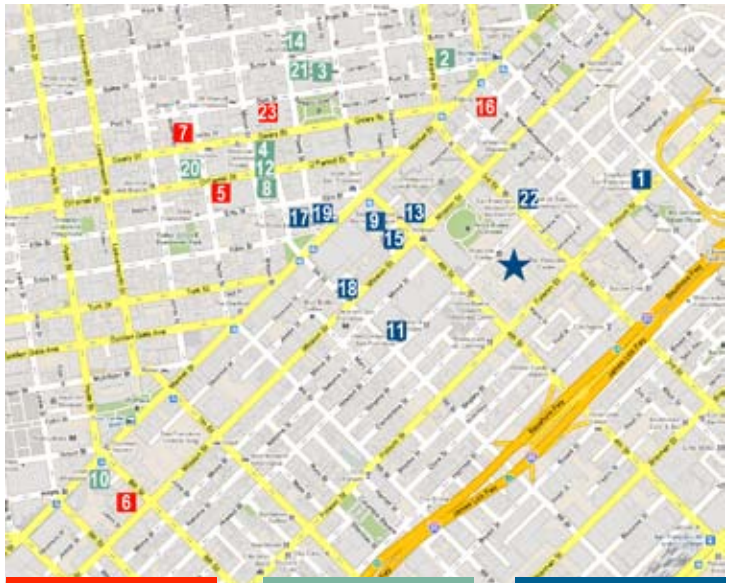
Shuttle Hours

Service every 15-20 minutes at all times

Friday, June 15	
11:00 a.m. – 4:15 p.m.	To/from hotels & Moscone
4:15 p.m. – 5:00 p.m. *	From Moscone to hotels
Saturday, June 16	
7:30 a.m. – 8:45 p.m.	To/from hotels & Moscone
8:45 p.m. – 9:30 p.m. *	From Moscone to hotels
Sunday, June 17	
7:00 a.m – 6:15 p.m.	To/from hotels & Moscone
6:15 p.m. – 7:00 p.m. *	From Moscone to hotels
Monday, June 18	
7:00 a.m. – 6:15 p.m.	To/from hotels & Moscone
6:15 p.m. – 7:00 p.m. *	From Moscone to hotels
Tuesday, June 19	
7:00 a.m. – 5:30 p.m.	To/from hotels & Moscone
5:30 p.m. – 6:30 p.m. *	From Moscone to hotels

* Indicates time last shuttle departs Moscone Center returning to hotels. Last shuttle departs hotels coming to Moscone Center as outlined above.

Hotel Map and Boarding Locations



Red denotes shuttle boarding location

Green denotes walk to one of the shuttle locations

Blue denotes walk to Moscone Center

If you have questions about the shuttle or if you need to make a reservation for a wheelchair-accessible shuttle please see the shuttle supervisor at Moscone Center or call KUSHNER & ASSOCIATES at (310) 274-8819 ext. 213.

1. **Hilton San Francisco Union Square**
   Headquarters
   333 O'Farrell Street
   San Francisco, CA 94102
   (415) 771-1400

2. **Marriott Marquis San Francisco**
   Headquarters
   55 4th Street
   San Francisco, CA 94103
   (415) 896-1600

3. **Courtyard**
   299 Second Street
   San Francisco, CA 94105
   (415) 947-0700

4. **Galleria Park Hotel**
   191 Sutter Street
   San Francisco, CA 94104
   (415) 781-3060

5. **Grand Hyatt**
   345 Stockton Street
   San Francisco, California 94108
   (415) 398-1234

6. **Handlery Union Square Hotel**
   351 Geary Street
   San Francisco, CA 94102
   (415) 781-7800

7. **Holiday Inn Civic Center**
   50 8th St
   San Francisco, CA
   (415) 626-6103

8. **Hotel Nikko San Francisco**
   222 Mason Street
   San Francisco, CA
   (415) 394-1111

9. **Hotel Palomar (Kimpton)**
   12 4th St
   San Francisco, CA
   (415) 348-1111

10. **Hotel Whitcomb**
    1231 Market Street
    San Francisco, CA
    (415) 487-4414

11. **InterContinental San Francisco**
    888 Howard Street
    San Francisco, CA
    (866) 781-2364

12. **King George Hotel**
    334 Mason Street
    San Francisco, CA
    (415) 781-5050

13. **Marriott Union Square San Francisco**
    480 Sutter Street
    San Francisco, CA
    (415) 398-8900

14. **Hotel Monaco (Kimpton)**
    501 Geary Street
    San Francisco, CA
    (415) 292-0100

15. **The Mosser Hotel**
    54 4th Street
    San Francisco, CA
    (415) 986-4400

16. **Palace Hotel**
    2 New Montgomery Street
    San Francisco, CA
    (415) 512-1111

17. **Parc 55 Wyndham San Francisco Union Square**
    55 Cyril Magnin Street
    San Francisco, CA
    (415) 392-8000

18. **The Pickwick Hotel**
    85 5th Street
    San Francisco, CA
    (415) 421-7500

19. **The Powell Hotel**
    28 Cyril Magnin Street
    San Francisco, CA
    (415) 398-3200

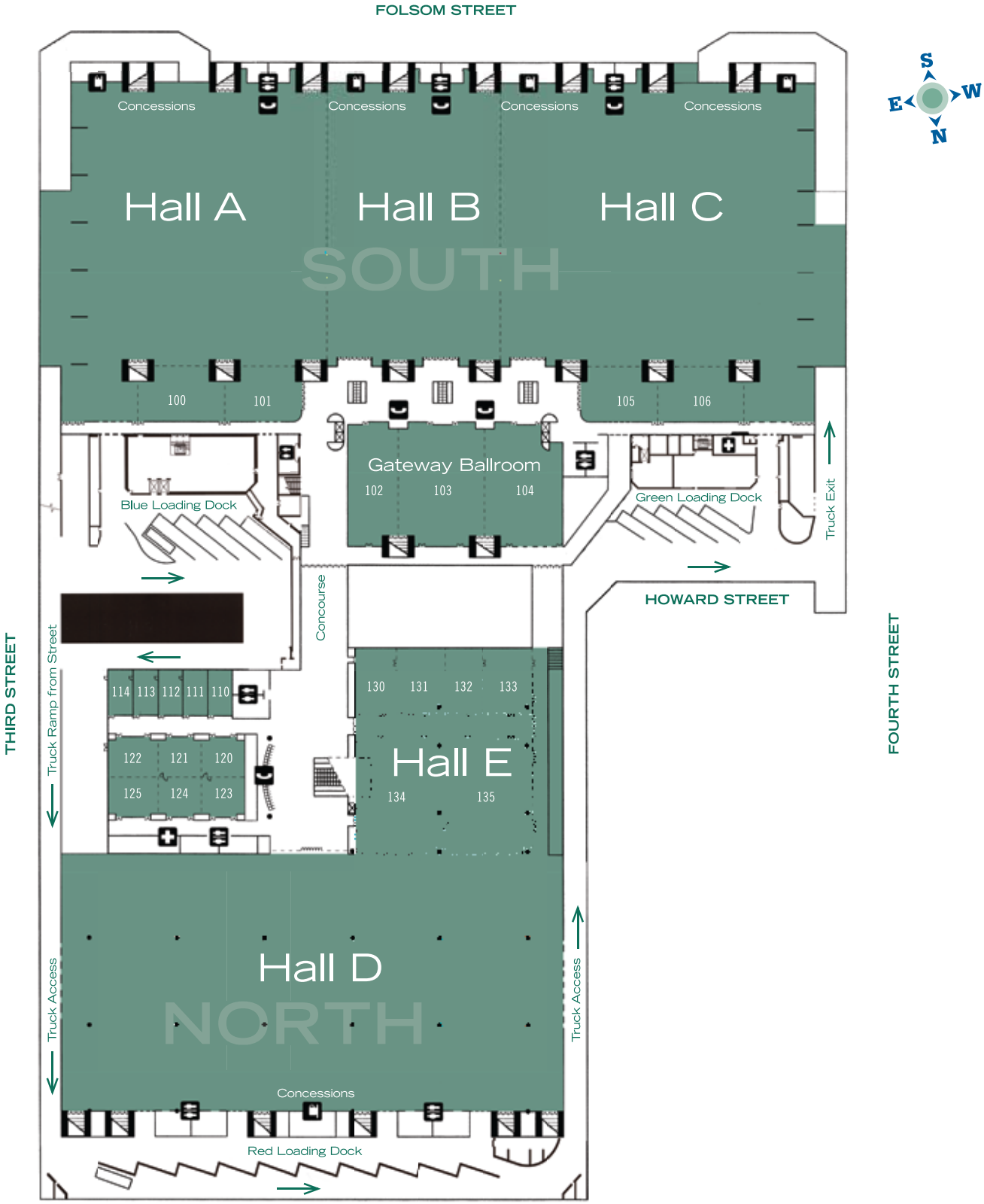
20. **Serrano Hotel (Kimpton)**
    405 Taylor Street
    San Francisco, California
    (866) 289-6561

21. **Sir Frances Drake Hotel (Kimpton)**
    450 Powell Street
    San Francisco, CA
    (415) 392-7755

22. **W San Francisco**
    181 3rd Street
    San Francisco, CA
    (415) 777-5300

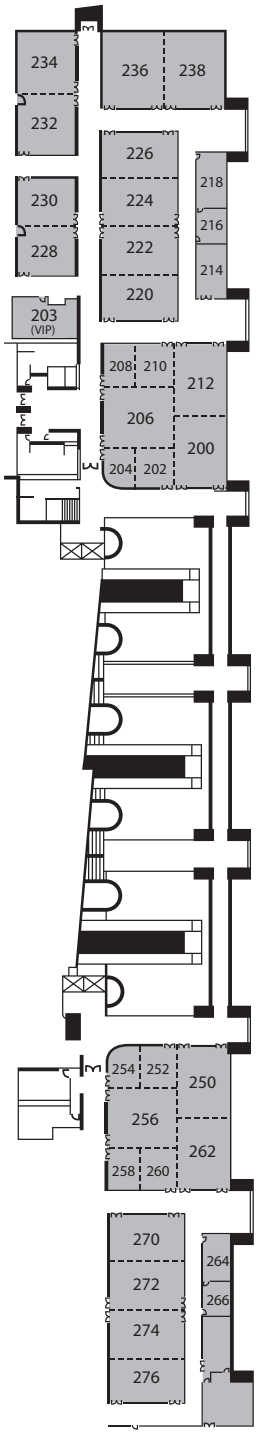
23. **Westin St. Francis**
    335 Powell Street
    San Francisco, CA
    (415) 397-7000

EXHIBIT LEVEL



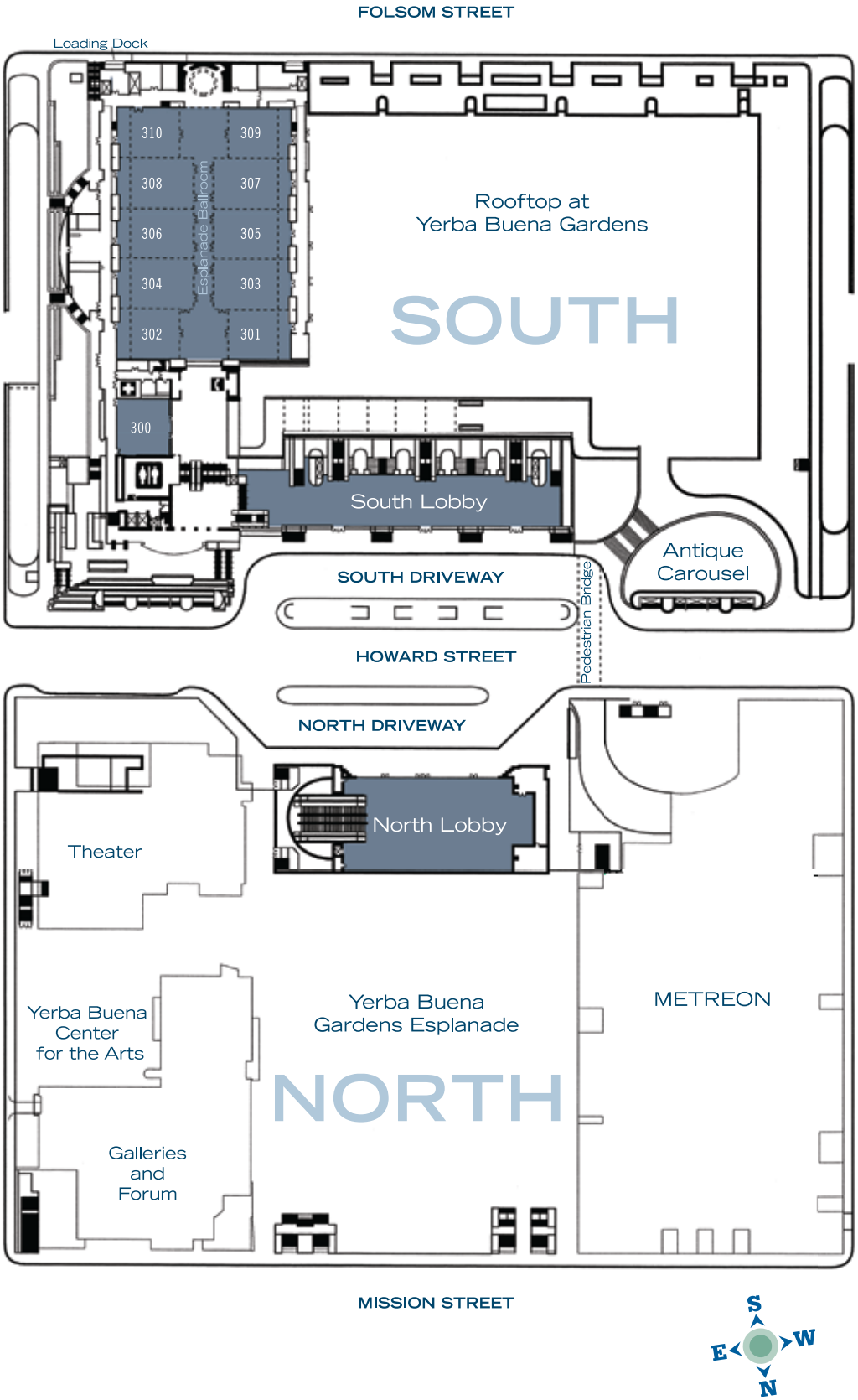
MEZZANINE LEVEL

EAST



WEST

ESPLANADE LEVEL



Americans with Disabilities Act

Special Services at Moscone North and South

Persons requiring special services at the convention center (wheelchair-accessible transportation, sign interpreters, etc.) are asked to stop by ASM Headquarters in Room 220. Since requests were due as part of the registration process, on-site requests will be fulfilled based on availability.

ATM

There is an ATM located in Moscone North near the entrance to Hall D, and one in Moscone South outside of Hall B.

Badge Policies

Badges must be picked up at Registration in Moscone North Lobby. Photo ID is required. For security reasons, all attendees are required to wear their badge for entry into session rooms. Please note that badges are the property of ASM and must be relinquished at any time at the discretion of ASM staff.

Workshop Only Badges

- Access to only the workshops they are registered for

Attendee Badges

- Access into all scientific sessions
- Access to the Opening Reception and ASM Live
- Access to the Exhibit Hall and Poster Sessions
- Unlimited use of the courtesy shuttle
- Continuing education credit

Guest Badges

- Access to the Exhibit Hall and Poster Sessions
- Unlimited use of the courtesy shuttle
- May attend the Opening Session and Reception
- Attendees wearing guest badges will **not** be permitted into scientific session rooms

One-Day Badges

- Access into all scientific sessions for the day printed on badge
- Access to the Exhibit Hall and Poster Sessions
- Unlimited use of the courtesy shuttle

Exhibits Only Badges

- Access to the Exhibit Hall and Poster Sessions
- Unlimited use of the courtesy shuttle
- Attendees wearing exhibits only badges will not be permitted into scientific session rooms

Exhibitor Badges

- Entrance into the Exhibit Hall during installation and dismantling hours
- Entrance into the Hall one hour before the Hall opens and one hour after it closes
- Unlimited use of the courtesy shuttle
- Attendees wearing exhibitor badges will not be permitted into scientific session rooms

Press Badges

- Access into all scientific sessions
- Access to the Exhibit Hall and Poster Sessions
- Unlimited use of the courtesy shuttle
- Members of the press must register for the meeting and pay the appropriate registration fee to receive continuing education credit

Business Center

The Business Center in Moscone South offers numerous services, including digital printing, packing & shipping, packaging materials, and last-minute office supplies, to meet your needs.

Location

Moscone South, near entrance to Hall C
Phone: (415) 974-4067
FAX: (415) 974-4052

Hours:

Friday, June 15: ..... 12:00 p.m. – 5:00 p.m.
Saturday, June 16: ..... 9:00 a.m. – 5:00 p.m.
Sunday, June 17: ..... 8:00 a.m. – 6:00 p.m.
Monday, June 18: ..... 8:00 a.m. – 6:00 p.m.
Tuesday, June 19: ..... 8:00 a.m. – 6:00 p.m.

Cameras and Recording

Cassette recorders, cameras, and video cameras are **not** allowed in session rooms or in the exhibit and poster areas.

Certificate of Attendance

A Certificate of Attendance will be available beginning Monday, June 18 at all registration counters.

Child Safety

Children are not permitted entry into session rooms. Also, children under the age of 18 are not permitted on the Exhibit Hall floor during setup or dismantling hours. During scheduled show hours, exceptions are made when parents or guardians complete and sign a Minor Release Form. This form is available in the ASM Information Booth in the South Lobby and in the ASM Headquarters Office in Room 220. Strollers are not allowed in the Exhibit Hall and may be checked at the coat and baggage check.

Coat and Baggage Check

A coat and baggage check is located on the Mezzanine level, just below the South Lobby.

Hours:

Sunday, June 17 ..... 7:30 a.m. – 6:30 p.m.
Monday, June 18 ..... 7:30 a.m. – 6:30 p.m.
Tuesday, June 19 ..... 7:30 a.m. – 6:00 p.m.

E-Central

The following services and information are available:

- Obtain a continuing education certificate
- CE Portal
- Locating presenters, sessions and topics
- Build a conference itinerary
- Leave and retrieve messages
- Send and receive e-mail

LOCATIONS:

E-Central #1 ..... Hall E Foyer
Saturday ..... 11:00 a.m. – 8:30 p.m.
Sunday – Monday ..... 7:00 a.m. – 6:30 p.m.
Tuesday ..... 7:00 a.m. – 5:30 p.m.

E-Central #2 ..... Halls A-B
Sunday – Monday ..... 10:45 a.m. – 4:00 p.m.
Tuesday ..... 10:45 a.m. – 2:45 p.m.

Exhibit Hall

Halls A-B

The Exhibit Hall is open:

Sunday, June 17 ..... 10:45 a.m. – 4:00 p.m.
Monday, June 18 ..... 10:45 a.m. – 4:00 p.m.
Tuesday, June 19 ..... 10:45 a.m. – 2:45 p.m.

See the Meeting & Exhibit Guide in your registration bag for more on the Exhibit Hall activities.

ExpoCard

The ExpoCard has your contact and demographic information electronically encoded. Several services are accessible when the ExpoCard is used:

In the Exhibit Hall: The ExpoCard serves as an electronic business card, allowing you to easily and quickly leave your address information for follow-up with companies exhibiting products that interest you.

E-Central: You may gain access to the services outlined with the swipe of the ExpoCard.

Final Program and Abstracts

All registrants receive the *Final Program, Abstracts on CD,* and *Meeting & Exhibit Guide* as part of the registration fee. Additional copies of the *Abstracts on CD* may be purchased for $50 on-site at any registration counter in the convention center. After the meeting, the *Final Program* and *Abstracts on CD* may be purchased, while supplies last, from ASM Press by calling 800-546-2416 or 703-435-7064.

First Aid

Hall C Foyer

A First Aid Station will be staffed at Moscone Center North and South during annual meeting hours. If you feel ill or need a place to lie down, go to the First Aid Station. In case of a medical emergency in Moscone North and South, please dial 511 from any house phone.

Food and Beverage

Full service food stands will be available Saturday–Tuesday, throughout Moscone North and South.

Future Meetings Booth

A bulletin board for posting notices concerning future meetings will be located at the Future Meetings Booth in the South Lobby. Announcements displayed elsewhere will be discarded.

Housing

Any changes to hotel reservations should be made directly with the hotel. If you have any problems with your reservation or need to change hotels, please visit the Housing Assistance Counter located at Registration Assistance in the Lobby of Moscone North.

Information Booth

The asm2012 Information Booth will be located in the South Lobby.

The following information will be available:

- Meeting Information
- Approved Affiliated Events
- Program Changes and Updates
- Minor Release Forms for Exhibit Hall Entrance
- San Francisco City Information

International Activities

ASM Booth

Learn more about ASM's International Activities at the ASM Booth in the Exhibit Hall.

International Board Special Interest Session:

Laboratory Capacity Building—Challenges and Successes

Sunday, June 17 | 11:00 a.m. – 1:30 p.m.
Moscone Convention Center, Esplanade Ballroom 308

ASM International Ambassador Forum

Monday June 18 I 1:30 p.m. – 3:00 p.m.
Moscone Convention Center, Room 110

Lost and Found

Unattended personal belongings will be removed and taken to the ASM Headquarters Office located in Room 220.

Messages

Messages may be left or retrieved at E-Central (see E-Central section for locations and hours). Mail and other forms of communication can be directed to the individual at the hotel where he or she is registered.

Nursing Room

A Nursing Room will be available for use during asm2012. Please visit Headquarters in Room 220 for additional information.

Parking

Moscone North and South encourages the use of public transit first. However, parking facilities do exist close to Moscone. For more information about nearby garages as well as a parking map, please visit www.moscone.com/directions/parking.shtml.

Poster Information

Call4Posters

The Call4Posters Booth is located outside the Poster Hall, in front of Hall C.

Poster Entrance

Poster presenters must have their acceptance letter and meeting badge to enter the Exhibit Hall during non-Exhibit Hall hours (no exceptions can be made). A security officer will be stationed at the entrance to confirm admission into Halls A-B. If you do not have a copy of your letter please stop by the Poster Check-in Booth located outside of Exhibit Hall C.

Poster Presentations

Posters will be presented in Hall C, Sunday – Tuesday, from 10:45 a.m. to 12:30 p.m. and 1:00 p.m. to 2:45 p.m. Poster presenters are encouraged to distribute one-page handouts from their poster board area. Posters must remain on display from 9:00 a.m. – 6:30 p.m. on Sunday and Monday and from 9:00 a.m. – 5:30 p.m. on Tuesday.

Poster Storage

Complimentary poster storage, for posters and poster containers only, will be located inside Hall C. Posters not removed or left in the Poster Storage area will be discarded on the last day of asm2012.

Procedures

Morning Procedures

Presenters may mount their poster between 7:30 a.m. – 9:00 a.m. on their scheduled presentation date.

Afternoon Procedures

Presenters must remove their poster on the day of their presentation between the hours of:

Sunday, June 17 ..... 6:30 p.m – 7:00 p.m.
Monday, June 18 ..... 6:30 p.m – 7:00 p.m.
Tuesday, June 19 ..... 5:30 p.m – 6:00 p.m.

Posters remaining on the boards after this time will be dismounted and stored in the Poster Storage area in Hall C. Any unclaimed posters or containers will be discarded on the last day of asm2012.

Any unauthorized persons in the Poster/Exhibit Hall before or after the scheduled times will be asked to leave by ASM staff or security.

Outstanding Student Posters

The Outstanding Student Poster Session is dedicated to highlighting exceptional students for outstanding research efforts. To qualify for consideration the abstract had to demonstrate an interdisciplinary nature. Forty posters were selected from across the four Divisional Groups for this special session.

Program Changes

Daily updates and changes to the *Final Program* will be highlighted on the walk-in slides of each session room at the beginning of the session.

asm2012 Registration

Workshops (Moscone North Lobby)

Friday, June 15 ..... 11:00 a.m. – 2:00 p.m.
Saturday, June 16 ..... 7:30 a.m. – 12:00 p.m.

Express Pre-Registration (Moscone North Lobby)

Saturday, June 16 ..... 11:00 a.m. – 8:00 p.m.
Sunday, June 17 ..... 7:00 a.m. – 6:00 p.m.
Monday, June 18 .....7:30 a.m. – 11:30 a.m.

Registration Assistance

Saturday, June 16 ..... 11:00 a.m. – 8:00 p.m.
Sunday, June 17 ..... 7:00 a.m. – 6:00 p.m.
Monday, June 18 ..... 7:30 a.m. – 6:00 p.m.
Tuesday, June 19 ..... 7:30 a.m. – 3:30 p.m.

Sessions and Room Capacity

All scientific sessions will be held at the Moscone North and South. A map of the Convention Center can be located in the Meeting & Exhibit Guide and *Final Program*. The General Meeting Program Committee attempts to determine the popularity and estimated attendance level for each session. Please accept our apologies in advance should the demand exceed the number of seats in a particular session. For safety reasons, ASM must adhere to all room capacity regulations prescribed by the Moscone Convention Center and the Fire Marshall of California. Attendance is on a first-come, first-served basis. ASM requests that attendees use every available seat before resorting to standing. Sitting in aisles is a hazard, and ASM requests that you not do so.

Shipping

Mail and other packages should be shipped to your hotel. Personal mail and packages will not be accepted at Moscone North and South. If you need to have a package shipped from San Francisco, please visit your hotel's business center or the Business Center in Moscone South.

Shuttle Service

Please see page 30 for complete shuttle detail including boarding locations and hours of operation. A shuttle bus flyer and signage will also be placed in each hotel.

Smoking Policy

Smoking is prohibited in all areas of Moscone North and South.

Speaker Ready Room

Speakers may preview their presentation in the Speaker Ready Room in Room 120 of the Convention Center.

ASM requests that speakers submit their electronic presentation files to the AV operator in the Speaker Ready Room at least 4 hours prior to their presentation time.

Friday, June 15 ..... 8:00 a.m. – 5:00 p.m.
Saturday, June 16 ..... 7:00 a.m. – 7:00 p.m.
Sunday, June 17 ..... 6:00 a.m. – 7:00 p.m.
Monday, June 18 ..... 6:00 a.m. – 7:00 p.m.
Tuesday, June 19 ..... 6:00 a.m. – 3:00 p.m.

Telephone Numbers

ASM Headquarters Office — 415-978-3700

First Aid — 415-974-4090

Press Room — 415-978-3709

Shuttle Bus — 310-274-8819 ext. 213

Transportation

Airports

San Francisco International Airport (SFO) offers non-stop flights to more than 31 international points on 29 international carriers. The Bay Area's largest airport offers service to more than 70 non-stop cities in the U.S. on 16 domestic airlines.

Public Transportation from the Airport

- **BART Rapid Rail**—BART operates rapid rail service to northern San Mateo County, San Francisco and the East Bay directly from SFO. The SFO BART Station is located on the Departures/Ticketing Level of the International Terminal (Boarding Area G side). BART is easily accessed from any terminal by riding SFO's AirTrain to the Garage G/BART Station stop. There is no charge to board AirTrain. BART provides a connection to Caltrain at the Millbrae station.
- **Caltrain Commuter Rail**—Caltrain provides rail service between San Francisco and San Jose, with weekday commute-hour service to Gilroy. BART connects SFO to the Caltrain rail system at the Millbrae Station. Weekday express trains serve select stations during commute hours.
- **SamTrans Public Bus Service**—SamTrans provides 24-hour service connecting SFO to San Mateo County and parts of San Francisco and Palo Alto.

Shuttle from the Airport

Charter services are available to most Bay Area locations and must be pre-arranged with the service operator.

Charter pick-up areas are located in the courtyards on the Arrivals/Baggage Claim Level. Please visit www.flysfo.com for a list of operators serving SFO.

Taxicabs from the Airport

Taxis depart from the designated taxi zones located at the roadway center islands, on the Arrivals/Baggage Claim Level of all terminals. Uniformed taxi coordinators are stationed at the taxi zones from 7:00 a.m. to 1:00 a.m. to assist passengers with questions or concerns.

Taxi Service

24-hour dependable service is available to and from all destinations. Taxi cabs are also easily accessible at the Convention Center, major hotels, and other downtown locations.

Continuing Education Program

ASM will offer 29 scientific sessions and 18 workshops that are accredited to provide continuing education credit. The sessions and workshops that are accredited are labeled with the appropriate symbol.

ASM offers four types of accreditation:

- **Professional Acknowledgment for Continuing Education (P.A.C.E.®):** ASM is an approved provider of continuing education programs in the clinical laboratory sciences by the ASCLS P.A.C.E.® Program.
- **California Clinical Laboratory Scientists (CLS):** ASM is accredited by the California Department of Health Services to offer continuing education for California Clinical Laboratory Scientists. All sessions designated for CE credit will also qualify for California CE credit toward CLS license renewal.
- **Florida Clinical Laboratory Personnel:** ASM is accredited by the Florida Department of Health to provide continuing education for Florida Clinical Laboratory Personnel. All sessions designated for CE credit will also qualify for Florida CE credit toward license renewal.
- **Other CE Licenses:** You may obtain a Participation Statement of Credit by completing the activity evaluation. This is a detailed statement that documents your participation in the activity.

Objectives

The asm2012 covers fundamental microbial cell biology, genetics and physiology, environmental and applied microbiology and microbial ecology, pathogenesis and clinical microbiology and infectious diseases. The meeting showcases the central role of microbes in the biosphere by reporting today's best science in the diverse areas influenced by microbes. The breadth of this meeting provides participants opportunities for immersion in fields of specialization as well as forays into different disciplines.

Upon completion of asm2012 attendees should be able to:

- Use new technologies, new practices, and developments in clinical microbiology to improve their clinical practice and patient outcomes;
- Recognize and interpret critical information regarding physiology, genetics, and cell biology of microbes;
- Discuss key updates in the areas of microbial pathogenesis, environmental microbiology and applied microbiology; and
- Synthesize new data on the roles of microbes in health and disease, and aspects of host immunity to infectious diseases.

Intended Audience

asm2012 is designed to meet the needs of professionals in the field of microbiology, particularly clinical microbiologists, pathologists, researchers, pharmacists, physicians, and other health care professionals. Current trends will be covered regarding:

Animal Health Microbiology
Antimicrobial Chemotherapy
Bacteriophage
Biology of Eukaryotes
Cell and Structural Biology
Environmental and General Applied Microbiology
Evolutionary and Genomic Microbiology
Fermentation and Biotechnology
Food Microbiology
Free-Living, Symbiotic, and Parasitic Protists
Genetics and Molecular Biology
Immunology (Clinical and Diagnostic)
Medical Mycology
Microbial Ecology
Microbial Pathogenesis
Microbial Physiology and Metabolism
Microbiology (General, Clinical, and Medical)
Microbiology Education
Molecular, Cellular and General
Mycobacteriology
Mycoplasmology
Nosocomial Infections
Parasitology
Public Health
Virology

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5. Select **"asm2012—112th General Meeting"** from the Available Activities table. If you are claiming credit for a workshop, please select **"Workshops asm2012—112th General Meeting."**
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7. Choose what type of credit you would like to claim. asm2012 offers four types of continuing education credit. Please choose the certificate that is applicable to your needs:
   - Professional Acknowledgment for Continuing Education (P.A.C.E.®)
   - California Clinical Laboratory Scientists (CLS)
   - Florida Clinical Laboratory Personnel
   - Participation
8. After selecting your certificate type you will be directed to the **"Claim Credits"** page. Select each session you attended, and complete an evaluation for each claimed session. If you attended a session that had five speakers who presented a 30-minute talk, you earn .5 CE for each speaker you listened to. Check the box next to the speaker's name who you listened to and independently evaluate each speaker. For example, if you listened to two speakers, evaluate each of them, and complete the entire evaluation, you will earn 1.0 CE. If you listened to all five speakers, evaluated all of them, and completed the entire evaluation, you will earn 2.5 CE.

   You will earn the maximum allowable CE for workshops and the following sessions; there is no partial credit.

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   - Exhibitor Exam: 2.0 CE
   - Literature Review: 2.5 CE
   - Quiz Busters: 2.5 CE
   - Point/Counter-Point: 2.5 CE

   If you claim credit for the Exhibitor Exam, you must complete the exam to earn the credit. If you do not successfully pass the exam, you have the opportunity to retake the exam one time. Upon passing the exam and completing the evaluation, you will receive 2.0 CE. (To view more sessions please click the page numbers at the bottom of the Claim Credits screen. Do not press next until you have finished claiming credits for all your sessions.)
9. Once you have claimed credit for **ALL** of your sessions, you may review your credits summary and print your certificate directly from the portal.

When completing your online evaluation, **PLEASE DO NOT PRESS PRINT** until you have entered your information for each session attended at asm2012. Once you print, your Statement of Credit is considered final and sessions cannot be added or changed.

YOU MUST COMPLETE YOUR EVALUATIONS AND CLAIM YOUR CREDIT BY DECEMBER 19, 2012.

Please email cmeservices@asmusa.org with any questions or visit the asm2012 Headquarters Office in Room 220.

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Important Dates

Registration and Housing

Advance Registration Closes .....July 19, 2012

Online Housing Reservation Closes.....August 23, 2012

Abstracts

Travel Grant Application
Submission Closes.....June 29, 2012

Late-Breaker Abstracts

Late-Breaker Abstract Submission Closes .. July 30, 2012*

Late-Breaker Abstract Disposition
Letters Emailed.....August 14, 2012

*11:59 p.m. EST

www.icaac.org

ASM Meetings and Conferences Calendar

ASM MEETINGS

September 9–12, 2012
ICAAC® 2012
(Interscience Conference on Antimicrobial Agents and Chemotherapy)
San Francisco, California
www.icaac.org

November 7–10, 2012
Annual Biomedical Research Conference for Minority Students (ABRCMS)
San Jose, California
www.abrcms.org

May 18–21, 2013
asm2013: 113th General Meeting
Denver, Colorado
www.asm.org/asm2013

ASM CONFERENCES

September 29–October 4, 2012
6th ASM Conference on Biofilms
(ASM Biofilms 2012)
Miami, Florida

October 22–26, 2012
4th ASM Conference on Beneficial Microbes
San Antonio, Texas
www.asm.org/conferences

ASM TELECONFERENCES

August 29, 2012
Tools for Identification of Mycobacteria in 2012

September 26, 2012
HIV Laboratory Diagnosis: Current and Future Methodology

October 24, 2012
Emergency Preparedness
www.asmaudio.org

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Friday, June 15

WORKSHOP PACE CA FL

WS-01 Clinical Impact and Laboratory Detection of Newer β-Lactamases

1:00 pm - 4:30 pm
Location: Esplanade Ballroom 304
ASCLS P.A.C.E.®: 273-136-12

Convener and Faculty:

Kenneth S. Thomson; Creighton Univ. Sch. of Med., Omaha, NE.

The focus will be on laboratory detection and clinical significance of ESBLs, AmpC β-lactamases, and carbapenemases and the issues and controversies these enzymes create. Issues addressed will include: Do I need to perform additional confirmatory tests? What interpretation provides the most accurate report—CLSI, FDA, or other? Is it necessary to edit or modify results? A variety of diagnostic methodologies and their limitations will be covered.

Upon completion of this workshop, the participant should be able to:

- Decide which tests, if any, should be used to detect ESBLs in *Enterobacteriaceae;*
- Decide which tests, if any, should be used to detect AmpC β-lactamases in *Enterobacteriaceae;*
- Decide which tests, if any, should be used to detect carbapenemases; and
- Appraise CLSI testing recommendations for the detection and reporting of the newer β-lactamases covered in the workshop.

Intended Audience: Medical microbiologists, infectious disease specialists, and infection control personnel.

Course Level: Intermediate

WORKSHOP PACE CA FL

WS-03 Laboratory Operations During a Disaster: Are You Prepared?

1:00 pm - 4:30 pm
Location: Esplanade Ballroom 302
ASCLS P.A.C.E.®: 273-137-12

Conveners and Faculty:

Thomas Williams; Methodist Hosp., Omaha, NE.

Gina Potenza; Great Expressions Dental Centers, Rochester MI

Emergency operations planning is foreign to laboratory professionals and healthcare, but is essential to promote our mission during disasters. This course will familiarize participants with the domestic structure and terminology of emergency planning, provide several potential scenarios which especially challenge laboratory disaster operations, and tour participants through the terms, tools, and steps used by professionals in EOP development and sustainment, following CLSI GP-36 (currently in development), for which the presenters serve as Chairholder and Vice Chairholder.

Upon completion of this workshop, the participant should be able to:

- Access and assess the maturity of emergency operations planning in their laboratory, facility, and community;
- Name and assess major emergency challenges potentially confronting their laboratory during disaster operations;
- Describe the terminology and tools common to emergency operations planning;
- Describe and employ the steps to develop and sustain an emergency operations plan (EOP); and
- Interact productively with local emergency operations planners, to enhance their facility's and laboratory's EOP.

Intended Audience: Laboratory medical or administrative director, laboratory manager, section or department head, pathologist, doctoral scientist, or technologist.

Course Level: Beginner

WORKSHOP PACE CA FL

WS-04 Clinical Trials Microbiology: From Drug Discovery to Delivery

1:00 pm - 4:30 pm
Location: Esplanade Ballroom 303
ASCLS P.A.C.E.®: 273-138-12

Conveners:

Frank O. Wegerhoff; Covance Central Lab. Services, Indianapolis, IN.
Judith Steenbergen; Cubist Pharmaceuticals, MA.

Faculty:

Gregory Stone; Pfizer, Inc., Groton, CT.
Judith Steenbergen; Cubist Pharmaceuticals, MA.
Frank O. Wegerhoff; Covance Central Lab. Services, Indianapolis, IN.
Mary R. Motyl; Merck & Co. Inc., Rahway, NJ.

On completion of this workshop, participants will understand the entire clinical trials process from initial drug discovery to final market delivery. The focus of the workshop will be on how new drug compounds are discovered, early development, phases of clinical trials, the role of contract research organizations (CRO's) and the FDA, laboratory testing, and data management.

Intended Audience: Clinicians, clinical microbiologists, medical technologists, pathologists, infectious disease specialists, supervisors, managers, directors, and epidemiologists.

Course Level: Intermediate

WORKSHOP PACE CA FL

WS-05 The Gram-Stain: Making the Most of the Original Real-Time Multiplex Test

1:00 pm – 4:30 pm
Location: Esplanade Ballroom 301
ASCLS P.A.C.E.®: 273-139-12

Convener and Faculty:

Steven Dallas; Univ. of Texas Hlth Sci. Ctr., San Antonio, TX.

In this age of molecular microbiology, the gram-stain is still an amazingly useful real-time multiplex test. It is fast, inexpensive, can visualize multiple pathogens, and in the hands of an experienced microbiologist it can have direct impact on patient care in just a few minutes. However, meaningful results depend on five keys: the right specimen, appropriate application of the specimen to the slide, good staining, correct interpretation, and clear reporting. Using pre-stained glass slides and digital images, the participants will examine real patient cases in the context of these five keys and how each one affects the gram-stain result and how these results can affect patient care in a positive or negative way. Second, the presenter will use real life examples of dialog with clinicians that help turn unknowns into known so that patients are treated effectively. Lastly, the presenter will address ways to avoid common gram-stain errors and craft an effective gram-stain QA and review policy.

Upon completion of this workshop, the participant should be able to:

- Improve clinical specimen gram-stain quality and positively impact patient care by applying five keys: Appropriate and enough specimen, produce a slide, properly stain, correctly interpreting the results, and reporting the results in an understandable way;
- Implement a reasonable QA plan; and
- Incorporate all five gram stain keys into competency assessment.

Intended Audience: Microbiology technologists, technicians, managers, lab staff who actually perform and report gram-stains. Participants should have an intermediate to advanced knowledge of infectious microbes, appropriate specimens, microscopy techniques, culture and identification approaches and antibiotic susceptibility.

Course Level: Advanced

Saturday, June 16

WORKSHOP PACE CA FL

WS-06 The BioCyc Collection of Pathway/Genome Databases

8:30 am - 4:30 pm
Location: Esplanade Ballroom 310
ASCLS P.A.C.E.®: 273-140-12

Convener:

Peter D. Karp; Bioinformatics Research Group, SRI Intl., Menlo Park, CA.

Faculty:

Peter D. Karp; Bioinformatics Research Group, SRI Intl., Menlo Park, CA.

Ingrid Keseler; SRI Intl., Menlo Park, CA.

Ron Caspi; Bioinformatics Research Group, SRI Intl., Menlo Park, CA.

BioCyc is a collection of 1,100 genome databases available through the BioCyc.org website. This session will introduce microbiologists to the BioCyc website and to the version of BioCyc that can be installed on a scientist's computer. BioCyc provides scientists with facile access to a growing number of genomes and to a number of analytical software tools.

Upon completion of this workshop, the participant should be able to:

- Identify the data content of BioCyc;
- Issue multiple types of queries to BioCyc, and navigate the different BioCyc web page types;
- Operate the BioCyc genome browser;
- Paint gene expression data onto BioCyc metabolic map diagrams;
- Perform enrichment analysis of gene expression data; and
- Perform comparative analyses of genomes in BioCyc.

Intended Audience: Microbiologists who utilize genome sequence information in the course of their research or teaching.

Course Level: Beginner

WORKSHOP PACE CA FL

WS-07 Case Studies and Statistics for the Verification and Validation of Molecular Methods in the Clinical Laboratory

8:30 am - 4:30 pm
Location: Room 232
ASCLS P.A.C.E.®: 273-141-12

Conveners:

Donna Wolk; Univ. of Arizona, Tucson, AZ.

Elizabeth M. Marlowe; Southern California Permanente Med. Group, North Hollywood, CA.

Faculty:

Donna Wolk; Univ. of Arizona, Tucson, AZ.

Elizabeth M. Marlowe; Southern California Permanente Med. Group, North Hollywood, CA.

Maurice M. Exner; Focus Diagnostics, Inc., Cypress, CA.

Melissa Miller; Univ. of North Carolina Sch. of Med., Chapel Hill, NC.

General guidelines for verification and validation of laboratory-developed tests (LDTs) are described in the current CLIA regulations for clinical laboratories, but they do not provide details of a concise "how to" scenario for new method verification and implementation. This workshop will describe CLIA and FDA requirements, as well as the CAP checklist items for verification of new tests in molecular microbiology. We will discuss basic biostatistics used in molecular laboratories and provide examples of experimental design and data analysis for qualitative, quantitative, and multiplex molecular methods.

Upon completion of this workshop, the participant should be able to:

- Describe FDA, CLIA and CAP requirements and CLSI recommendations for new method verification in molecular microbiology laboratories;
- Select experimental approaches, document data, and summarize method performance by interpreting the appropriate statistics for data sets collected from method verification, validation and quality assurance projects; and
- Discuss examples of molecular method verification and troubleshoot data sets.

Intended Audience: Clinical laboratory scientists, public health laboratory scientists, laboratory directors, public health officials, and molecular biologists with research and development efforts aimed toward design of clinical or public health laboratory methods.

Course Level: Intermediate

WORKSHOP PACE CA FL

WS-08 Update on Molecular Diagnostics for Clinical Virology

8:30 am - 4:30 pm
Location: Esplanade Ballroom 302
ASCLS P.A.C.E.®: 273-142-12

Convener:

Christine C. Ginocchio; North Shore-LIJ Health System Lab., Lake Success, NY.

Faculty:

Christine C. Ginocchio; North Shore-LIJ Health System Lab., Lake Success, NY.

Angela Caliendo; Emory Univ. Hosp., Atlanta, GA.

Randall T. Hayden; St. Jude Children's Res. Hosp., Memphis, TN.

This workshop will provide an update on the current molecular diagnostics techniques and assays (FDA cleared/approved, LDTs) available for the diagnosis of viral infections for the following syndromes: respiratory, CSF, enteric infections. In addition, specific lectures will address HPV and the new diagnostic tests recently approved by FDA, viral load monitoring for hepatitis B and C, HIV and transplantation (CVM, EBV, BK and JC). The advantages and limitations of each method/assay will be discussed, role of LDTs in the current regulatory environment, and what is currently needed and in development to increase diagnostic capabilities of all size laboratories.

Upon completion of this workshop, the participant should be able to:

- Describe the appropriate specimen collection and processing procedures based on sample source and clinical indication;
- List the syndromes for which molecular testing is highly advantageous;
- Describe the various types of molecular testing formats available for clinical diagnosis;
- Explain the process of developing appropriate testing algorithms, that are best suited for your patient population and laboratory capabilities; and
- Describe how to assess the clinical and financial impact of test and method selection as pertaining to your institution's clinical spectrum.

Intended Audience: Medical technologists, technicians, laboratory directors, residents and fellows.

Course Level: Intermediate

WORKSHOP PACE CA FL

WS-09 Administration in Clinical Microbiology: A Tool Kit for Supervisors and Managers

8:30 am - 4:30 pm
Location: Esplanade Ballroom 304
ASCLS P.A.C.E.®: 273-143-12

Convener:

Susan Harrington; Cleveland Clinic, Cleveland, OH.

Faculty:

Nancy E. Cornish; Centers for Disease Control, Atlanta, GA.
Nancy Anderson; Centers for Disease Control, Atlanta, GA.
Linda Bruno; Alverno Clinical Lab., Chicago, IL.
Deborah L. Blecker-Shelly; The Children's Hosp. of Philadelphia, Philadelphia, PA.
Nancy S. Miller; Boston Med. Ctr., Boston, MA.
Beverley Orr; Boston Med. Ctr., Boston, MA.

This workshop is designed to provide practical information for those involved in Microbiology Laboratory Administration. Properly managing the laboratory and doing so with efficiency takes knowledge and skill. The requirements of the government and regulatory agencies are complex and place great demands on laboratories that are often operating with limited resources. Topics to be addressed include proficiency testing, assessment of competency, laboratory inspections, quality assurance, planning and assessment for new tests, and test verification studies.

Upon completion of this workshop, the participant should be able to:

- Describe regulatory requirements placed on Clinical Microbiology Laboratories with emphasis on proficiency testing, competency assessment, laboratory inspections, quality assurance monitors, and test verification/validation;
- Develop tools that can be used to assess and document competency, proficiency test results, quality assurance, and test verification/validation;
- List the consequences for non-compliance with regulations and learn how to respond to inquiries and citations from regulatory agencies; and
- Discuss points to consider prior to bringing on a new test to include equipment selection and cost justification.

Intended Audience: This workshop will help experienced supervisors polish their knowledge and exchange ideas, help those new to supervision gain ground with their skill set, and lay a foundation for the bench technologist seeking to move into laboratory management.

Course Level: Intermediate

WORKSHOP PACE CA FL

WS-10 Laboratory Diagnosis and Identification of Blood and Selected Tissue Parasites

8:30 am - 4:30 pm
Location: Room 270
ASCLS P.A.C.E.®: 273-144-12

Conveners and Faculty:

Lynne S. Garcia; LSG & Associates, Santa Monica, CA.
Gary Procop; Cleveland Clinic, Cleveland, OH.

The workshop will provide updated information on diagnostic medical parasitology for blood and selected tissue parasites (STAT ordering, specimen collection, processing, testing, and reporting including recommended report comments). Key risk management issues regarding mishandling/misdiagnosis of these infections will be covered. Organism morphology, potential errors in diagnosis, pathogenesis, and clinical relevance will also be included for the five species of human malaria *(Plasmodium vivax, P. ovale, P. falciparum, P. malariae,* and *P. knowlesi),* as well as Babesia, Leishmania and Trypanosoma infections. Information related to blood parasite infections being seen in Afghanistan and Iraq will also be discussed, as will the spread of certain blood parasites within the United States. Technologists/microbiologists will be able to recognize these parasites in clinical specimens; identify common and less common parasites; and understand the uses and limitation of routine, molecular, serologic and antigen-based tests for the detection of infections caused by these parasites. Interactive case presentations will be strategically arranged to enhance learning and participation. A practical approach to testing will be emphasized. An extensive handout will be provided to each participant.

Upon completion of this workshop, the participant should be able to:

- Describe specimen collection and processing methods that optimize the detection of blood and tissue parasites from a clinical patient specimen;
- Recognize the microscopic morphologic features of the Plasmodium species;
- Recognize the microscopic morphologic features of other blood parasites, including Babesia, Trypanosoma, and Leishmania;
- Recognize factors that enhance and diminish the sensitivity and specificity of blood film analysis;
- Recognize newer, non-morphologic based methods to identify and differentiate the most commonly encountered blood and tissue parasites; and
- Understand the uses and limitations of common serologic tests used to diagnose blood and tissue parasites.

Intended Audience: Medical technologists and microbiologists who are working in clinical microbiology or public health laboratories and need additional education in clinical parasitology, and classroom teachers who need basic education in clinical parasitology.

Course Level: Intermediate

WORKSHOP PACE CA FL

WS-11 Select Topics in Pediatric Clinical Microbiology

8:30 am - 4:30 pm
Location: Room 204
ASCLS P.A.C.E.®: 273-145-12

Conveners and Faculty:

Mario J. Marcon; Nationwide Children's Hosp., Columbus, OH.

Rangaraj Selvarangan; Children's Mercy Hosp. and Clinics, Kansas City, MO.

This workshop will review a number of topics relating to the laboratory diagnosis of infectious diseases of particular importance to pediatric patients. Topics to be reviewed will include streptococcal pharyngitis, pertussis, *Mycoplasma pneumoniae* infection, pneumococcal pneumonia, infectious mononucleosis and cervical lymphadenitis, microbiology of cystic fibrosis, influenza and RSV bronchiolitis, enteroviral/parechovirus meningitis and HSV encephalitis, infectious gastroenteritis including STEC disease, rotavirus and norovirus infection, *C. difficile* disease, STDs and sexual abuse in pediatrics, osteomyelitis and septic arthiritis, bacteremia and line sepsis. The workshop faculty will present diagnostic approaches used in their laboratories and solicit alternative approaches from the audience.

Upon completion of this workshop, the participant should be able to:

- Describe the epidemiology, spectrum of disease and clinical significance of the pathogens responsible for the diseases reviewed in pediatric patients;
- Recommend methods most appropriate for specimen collection, transport, and laboratory detection of these pathogens; and
- Recognize the advantages and limitations of molecular methods vs. traditional methods such as culture, antigen detection, and serology for detection of these pathogens.

Intended Audience: This workshop is designed for supervisory personnel and bench technologists working in pediatric hospitals as well as general hospitals serving large pediatric inpatient and outpatient populations

Course Level: Intermediate

WORKSHOP PACE CA FL

WS-12 Verification and Validation of Diagnostic Tests Used in the Clinical Microbiology Lab

8:30 am - 4:30 pm
Location: Esplanade Ballroom 306
ASCLS P.A.C.E.®: 273-146-12

Convener:

Robert J. Tibbetts; Henry Ford Health Sys., Detroit, MI.

Faculty:

Robert J. Tibbetts; Henry Ford Health Sys., Detroit, MI.

Alice S. Weissfeld; Microbiol. Specialists Inc., Houston, TX.

Mike Loeffelholz; Univ. of Texas Med. Branch, Galveston, TX.

Test verification and validation are required by CAP as part of a laboratories quality assurance plan; however, detailed guidance on when and how to perform these tests is sparse. Cumitech 31A is ASMs attempt to establish these guidelines to assist clinical microbiologists in wading through the different processes. For example, the verification requirements for unmodified, FDA cleared tests, modified (off label) commercial tests, and laboratory developed tests are quite different. At the end of this full day workshops participants will have an understanding of when test verification is needed and how to design a technically rigorous verification study that is compliant with laboratory regulations. In addition, they will gain an understanding of the essential components of test validation and continued quality assurance.

Upon completion of this workshop, the participant should be able to:

- Define verification and validation;
- Describe the components of assay verification;
- Describe the components of assay validation; and
- Review the different requirements for unmodified, FDA cleared tests, modified (off label) commercial tests, and laboratory developed tests.

Intended Audience: Clinical laboratory directors, supervisors, and scientists involved in the development and verification of new laboratory tests. Clinical laboratory quality control officers/practitioners. Research lab directors, supervisors, and scientist interested in what is required of clinical tests with respect to new test development.

Course Level: Beginner

WORKSHOP PACE CA FL

WS-13 Pharmaceutical Microbiology: Current Issues in Sterile Manufacturing and Product Development

8:30 am - 4:30 pm
Location: Esplanade Ballroom 308
ASCLS P.A.C.E.®: 273-147-12

Convener:

Donald C. Singer; GlaxoSmithKline, Collegeville, PA.

Faculty:

Anthony Cundell; Merck Res. Lab., Union, NJ.

Donald C. Singer; GlaxoSmithKline, Collegeville, PA.

John Lindsay; Aseptic Solutions, Inc., El Granada, CA.

New regulatory guidance, new technologies, and new paradigms have led to many insightful discussions and new practices for pharmaceutical microbiologists and their peers. From supply chain microbiology (excipient and component controls and testing) and formulation development, to manufacturing of sterile products and testing for their shelf-life, this workshop will offer knowledge and discussion on current key issues. Topics will include risk assessment, environmental controls (cleanrooms to isolators), container integrity testing, excipient and product testing. Faculty will share current views and respond to your specific concerns.

Upon completion of this workshop, the participant should be able to:

- Examine and evaluate methodologies for testing bulk substance and finished product;
- Apply risk assessment thinking to improve laboratory and manufacturing controls;
- Differentiate and evaluate new approaches to environmental control using isolators, RABs or cleanrooms; and
- Interpret recent guidance for sterility testing, container integrity, bacterial endotoxin testing, cleanroom activities.

Intended Audience: Industry microbiologists familiar with microbiological control of pharmaceutical, biopharmaceutical, medical device, aseptic beverage production, contract laboratory science and cGMPs. Quality control, quality assurance, auditing and bench microbiologists. Credit available for recertification of Registered Microbiologists and Specialist Microbiologists.

Course Level: Intermediate

WORKSHOP PACE CA FL

WS-14 2012 Clinical Mycobacteriology Update

8:30 am - 4:30 pm
Location: Esplanade Ballroom 309
ASCLS P.A.C.E.®: 273-148-12

Convener:

Barbara Robinson-Dunn; William Beaumont Hosp., Royal Oak, MI.

Faculty:

Barbara Robinson-Dunn; William Beaumont Hosp., Royal Oak, MI.

Gerri S. Hall; Cleveland Clinic Fndn., Cleveland, OH.

Edward Desmond; California State Dept. of Publ. Health, Richmond, CA.

The practice of clinical mycobacteriology is changing rapidly with guidelines for molecular detection of *M. tuberculosis* from clinical specimens and the detection of interferon gamma to supplement or replace PPD testing. Biochemical identification of isolates of *Mycobacterium* spp. is being replaced by molecular methods and mass spectrometry. This workshop will integrate conventional and molecular approaches for the detection and identification of *Mycobacterium* spp. Changes in taxonomy will be discussed as will new approaches to antimycobacterial susceptibility testing. Clinical cases will be used to highlight interesting issues. A discussion of Actinomycetes that are increasingly difficult to identify will be included.

Upon completion of this workshop, the participant should be able to:

- List the most common clinically relevant isolates of *Mycobacterium* spp. and their epidemiology;
- Develop knowledge of current and new tests for the detection of *M. tuberculosis* from clinical specimens;
- Evaluate conventional, molecular approaches and mass spectrometry for the identification of isolates of *M. tuberculosis* and the other *Mycobacterium spp*;
- Discuss differences between PPD testing and the uses of interferon gamma assays for the determination of latent tuberculosis including the validation process and potential need for an indeterminant/gray zone reporting; and
- State the relationship between *Mycobacterium* and other Actinomycetales.

Intended Audience: Clinical microbiologists, pathologists, medical technologists, medical technology students, and clinical microbiology supervisors.

Course Level: Intermediate

WORKSHOP PACE CA FL

WS-15 Laboratory Diagnosis of Fungal Infections: Identification of Filamentous Fungi

8:30 am - 4:30 pm
Location: Room 254
ASCLS P.A.C.E.®: 273-149-12

Convener:

Gary Procop; Cleveland Clinic, Cleveland, OH.

Faculty:

Gary Procop; Cleveland Clinic, Cleveland, OH.

Glenn D. Roberts; Mayo Clinic and Coll. of Med., Rochester, MN.

This workshop is designed to cover the aspects of clinical mycology associated with the identification of filamentous fungi (i.e. molds). It will begin with a basic differentiation of the various types of fungi, examine the identification characteristics of the most commonly encountered molds, and subsequently discuss a few of the less common molds. Technologists/microbiologists will be able to recognize these fungi in clinical specimens; identify common and less common filamentous fungi; and understand the uses and limitation of molecular, serologic and antigen-based tests for the detection of infections caused by these fungi. Important antifungal susceptibility testing will be discussed as appropriate. Interactive case presentations will be strategically arranged to enhance learning and participation; these will also illustrate the importance of selection of appropriate clinical specimens; use of appropriate laboratory testing and importance of communication between the laboratorian and physician. Participants will gain an appreciation for this discipline that has a direct impact on patient care.

Upon completion of this workshop, the participant should be able to:

- Describe specimen collection and processing methods that ensure recovery of filamentous fungi from a clinical patient specimen;
- Recognize the microscopic morphologic features of filamentous fungi commonly found in clinical specimens;
- Identify and differentiate the most commonly encountered filamentous fungi recovered in the clinical laboratory;
- Identify and differentiate select less common filamentous fungi that may be recovered in the clinical laboratory;
- Discuss medically-important aspects of antifungal therapy, as applicable; and
- Discuss the uses and limitations of common serologic, antigenic, and antifungal susceptibility tests used to diagnose and treat fungal infections caused by the agents discussed.

Intended Audience: Medical technologists and microbiologists who are working in clinical microbiology laboratories and need additional education in mycology. Classroom teachers who need basic education in clinical mycology.

Course Level: Intermediate

WORKSHOP PACE CA FL

WS-16 Problem Bugs, Resistant Drugs 2012

8:30 am - 4:30 pm
Location: Esplanade Ballroom 300
ASCLS P.A.C.E.®: 273-150-12

Conveners:

Stephen M. Brecher; VA Boston Healthcare System, West Roxbury, MA.

Stephen G. Jenkins; New York Presbyterian Hosp., Weill Cornell Med. Ctr., New York, NY.

Faculty:

Stephen M. Brecher; VA Boston Healthcare System, West Roxbury, MA.

Stephen G. Jenkins; New York Presbyterian Hosp., Weill Cornell Med. Ctr., New York, NY.

Robert C. Jerris; Children's Healthcare of Atlanta, Atlanta, GA.

Audrey N. Schuetz; Weill Cornell Med. Coll., New York, NY.

This workshop will focus on some of the problem pathogens of 2012. Antibiotic Resistance issues will be focused on bacteria with initials (VISA, hVISA, and CREAPS (Carbapenemase-Resistant *Enterobacteriaceae, Acinetobacter*, *Pseudomonas* and *Stenotrophomonas*), whose testing is governed by agencies with initials (CLSI and the FDA). Detection issues will be focused on the rapidly improving test menus for *Clostridium difficile* and the changing epidemiological patterns of common bacterial respiratory pathogens. We will wrap it up with an overview of molecular tracking methods for epidemiological investigations.

Upon completion of this workshop, the participant should be able to:

- State the nuances and problems associated with susceptibility testing in *Staphylococci*;
- Recognize the problems associated detection of with antibiotic resistance in *Enterobacteriaceae* and other gram-negative pathogens;
- Detect *C. difficile* with significantly increased accuracy;
- Recognize how vaccines alter the major bacterial pathogens in respiratory tract infections; and
- Apply molecular typing to solve epidemiology problems in the clinical laboratory.

Intended Audience: Clinical microbiologists, infectious disease pharmacists and physicians, infection control nurses and hospital epidemiologists.

Course Level: Intermediate

WORKSHOP PACE CA FL

WS-17 Molecular Typing of Bacterial Pathogens in 2012: Mining the Data and Interpreting the Results

8:30 am - 4:30 pm
Location: Esplanade Ballroom 301
ASCLS P.A.C.E.®: 273-151-12

Conveners:

Alexander Mellmann; Univ. of Münster, Münster, Germany.
Dag Harmsen; Univ. of Münster, Münster, Germany.

Faculty:

Alexander Mellmann; Univ. of Münster, Münster, Germany.
Richard Goering; Creighton Univ. Sch. of Med., Omaha, NE.
Stefan Niemann; Natl. Reference Ctr. Mycobacteria, Borset, Germany.
Dag Harmsen; Univ. of Münster, Münster, Germany.

At the completion of this workshop, participants will be able to understand and to apply various methods for molecular typing of bacteria. Focus of this workshop will be on current and future techniques, such as MLVA, MLST and next-gen sequencing and their pros and cons for different problems. Participants will be able to analyze and interpret generated typing data. Resources available for analysis and interpretation will be discussed. Demonstrations of selected resources will be presented.

Upon completion of this workshop, the participant should be able to:

- Define available molecular typing techniques;
- Illustrate how different typing methods compare;
- Evaluate the pros and cons of bacterial typing by PFGE;
- Describe the principles of optical density mapping;
- Apply and develop a MLVA scheme to type bacteria;
- Describe the principles of bacterial typing using random PCR methods;
- Discuss SLST approaches to bacterial typing;
- Apply and develop a MLST scheme to type bacteria;
- Describe the principles of next generation sequencing and SNP typing;
- Employ different resources (e.g. eBURST) to analyze typing results; and
- Explain emerging typing techniques and future challenges.

Intended Audience: Clinical microbiologists, medical technologists, supervisors, managers, directors, pathologists, physicians, pharmaceutical industry QC, educators, epidemiologists, and infectious disease specialists.

Course Level: Intermediate

WORKSHOP PACE CA FL

WS-18 Modern Molecular Clinical Microbiology for Beginners

8:30 am – 4:30 pm
Location: Esplanade Ballroom 303
ASCLS P.A.C.E.®: 273-152-12

Convener and Faculty:

Richard L. Hodinka; Children's Hosp. of Philadelphia, Philadelphia, PA

This workshop will review basic nucleic acid chemistries and molecular amplification technologies and discuss issues related to molecular diagnostic testing in a clinical microbiology laboratory. This workshop will also include a review of the available nucleic acid extraction, amplification, and detection methodologies. The workshop will conclude with discussions of clinical utility, method validation/verification, quality control/quality assurance issues, and the newest technologies and equipment. This workshop is designed to be interactive and attendees are encouraged to ask questions and present problems for discussion.

Upon completion of this workshop, the participant should be able to:

- Describe and apply basic genetic concepts and terms to molecular diagnostic technologies;
- Evaluate nucleic acid extraction, amplification and detection systems and choose the best one(s) for their molecular clinical laboratory;
- Discuss the differences and similarities between standard and real-time PCR methods, and discuss the parameters needed to successfully perform PCR;
- Explain test validation and verification for evaluating new molecular methods in the clinical laboratory;
- Assemble and apply quality control/quality assurance practices for the molecular diagnostic laboratory;
- Compare and contrast the latest molecular instruments and technologies; and
- Discuss the clinical utility of molecular methods in the diagnosis of microbial diseases.

Intended Audience: Medical technologists, supervisors, managers, and PhD and MD directors of clinical microbiology laboratories who perform or have an interest in performing molecular diagnostic procedures.

Course Level: Beginner

WORKSHOP PACE CA FL

WS-19 Trends in Clinical Laboratory Identification of Microbes in 2012: MALDI ToF MS

8:30 am – 4:30 pm
Location: Esplanade Ballroom 305
ASCLS P.A.C.E.®: 273-153-12

Conveners:

Dag Harmsen; Univ. of Münster, Münster, Germany.
Alexander Mellmann; Univ. of Münster, Münster, Germany.

Faculty:

Dag Harmsen; Univ. Münster, Münster, Germany.
Alexander Mellmann; Univ. of Münster, Münster, Germany.
Robin Patel; Mayo Clinic, Rochester, MN.

In 2010 a CPT code was finally introduced for reimbursement of DNA sequence based identification of microbes. Using matrix-assisted laser desorption ionization time of flight (MALDI ToF) mass spectrom-

etry for identification of microbes is an emerging technology in clinical laboratories that is rapid and requires nearly no consumables. At the completion of this educational activity, participants will be able to apply methods for DNA sequence and MALDI ToF mass spectrometry based identification of microbes. Participants will be able to analyze and interpret generated data. Attendees will know how to apply QC/QA measures related to DNA sequence (including CLSI MM18 guideline) and MALDI ToF based identification of bacteria. It is intended to have a live demonstration of MALDI ToF bacterial identification.

Upon completion of this workshop, the participant should be able to:

- Discuss methods and targets available for DNA sequence based identification of bacteria (e.g. 16S rDNA, ITS, gyrB, recA, and rpoB);
- Discuss MALDI ToF mass spectrometry based identification of microbes;
- Operate different resources (e.g., MEGA; Phylip, TreeView, Chromas/TraceEdit) to get multiple alignments and to perform phylogenetic analyses of DNA sequences;
- Acquire an overview of technical and QC/QA aspects of diagnostic DNA sequencing and MALDI ToF; and
- Acquire an overview of issues in US reimbursement and CLSI guideline for DNA sequencing and MALDI ToF.

Intended Audience: Clinical microbiologists, medical technologists, supervisors, managers, directors, pathologists, physicians, pharmaceutical industry QC, educators, epidemiologists and infectious disease specialists.

Course Level: Intermediate

SPECIAL INTEREST SYMPOSIUM

001 Microbiology Career Choices: Learn What's Available and How to Succeed

1:00 pm - 4:30 pm
Location: Room 103

Convener:

Neil Baker; Department of Microbiology, Ohio State Univ., Columbus, OH.

Take control of your future! Identify a career that suits your personality, interest, and needs. In this special interest session, participants will hear from microbiologists from diverse careers in microbiology. The audience will interact with career advisers in small group discussions. Potential career advisers may come from and describe the work, culture, and people •In a clinical laboratory •As a public health worker in the field •In sales, marketing or business development inside a company •On a research team in a big pharma or agri business •In a high security, defense agency •As a teacher of high school or community college students •On the frontlines reporting science news •In the halls of government affecting science policy Participants will be given the opportunity to chat with several career advisers over the afternoon session using the popular "speed-dating" format. This session is targeted to all students, post-docs, and scientists-in-training as well as faculty members advising students about microbiology careers.

Opening Session

002 Harnessing the Power of Microbes for Biomedicine

5:00 pm - 7:00 pm
Location: Hall E

Conveners:

Margaret McFall-Ngai; University of Wisconsin-Madison, Madison, WI

Arturo Casadevall; Albert Einstein College of Medicine, Bronx, NY

David C. Hooper; Massachusetts General Hospital, Boston, MA

Presentations:

5:00 pm – 5:30 pm

Inherited Wolbachia Infections of Insects and a Potential Role in Reducing the Transmission of Dengue

Scott O'Neill; Monash University, Melbourne, Australia

5:30 pm – 6:00 pm

Iron Oxides to Infections: Linking Geo- and Medical Microbiology

Dianne Newman; California Institute of Technology, Pasadena, CA

6:00 pm – 7:00 pm

ASM Lecture

Biology by Design: The Emergence of Synthetic Biology

James Collins; Center for BioDynamics, Boston, MA

Sunday, June 17

Division Lectures

Division	Time	Location	Session #
B	3:00 p.m. - 5:30 p.m.	Room 130	84
F	3:00 p.m. - 5:30 p.m.	Room 132	79
J	8:15 a.m. - 10:45 a.m.	Room 102	5
M	1:00 p.m. - 2:30 p.m.	Room 270	Business Meeting
Q	8:15 a.m. - 10:45 a.m.	Esplanade Ballroom 305	6
R	3:00 p.m. - 5:30 p.m.	Esplanade Ballroom 303	83
W	3:00 p.m. - 5:30 p.m.	Room 133	78
Y	8:15 a.m. - 10:45 a.m.	Esplanade Ballroom 308	11

Division Business Meetings

Division	Time	Location
C	5:30 p.m. - 7:00 p.m.	Esplanade Ballroom 304
F	12:00 p.m. - 1:00 p.m.	Esplanade Ballroom 301
M	1:00 p.m. - 2:30 p.m.	Room 270
U	11:00 a.m. - 12:00 p.m.	Esplanade Ballroom 303
V	11:30 a.m. - 12:30 p.m.	Esplanade Ballroom 300
W	2:00 p.m. - 2:30 p.m.	Room 133
Z	1:00 p.m. - 2:00 p.m.	Esplanade Ballroom 302

PLENARY

003 Avoidance and Subversion of Host Cell Defenses by Intracellular Pathogens

8:15 am - 10:45 am
Location: Room 104

Conveners:

William Jackson; Med. Coll. of Wisconsin, Milwaukee, WI.
Jennifer Philips; NYU Langone Med. Ctr., New York, NY.

Presentations:

8:15 am

A Surprising Role for Autophagosomes during Poliovirus Infection
William Jackson; Med. Coll. of Wisconsin, Milwaukee, WI.

8:45 am

EsxH ESCRTs TB to Safety by Preventing Phagosome Maturation
Jennifer Philips; NYU Langone Med. Ctr., New York, NY.

9:15 am

How Does Vaccinia Virus Inhibit Innate Immune Signalling?
Geoffrey Smith; Univ. of Cambridge, Cambridge, United Kingdom.
GlaxoSmithKline International Member of the Year Award

9:45 am

Regulation of Macroautophagy by Pathogens
Christian Münz; Univ. of Zurich, Zurich, Switzerland.

10:15 am

Black Spot, Black Death, Black Pearl: The Tales of Bacterial Effectors
Kim Orth; Univ. of Texas Southwestern Med. Ctr., Dallas, TX.

To survive, intracellular pathogens must deal with a stunning variety of host cell defenses. Viruses and bacteria have evolved strategies to manipulate the host cell and avoid or subvert sophisticated defense mechanisms. Many viruses and bacteria usurp the host cell's vesicle sorting machinery to promote generation and regulate maturation of replication vacuoles. The autophagy pathway, critical for bulk degradation of cellular contents, can destroy cytosolic viruses and bacteria and promote presentation of pathogen-derived peptides on MHC Class II molecules. However, several pathogens subvert and exploit this pathway for intracellular replication. Certain viruses have evolved strategies to block cellular immune signal transduction pathways such as activation of the NF-κB transcription factor. In some cases evolutionarily divergent pathogens have adapted similar strategies to alter the biology of the host cell. This session will illustrate how viruses and bacteria alter host cell membrane traffic and regulate signaling pathways that coordinate broader immune responses.

Upon completion of this session, participants should be able to:

- Discuss the variety of mechnisms by which viruses and bacteria avoid and subvert host cell defenses.
- Discuss the consequences of pathogen-host cell interaction, from avoiding host immunity to promoting replication and cellular exit.
- Identify assays and tools available for studying host cell biology and host defenses during infection.

PLENARY

004 Microbiology in 2022: The Single-cell Point of View

Developed by the Junior Advisory Group

8:15 am - 10:45 am
Location: Room 103

Conveners:

Tim Miyashiro; Univ. of Wisconsin-Madison, Madison, WI.
Filipa Godoy-Vitorino; DOE-Joint Genome Inst., Walnut Creek, CA.

Presentations:

8:15 am
The Life Cycle of Bacteriophage Lambda: A View from the Single Phage
Ido Golding; Baylor Coll. of Med., Houston, TX.

8:45 am
Bacterial Chemotaxis from the Single Cell Perspective
Thierry Emonet; Yale Univ., New Haven, CT.

9:15 am
Tracing Interspecies Interactions and Ecophysiological Diversity of Deep-sea Methanotrophic Consortia by Stable Isotope Probing and Secondary Ion Imaging
Victoria Orphan; California Inst. of Technology, Pasadena, CA.

9:45 am
Why So Many Feedbacks in *Vibrio harveyi* Quorum Sensing?
Ned S. Wingreen; Princeton Univ., Princeton, NJ.

10:15 am
What if Each Cell is Different? Making Sense of Microbial Diversity using Single Cell Genomics
Ramunas J. Stepanauskas; Bigelow Lab for Ocean Sci., West Boothbay Harbor, ME.

Recent technological advances have revolutionized our ability to examine microbes at their most fundamental unit: the single cell. Striking developments in fluorescence microscopy, microfluidics, next-generation sequencing, and mathematical modeling now let us explore the essential mechanisms driving diversity, activity, and interactions among individual cells within populations and communities. Our newly-founded Junior Advisory Group for the ASM General Meeting has designed its inaugural plenary session to highlight the research of interdisciplinary scientists using these exciting new approaches. Their work explores the marvelous microbial adaptations that allow individual cells to respond to the world they encounter; approaches that will help define the direction of research in microbiology over the next decade.

Upon completion of this session, participants should be able to:

- Describe recent advances in single-cell microbial analysis, including the strengths and weaknesses of each.
- Describe the importance of interdisciplinary research for the future of microbiology.

PLENARY

005 Sculpting the Bacterial Cell

8:15 am - 10:45 am

Location: Room 102

Convener:

William Margolin; Department of Microbiology and Molecular Genetics, Univ. of Texas Med. Sch.-Houston, Houston, TX.

Presentations:

8:15 am
***E. coli* Cell Division, from A to Z**
William Margolin; Department of Microbiology and Molecular Genetics, Univ. of Texas-Houston, Houston, TX.

Division J Lecturer

8:45 am
Dynamically Localized Molecular Machines
Lucy Shapiro; Dev. Biology, Stanford Univ., Stanford, CA.

9:15 am
MreB Dynamics and Morphogenetic Function in *Bacillus subtilis*
Julia Dominquez Escobar; Max-Planck, Institute of Biochemistry, Martinsried, Germany.

9:45 am
Making Morphology: How *E. coli* Amends and Invents Cell Shape
Kevin D. Young; Univ. of Arkansas for Med. Sci., Little Rock, AR.

10:15 am
Bacteriophage Zen: The Importance of Being Centered
Joe Pogliano; Division of Biological Sciences, Univ. of California, San Diego, La Jolla, CA.

Bacteria display a strikingly diverse set of morphologies, and the relative simplicity of bacterial cells makes them ideal models for understanding how physics and genes combine to assemble, organize, grow, and divide a cell. Our understanding of how a whole cell is organized is still "taking shape", but recent advances in imaging protein dynamics within live cells and numerous structural and biophysical approaches have spurred significant progress, as have comparisons among different species. This session will explore how cytoskeletal proteins act along with other proteins and mechanical constraints to help a variety of bacterial species organize their cellular contents, grow, and divide while maintaining characteristic morphologies. The speakers in this session are among the leaders in the field of bacterial cell biology, and will share their latest insights. The session should be attractive to a wide general audience.

Upon completion of this session, participants should be able to:

- Describe the key cytoskeletal proteins involved in bacterial cell shape, growth and division and their mechanisms of action.
- Recognize the functions of cell wall synthesis enzymes in shaping bacterial cells.
- Describe the role of mechanical forces in organizing and shaping a bacterial cell.

PLENARY

006 Who's Doing What in Microbial Communities

8:15 am - 10:45 am
Location: Esplanade Ballroom 305

Convener:

Mary Lidstrom; Univ. of Washington, Seattle, WA.

Presentations:

8:15 am
Who's Cycling One-carbon Compounds in the Environment: From Single Cells to Populations
Mary E. Lidstrom; Univ. of Washington, Seattle, WA.

8:45 am

Integrated "omics" Studies of Natural Microbial Communities

Jillian Banfield; Univ. of California, Berkeley, Berkeley, CA.

9:15 am

Molecular and Genomic Insights into Species Interactions and Functions of Oceanic Microbial Communities

Jonathan Zehr; Univ. of California, Santa Cruz, Santa Cruz, CA.

Division Q Lecturer

9:45 am

Exploring Natural Microbial Communities using Lipids and Stable Isotope Ratios

Ann Pearson; Harvard Univ., Cambridge, MA.

10:15 am

Expanding the Boundaries of the Cultured Microbial World

Stephen J. Giovannoni; Department of Microbiology, Oregon State Univ., Corvallis, OR.

USFCC/J. Roger Porter Award

Culture-independent molecular biological techniques, such as those based on 16S rRNA sequences or on metagenomics, have revolutionized our ability to answer the question of "Who is There" in microbial communities, and provides some information on the potential for various functions in microbial populations. Activity measurements can provide information on bulk processes occurring in a microbial community. However, these techniques do not tell you which organisms are active and to what their contribution is the bulk activity. Several novel techniques are being developed to answer the question "Who's Doing What" in microbial communities. The speakers in this session will give examples of the application of these techniques to investigate microbial activity in diverse systems, including measuring physiological activity in single cells, using transcriptomics and proteomics to assess gene expression, and the use of lipids as biomarkers for organisms and activities in past and present communities. These and other techniques are allowing us to answer the crucial question "Who's Doing What" in microbial communities.

Upon completion of this session, participants should be able to:

- Recognize novel techniques to determine microbial function in natural and human-impacted habitats.
- Explain recent examples of how these techniques can resolve function of specific microbes.

SYMPOSIUM PACE CA FL

007 Best Practices Antimicrobial Susceptibility Testing: An Update from CLSI

8:15 am - 10:45 am

Location: Esplanade Ballroom 304

When Claiming ASCLS P.A.C.E. credits, please refer to the numbers listed after each presentation title.

Conveners:

Jean B. Patel; Centers for Disease Control and Prevention, Atlanta, GA.

Janet Hindler; UCLA Health System, Los Angeles, CA.

Presentations:

8:15 am

My Journey from a Medical Technologist to a Sonnenwirth Award Recipient: A Time to Remember...and Give Thanks (273-003a-12)

Susan Sharp; Microbiol., Kaiser Permanente–Northwest, Portland, OR.

bioMérieux Sonnenwirth Award for Leadership in Clinical Microbiology

8:45 am

CLSI Update Part I (273-003b-12)

Jean Patel; Centers for Disease Control and Prevention, Atlanta, GA.

CLSI Update Part II (273-003c-12)

Janet Hindler; UCLA Health System, Los Angeles, CA.

CLSI guidance for antimicrobial susceptibility testing is updated each year. Recent and upcoming changes in practice guidelines will be reviewed in this session. In each case, data and rationale supporting the new recommendation will be reviewed. In addition, the speakers will provide specific and practical guidance for implementing new laboratory practices. The presentations will be followed by a question and answer period on current and new antimicrobial susceptibility testing recommendations.

Upon completion of this session, participants should be able to:

- Implement changes in antimicrobial suseceptibility testing methods in their laboratory.
- Recommend best practices for antimicrobial susceptibility testing.
- Explain recent changes in CLSI guidelines.

Course Level: Intermediate

SYMPOSIUM PACE CA FL

008 Diagnostic Challenges in Gastroenteritis: Emerging Methodologies Meet Emerging Pathogens

8:15 am - 10:45 am

Location: Esplanade Ballroom 306

When Claiming ASCLS P.A.C.E. credits, please refer to the numbers listed after each presentation title.

Convener:

Randall T. Hayden; St. Jude Children's Res. Hosp., Memphis, TN.

Presentations:

8:15 am

Many Pathogens Present: Molecular Diagnosis of Diarrhea in Developing Countries (273-004a-12)

Eric Houpt; Univ. of Virginia, Charlottesville, VA.

8:45 am

High-throughput Genomic Platforms for Virus Identification in Gastroenteritis (273-004b-12)

Amit Kapoor; Coll. of Physicians and Surgeons of Columbia Univ., New York, NY.

9:15 am

New Kids on the Block: *Klebsiella oxytoca, Providencia alcalifaciens,* and *Aeromomas*? (273-004c-12)

J. M. Janda; Los Angeles County Dept. of Publ. Health, Los Angeles, CA.

9:45 am

Host Gene Polymorphisms and Susceptibility to Gastroenteritis (273-004d-12)

Pablo C. Okhuysen; The Univ. of Texas Med. Sch. at Houston, Houston, TX.

10:15 am

Viral Gastroenteritis in Transplant Patients (273-004e-12)

Randall T. Hayden; St. Jude Children's Res. Hosp., Memphis, TN.

Feces from patients with diarrhea are among the most frustrating specimens received in the diagnostic laboratory. Their handling

requires extensive time and resources yet positive results are the exception, not the rule. There is accumulating literature describing new agents of bacterial, parasitic, and viral gastroenteritis. New insights into the epidemiology of diarrheal agents and host factors are also being developed. It is important for Medical Microbiologists to be aware of such advances in order to field questions and requests from clinicians, better serve patients, and make informed decisions about tests and services to be added to the laboratory test menu.

Upon completion of this session, participants should be able to:

- Summarize the epidemiology and pathogenesis of some of the newer viral agents that cause gastroenteritis in immunocompromised and normal hosts.
- Explain how some enteric bacteria that are not generally considered stool pathogens cause diarrhea and suggest some potential diagnostic methods to detect them.
- Discuss some new ideas about parasitic agents of diarrhea.

Course Level: Beginner

SYMPOSIUM PACE CA FL

009 Diagnostic Molecular Parasitology: Revising the Gold Standard?

8:15 am - 10:45 am
Location: Esplanade Ballroom 309

When Claiming ASCLS P.A.C.E. credits, please refer to the numbers listed after each presentation title.

Convener:

Dylan Pillai; The Univ. of Calgary, Canada.

Presentations:

10:15 am

Using Protein Arrays for Antibody Profiling and Disease Stratification in Malaria Infection (273-005a-12)

Ruobing Wang; Seattle Biomedical Res. Inst., Seattle, WA.

8:15 am

Beyond the Leishman-Donovan Body: The Evolution of Leishmania Diagnostics (273-005b-12)

Peter J. Weina; Walter Reed Army Inst. of Res., Silver Spring, MD.

8:45 am

Verification and Validation of Multiplexed Molecular Diagnostics for Stool Parasites: Lessons Learned (273-005c-12)

Dylan Pillai; The Univ. of Calgary, Calgary, Canada.

9:15 am

Molecular Approaches to Tissue Invasive and Gastrointestinal Helminth Infections (273-005d-12)

Thomas B. Nutman; NIH, Bethesda, MD.

9:45 am

PCR Tests for Diagnosis and Genotyping in Human Toxoplasmosis (273-005e-12)

Jorge Gomez-Marin; Univ. del Quindio, Armenia, Colombia.

Molecular diagnostics of parasites presents unique challenges and opportunities to revise age-old microscopy-based testing. While viruses and bacteria have forged ahead with sophisticated multiplex assays, this session examines how molecular diagnostics will impact the clinical management and epidemiology of parasitic infections. The symposium attempts to catalog the developing technology of molecular diagnostics as it applies to the field of parasitology. We are only now beginning to implement molecular tools for the detection of parasites. Moving from traditional microscopy or culture to PCR will undoubtedly change our understanding of the epidemiology of tropical diseases. The speakers will update the audience on developments in the validation of molecular testing for such disease entities as malaria, toxoplasmosis, stool protozoa, leishmania and helminths. Specific attention will be given to issues of sample preparation, performance characteristics, quality assurance, and cost in the clinical setting. Research studies which seek to identify new molecular targets for diagnosis will also be presented. Methods such as PCR but also point of care testing (POCT) will be addressed. The symposium will be useful for diagnosticians, clinicians in practice, as well as study investigators relying on laboratory testing for parasites.

Upon completion of this session, participants should be able to:

- Elaborate on technical developments in molecular diagnostics as it applies to parasitology.
- Review the clinical utility of molecular tools in the diagnosis of parasitic infections.
- Discuss research conducted in the area of parasitic infections which may improve diagnosis.

Course Level: Intermediate

SYMPOSIUM PACE CA FL

010 Management of Invasive Fungal Infections in High Risk Groups: Interface Between Clinical Microbiology and Direct Patient Care

8:15 am - 10:45 am
Location: Esplanade Ballroom 303

When Claiming ASCLS P.A.C.E. credits, please refer to the numbers listed after each presentation title.

Conveners:

John R. Perfect; Duke Univ. Med. Ctr., Durham, NC.

Thomas Walsh; Transplantation-Oncology Infectious Diseases, Weill-Cornell Univ., New York, NY.

Presentations:

8:15 am

Risks Factors and Diagnostic Markers for Candidiasis in ICU Patients (273-006a-12)

Luis Ostrosky-Zeichner; Division of Infectious Diseases, Univ. of Texas Med. Sch. at Houston, Houston, TX.

8:45 am

Emerging Challenges of Invasive Mycoses in Patients with Hematological Malignancies (273-006b-12)

Thomas Walsh; Transplantation-Oncology Infectious Diseases, Weill-Cornell Univ., New York, NY.

9:15 am

Invasive Candidiasis in Neonatal Intensive Care Units (273-006c-12)

Emmanuel Roilides; 3rd Dept. Pediatrics, Aristotle Univ. of Thessaloniki, Thessaloniki, Greece.

9:45 am

Invasive Fungal Infections in Solid Organ Transplant Recipients (273-006d-12)

Joanna Schaenman; Univ. of Los Angeles, Los Angeles, CA.

10:15 am

IRIS and Fungal Infections in HIV-infected Patients (273-006e-12)

John R. Perfect; Duke Univ. Med. Ctr., Durham, NC.

This symposium uses several high risk, unique groups for infectious diseases to characterize issues of management. In these very high risk groups, the focus for this symposium will be on invasive fungal infections. Through the challenges of these life-threatening common pathogens, the latest principles in epidemiology, diagnostics, prevention and treatment that are applicable to all of the infectious diseases and are so critically important to the outcome of our sickest patients will be described. This symposium will focus on the management of our most fragile patients. A combination of evidence-based studies with insights by experts who deal with the issues daily will be provided. This approach will have general relevance to the principles of all of infectious diseases in these unique, severely immunosuppressed populations. Topics: Risks Factors and Diagnostic Markers for Candidiasis in Medical-Surgical ICU Patients; Invasive Mycoses in Patients with Hematological Malignancies and Hematopoietic Stem Cell Transplantation; Invasive Candidiasis in Neonatal Intensive Care Units; Invasive Fungal Infections in Solid Organ Transplant Recipients; IRIS and Invasive Mycoses in HIV-Infected Patients.

Upon completion of this session, participants should be able to:

- Discuss the critical interaction between clinical microbiology and direct patient care of immunocompromised hosts.
- Review the host specific strategies for diagnosis and treatment of invasive fungal infections in immunocompromised patients.
- Identify the therapeuutic implications for diagnosis of specific fungal pathogens in high risk patients.

Course Level: Advanced

SYMPOSIUM

PACE CA FL

011 New Insights in Global Surveillance of Current and Emerging Infectious Diseases

8:15 am - 10:45 am
Location: Esplanade Ballroom 308

When Claiming ASCLS P.A.C.E. credits, please refer to the numbers listed after each presentation title.

Convener:

Bernard Bucher; Fort-de-France Univ. Med. Ctr., Fort-de-France.

Deshratn Asthana; Univ. of Miami, Miami, FL.

Presentations:

8:15 am

Global Pandemic Surveillance: Critical Elements, Challenges and Opportunities (273-007a-12)

Lone Simonsen; The George Washington Univ. Sch. of Publ. Hlth. and Hlth. Services, Washington, DC.

8:45 am

Strengthening Laboratory Networks to Respond to Emerging and Re-emerging Diseases (273-007b-12)

John N. Nkengasong; Centers for Disease Control and Prevention, Atlanta, GA.

9:15 am

Effective eHealth and mHealth Tools in Dengue and Influenza Surveillance and Research in Nicaragua (273-007c-12)

Eva Harris; Univ. of California, Berkeley, Berkeley, CA.

9:45 am

Global Patterns of Infectious Disease Prevalence: The Creation of Electronic Databases (273-007d-12)

Sir Roy Anderson; Imperial Coll., London, United Kingdom.

Division Y Lecturer

10:15 am

ARICABA: Towards an Integrated Emerging Disease Surveillance System for the Eastern Caribbean (273-007e-12)

Paul Ricketts; Ministry of Health, Roseau, Dominica.

Emerging diseases have almost quadrupled over the last fifty years. New vectors of infections continue to appear all over the world; however, recent studies show that there are certain geographical areas best suitable for the emergence of new microbes. Analysis of the social, geographical, climatic and ecological context in which these diseases suddenly emerge have unveiled two main conducive environments:

- Tropical developing countries, where population pressure puts humans in contact with a very diverse wildlife.
- Developed countries (where the widespread use of antibiotics has encouraged the emergence of resistant bacterial strains – e.g., vancomycin-resistant Staphylococcus aureus) and certain developing countries of the southern hemisphere (where malaria has become resistant to chloroquine).

It is now estimated that about 20% of emerging diseases are caused by resistance to treatment. In this context, surveillance and the modern technology utilized to this endeavor are key issues today. This session is about new developments in epidemic intelligence applied to emerging and reemerging infectious diseases in the international setting. It will also focus on the monitoring, early warning and attempted forecasting of infectious diseases worldwide. Special attention will be given to several avenues that aim at providing a basis for effective interventions through Decision Support Systems(DSS).

These include:

- Real-time clinical and laboratory data collection systems.
- The use of information communication technology (ICT) and its mobile phone applications for data collection and analysis.
- Selected disciplines like Knowledge Discovery in Databases (KDD), including data mining.
- Mathematical modeling techniques.
- Global health networks of networks. The session will draw upon field examples, such as the development of intelligent surveillance systems in North America, Europe and the Caribbean to monitor emerging infectious diseases (eg., vectorborne diseases/dengue fever, emerging pathogens...) and will hence be of use to both the United States and global microbiology and public health communities.

Upon completion of this session, participants should be able to:

- Review the state of the art of epidemiological surveillance, with global and historical perspectives.
- Explain the role of the laboratory in current and future networks for infectious disease surveillance (including laboratory data collection systems and global health cross networks).
- Expand the breadth of knowledge of the use of information communication technology, the applications of knowledge discovery in databases/data mining and advances in mathematical modeling in the surveillance of emergine infectious diseases.

Course Level: Intermediate

POSTER SESSIONS

012 – 042 Poster Sessions see pages 99 – 124

10:45 am – 12:30 pm
Location: Hall C

SPECIAL INTEREST SYMPOSIUM

043 Striking the Balance in Fresh Produce: Food Safety, Animal Control, Water Sourcing and Environmental Impact—Research Issues in Microbiology

11:00 am - 1:00 pm
Location: Room 132

Developed by the Committee on Agricultural and Food Microbiology

Conveners:

Michael P. Doyle; Ctr. for Food Safety, Univ. of Georgia, Griffin, GA.
Jacqueline A. Fletcher; Oklahoma State University, Stillwater, OK.

Presentations:

11:00 am
Introduction
Michael P. Doyle; Ctr. for Food Safety, Univ. of Georgia, Griffin, GA.

11:15 am
Human Pathogens on Plants: Designing a Multidisciplinary Strategy for Research
Jacqueline A. Fletcher; Oklahoma State University, Stillwater, OK.

11:45 am
Microbial Food Safety of Leafy Greens: Study of a Pre-harvest Environment
Robert Mandrell; U.S. Department of Agriculture, Agricultural Research Service, Albany, CA.

12:15 pm
Setting the Scene around the Public Health Challenges—a Focus on Outbreaks
David W. Acheson; Leavitt Partners, Washington, DC.

12:45 pm
Feedback and Discussion

This session, sponsored by the PSAB Committee on Agricultural and Food Microbiology, will discuss complex issues that focus on fresh produce but that often arise during microbial research dealing with the need to balance multiple interests related to food safety, water sourcing, animal control and environmental impact. Parallels can be drawn across the research specturm and this session will be of broad interest to ASM members and general meeting attendees.

Upon completion of this session, participants should be able to:

- Discuss research needs, funding gaps and have the tools to begin to dialogue solutions in the areas of animal control, watersourcing environmental impact and food safety as it relates to fresh produce.
- Describe how research areas intersect and need to all be taken into consideration to undertake research and identify funding gaps.
- Describe how multiple fields of microbiology research need to be integrated and how to engage in multidisciplinary work both now and in the future.

SPECIAL INTEREST SYMPOSIUM

044 Careers for Microbiologists

11:00 am - 1:30 pm
Location: Esplanade Ballroom 304

Developed by the Membership Board

Convener:

Joanna Goldberg; Univ. of Virginia, Charlottesville, VA.

Presentations:

11:00 am
Teaching at an Undergraduate Institution: Transitioning from Postdoc to Faculty
Preston P. Garcia; Castleton State Coll., VT.

11:30 am
Environmental Consulting—Finding Out that the "Dark Side" is Actually Quite Bright
Eleanor M. Jennings; Remediation Services, URS Corp., Gaithersburg, MD.

12:00 pm
University and Industry Positions for Microbiologists in Intellectual Property
Sonia K. Guterman; Lawson and Weitzen, LLP, Boston, MA.

12:30 pm
Break-out Session

Developed by the Education Board. This session will provide specific examples of accomplished microbiologists, who have followed disparate paths and found success in diverse careers. In addition to formal presentations by these speakers, time will be devoted to meeting and personally interacting with them. The goal is to provide information on some of the typical and less typical career opportunities in microbiology.

SPECIAL INTEREST SYMPOSIUM

045 The Culture of Rice: From Farm to Fermentation

11:00 am - 1:30 pm
Location: Room 102

Developed by the Center for the History of Microbiology/ ASM Archives

Convener:

Karen-Beth G. Scholthof; Pathology and Microbiol., Texas A&M Univ., College Station, TX.

Presentations:

11:00 am
Introduction and General Historical Perspective
Karen-Beth G. Scholthof; Pathology and Microbiol., Texas A&M Univ., College Station, TX.

11:15 am
Jokichi Takamine: *Aspergillus oryzae* from Farm to Pharma
Joan W. Bennett; Plant Biology and Pathology, Rutgers Univ., New Brunswick, NJ.

11:45 am
The History and Culture of Sake: Rice Wine Fermentation
Izumi Motai; Takara Sake, Berkeley, CA.

12:15 pm
Golden Rice: the Rationale for It and the Science Behind It
Francis X. Cunningham, Jr.; Univ. of Maryland, College Park, MD.

12:45 pm
Towards a Better Bowl of Rice: The Molecular Basis of Disease Resistance
Pamela C. Ronald; Univ. of California, Davis, Davis, CA.

1:15 p.m.
Panel Discussion

This symposium, sponsored by the Center for the History of Microbiology/ASM Archives, will focus on the history of microbiology using rice as the "driver" and will cover global issues in agriculture, nutrition, microbiology and fermentation. Using the Pacific-Rim as a starting point, the symposium will elaborate on the expansive use and culture of rice, the primary source of calories and nutrition for almost half the world population. The historical and cultural significance of rice and its uses, from basic food to fermented products including sake, will be examined. The importance of rice in understanding host innate immunity, nutritionally beneficial genetic engineering, and the development and use of fermented foodstuffs and pharmaceuticals will be discussed. This symposium will provide a broadly ranging discourse that should be of interest to ASM members associated with education, outreach or research in the areas of food microbiology, biotechnology, host-pathogen interactions, fermentation, and the history of microbiology.

Upon completion of this session, participants should be able to:

- Describe the historical significance and origins of rice cultivation, fermentation biology before germ theory, plant diseases and crop loss, and the use of fungi for fermented foods and pharmaceuticals.
- Describe the history of rice as a substrate for food and pharmaceutical fermentation and some current controversies concerning biotechnology and genetically modified foods.
- Explain the significance of rice as a critically important food worldwide.

SPECIAL INTEREST SYMPOSIUM

046 Laboratory Capacity Building: Challenges and Successes

11:00 am - 1:30 pm
Location: Esplanade Ballroom 308

Developed by the International Board

Convener:

Steven Specter; Associate Dean of Medicine, Univ. of South Florida Coll. of Med., Tampa, FL.

Presentations:

11:15 am

Tanzania: Laboratory Capacity Building

Fausta S. F. Mosha; National Health Laboratory, Ministry of Hlth. and Social Welfare, Dar es Salaam, Tanzania, United Republic of.

11:45 am

Haiti: Laboratory Capacity Building

Jacques Boncy; Laboratoire Natl. de Sante Publique, Port-au-Prince, Haiti.

12:15 pm

Nigeria: Laboratory Capacity Building

Oni Odigbe; Nigerian Inst. of Med. Res., Yaba, Lagos, Nigeria.

12:45 pm

Mozambique: Laboratory Capacity Building

Eduardo Samo Gudo; Network of Reference Laboratories and Services, Ministry of Health, Maputo, Mozambique.

As part of ASM's programs on global development — Resource-constrained countries represent an added challenge when trying to achieve quality-assured laboratory testing of infectious diseases of public health importance. Most of the laboratories have limited resources, including lack of equipment, proper funding, adequate training for laboratory workers, and systematic management of work. At the same time, these countries are typically the ones with the highest burden of disease. Global efforts are underway to strengthen these laboratories toward improved global disease detection and containment. Furthermore, international and local organizations have developed some mechanisms to assist these laboratories toward national and international accreditation, so as to recognize the laboratories that have been strengthened, while encouraging other facilities to strive for a similar standard of care.

Upon completion of this session, participants should be able to:

- Describe the status of laboratory diagnostics in resource-constrained countries.
- Explain the initiatives working to improve laboratory standardization and quality of care.
- Describe how strengthening resource-constrained countries in quality health care affects the rest of the world.

SPECIAL INTEREST SYMPOSIUM

047 Microbiome: Racial and Ethnic Differences

11:00 am - 1:30 pm
Location: Esplanade Ballroom 306

Developed by the Committee on Microbiological Issues Impacting Minorities

Conveners:

Marian Johnson-Thompson; Univ. of the District of Columbia, Washington, D.C.

Floyd L. Wormley JR.; Biology, Universtiy of Texas at San Antonio, San Antonio, TX.

Presentations:

11:00 am

Diversity Among the Vaginal Microbiome

Larry J. Forney; Biological Sciences, Univ. of Idaho, Moscow, ID.

11:30 am

Urethral Microbiome of Adolescent Males

J. Dennis Fortenberry; Indiana Univ. - Purdue Univ. at Indianapolis, Indianapolis, IN.

12:00 pm

The Intestinal Microbiota and Inflammatory Bowel Disease

Courtney J. Robinson; Howard Univ., Washington, DC.

12:30 pm

Challenges in Recruiting and Incorporating Minority Subjects in Clinical Studies

Ligia Peralta; Univ. of Maryland Sch. of Med., College Park, MD.

1:00 pm

Diversity and Ethics of Human Microbiomes from Traditional Indigenous People

Cecil Lewis; Univ. of Oklahoma, Norman, OK.

The human microbiota has a significant influence upon human physiology, immune responses and nutrition. Consequently, multiple efforts, including the Human Microbiome Project (HMP) sponsored by the National Institutes of Health, are underway to develop resources that enable the characterization of the human microbiota and analysis of its role in human health and disease. A goal of this initiative is to understand whether changes in the human microbiome can be linked to changes in human health. Recent studies that identified inherent differences in microbial communities between individuals of different racial and ethnic groups support the need for considering differences within the microbiota between individuals when performing risk assessments and disease diagnosis. This session will examine the

microbiota between individuals when performing risk assessments and disease diagnosis. This session will examine the importance and benefits of ensuring broad racial and ethnic diversity among study participants as well as the ethical, legal and social implications (ELSI) of these studies.

Upon completion of this session, participants should be able to:

- Describe why characterization of the human microbiota and analysis of its role in human health and disease is important.
- Discuss the ethical, legal and social implications (ELSI) of why ensuring the inclusion of minority and indigenous populations in the characterization of the human microbiome is necessary to improve human health.
- Explain how information concerning possible differences in human microbiota can be used to guide medical treatment and improve human health.

SPECIAL INTEREST SYMPOSIUM

PACE CA FL

048 In the Year 2525: Survival Strategies and Clinical Microbiology's Leadership Role in Tomorrow's Healthcare Teams

11:00 am - 1:30 pm
Location: Esplanade Ballroom 305

When Claiming ASCLS P.A.C.E. credits, please refer to the numbers listed after each presentation title.

Developed by the Public and Scientific Affairs Board

Conveners:

Vickie S. Baselski; Path., Univ. of Tennessee, Memphis, TN.
Donna M. Wolk; Univ. of Arizona, Tucson, AZ.

Presentations:

11:00 am
Strategic Planning for Clinical Microbiology: Getting Our Heads in the Game (273-154a-12)
Amy L. Leber; Lab. Med., Nationwide Children's Hosp., Columbus, OH.

11:30 am
Financial Planning and Internal Marketing: The Laboratory Playbook (273-154b-12)
Vickie S. Baselski; Path., Univ. of Tennessee, Memphis, TN

12:00 pm
System's Based Clinical Microbiology: The Pre-and Post Game Show (273-154c-12)
Donna M. Wolk; Univ. of Arizona, Tucson, AZ.

12:30 pm
Evidence-based Clinical Microbiology: Betting with the Odds (273-154d-12)
Elizabeth M. Marlowe; Microbiol., Southern California Permanente Med. Grp., North Hollywood, CA.

1:00 pm
Microbiology-Centered Care: Creating a Winning Team (273-154e-12)
Kimberle C. Chapin-Robinson; Univ./Rhode Island Hosp., Providence, RI.

Effective processes for laboratory growth, new test implementation, evidence-based practices, and workforce development, are often misunderstood by the healthcare community and their collaborators. As biosciences and medical diagnostics become increasingly important to the larger scientific community, the life sciences industry, government funding sources, legislators, and policy makers, it is critical for all microbiologists to understand the principles of laboratory medicine and the impact of clinical microbiologists on a modern healthcare systems. This session will highlight the professional value of clinical microbiology practices that support patient care and prudent use of healthcare resources.

This session is dedicated to the use of molecular tools to identify exposure or disease in clusters and outbreaks.

Upon completion of this session, participants should be able to:

- Describe the principles of strategic planning,strategic thinking,and strategic management,and how to integrate them with your test development in support of the mission, vision, and goals of your healthcare systems to enhance patient care.
- Discuss the mission critical function of accurate CPT coding for laboratory functions such as cost accounting, productivity, and utilization review.
- Discuss the principles of a statistically-based QA project or evidence-based intervention, including literature review, documentation and publicizing results to administration and the community, to enhance the noticeable laboratory impact to your healthcare organization and raise the level of respect for the laboratory.

Course Level: Beginner

POSTER SESSIONS

049 – 069 Poster Sessions see pages 125 – 141

1:00 pm – 2:45 pm
Location: Hall C

SYMPOSIUM

PACE CA FL

070 Controversies in Transplantation Microbiology

3:00 pm - 5:30 pm
Location: Esplanade Ballroom 308

When Claiming ASCLS P.A.C.E. credits, please refer to the numbers listed after each presentation title.

Convener:

Moon Nahm; Univ. of Alabama at Birmingham, Birmingham, AL.

Presentations:

3:00 pm
Reducing Transmission of Infectious Diseases through Transplantation: What to Test and Who to Tell (273-008a-12)
Matthew Kuehnert; Centers for Disease Control and Prevention, Atlanta, GA.

3:30 pm
Infectious Disease Testing in Donors: FDA Perspectives (273-008b-12)
Melissa Greenwald; Food and Drug Admin., Washington, MD.

4:00 pm
Tissue Donor Testing and Methods used to Culture Tissue (273-008c-12)
Scott A. Brubaker; American Association of Tissue Banks, McLean, VA.

4:30 pm
Immunosuppression and Opportunistic Infection (273-008d-12)
Geoffrey A. Land; Methodist Hosp., Houston, TX.

5:00 pm

Transplantation: New Challenges and Opportunities for Microbiologists (273-008e-12)

Moon H. Nahm; Pathology, Univ. of Alabama at Birmingham, Birmingham, AL.

Recent reports of the transmission of serious infection with organ transplantation have raised awareness and concern about the risk for and management of complications associated with these procedures. Simultaneously, clinicians and laboratory directors have been challenged to navigate a host of regulations and expectations regarding testing and quality assurance. These controversial issues come at a time when new advances in the understanding of transplant host immunology and our capacity to more closely predict and manage the risk of rejection offers the promise of expanding access to these potentially life-saving procedures. This session will introduce seasoned and even less-experienced clinical laboratory leaders to timely and controversial issues in the management of tissue and organ transplantation. Speakers drawn from clinic and research labs, as well as the CDC, FDA and tissue banks will share a broad range of perspectives on this important and complicated subject.

Upon completion of this session, participants should be able to:

- Describe specific risks for microbial contamination associated with the transplantation of organs and tissues and strategies to mitigate harm.
- Identify the regulatory environment surrounding commercial and clinical applications of tissue and organ transplantation.
- Examine new perspectives on the management and evaluatin of host immunity in the setting of organ and tissue transplantation.

Course Level: Intermediate

SYMPOSIUM

071 Divide and Conquer! The Evolution of Diverse Microbial Division Mechanisms

3:00 pm - 5:30 pm
Location: Esplanade Ballroom 310

Convener:

Esther Angert; Cornell Univ., Ithaca, NY.

Presentations:

3:00 pm

Dividing Divided Cells: Cell Structure and Division in the Compartmentalized Planctomycetes

John Fuerst; Univ. of Queensland, Brisbane, Australia.

3:30 pm

Chlamydia Co-opts the Rod-Shape Determining Proteins MreB and Pbp2 for Cell Division

Scot P. Ouellette, G. Karimova, A. Subtil, D. Ladant; Inst. Pasteur, Paris, FRANCE.

3:45 pm

Membranous Structure Regulation Protein of Bacterial Organelle for Nano-sized Iron Oxide Biomineralization

Masayoshi Tanaka[1], A. Arakaki[2], T. Tanaka[2], T. Matsunaga[2]; [1]Tokyo Univ. of Agriculture and Technology, Tokyo, JAPAN, [2]Tokyo University of Agriculture and Technology, Tokyo, JAPAN.

4:00 pm

The Archaeal Cdv Cell Division System

Erik Pelve; Dept. of Molecular Evolution, Uppsala Univ., Uppsala, Sweden.

4:30 pm

De Novo Synthesis of the Cell Wall in *E. coli:* Reversion of L-Forms

Gabriel H. Billings[1], K. C. Huang[2]; [1]Stanford Univ. Dept. of Physics, Stanford, CA, [2]Stanford Univ. Dept. of Bioengineering, Stanford, CA.

4:45 pm

A Novel Mode of Reproduction in *Listeria monocytogenes* L-forms

Titu Staubli, Y. Briers, M. Schuppler, M. J. Loessner; ETH Zurich, Zurich, SWITZERLAND.

5:00 pm

Evolution of Intracellular Offspring Production in *Epulopiscium*

Esther Angert; Dept. of Microbiology, Cornell Univ., Ithaca, NY.

Cell propagation is a fundamental process for all cellular life. While FtsZ-mediated binary fission dominates bacterial and euryarchaeotal division modes, alternative mechanisms have evolved in several major microbial lineages. This session with explore recent advances in the field of microbial cell division. It will feature model systems that either do not use binary fission or do not divide using FtsZ. By featuring these diverse systems, we will explore factors that influence the evolution of cell propagation mechanisms.

Upon completion of this session, participants should be able to:

- Recognize that cell propagation mechanisms are diverse.
- Explain the phylogenetic distribution of FtsZ-mediated division mechnisms and those mechanisms that do not use FtsZ.
- By providing a selection of diverse systems, define factors that may have driven evolution of diverse systems.

SYMPOSIUM

072 Getting Down to the Nuts and Bolts of Pathogenesis

3:00 pm - 5:30 pm
Location: Room 104

Conveners:

Karla Satchell; Northwestern Univ., Chicago, IL.
Matthias Machner; NIH, Bethesda, MD.

Presentations:

3:00 pm

Legionella Type IV Effectors in Cellular Trafficking

Matthias Machner; NIH, Bethesda, MD.

3:30 pm

Yersinia enterocolitica Effector YspI Influences Focal Adhesion Kinase Function

Karen LeGrand, H. Matsumoto, G. M. Young; Univ. of California, Davis, CA.

3:45 pm

How Structural Insights Can Be Used To Examine the Spatiotemporal Dynamics of Bacterial Type-3 Effector Signaling Molecules

R. C. Orchard, **Neal M. Alto**; Univ. of Texas Southwestern, Dallas, TX.

4:00 pm

Plasma Membrane Localization of *Vibrio* MARTX Toxin Effectors

Karla F. Satchell; Microbiology-Immunology, Northwestern Univ., Chicago, IL.

4:30 pm

Listeria monocytogenes Possesses a Homolog of Hibernation Promoting Factor (HPF) that is Required for 100S Ribosome Dimer Formation and Aids in Stress Tolerance

Benjamin C. Kline, S. L. McKay, D. A. Portnoy; Univ. of California, Berkeley, Berkeley, CA.

4:45 pm

Phenotype-selective Protein Labeling in Heterogeneous *Pseudomonas aeruginosa* Biofilms

Brett M. Babin, D. A. Tirrell; California Inst. of Technology, Pasadena, CA.

5:00 pm

Colonization of the Vascular Wall by *Neisseria meningitidis*

Guillaume Duménil; INSERM, Paris, France.

Bacterial pathogenesis is essentially the sum of numerous distinct biochemical and cell biological interactions which eventually result in alteration of the environment that is beneficial for either the host or the bacterium. This session will consider how specific biochemical changes to bacterial structures, bacteria-mediated alterations to host proteins, and interactions between bacterial and host proteins can enhance or antagonize pathogenesis. The speakers will discuss the structural mechanisms of action of the virulence factors and how this detailed biochemical knowledge enhances our understanding of overall pathogenesis. Speakers will emphasize alterations to specific bacterial or host proteins and how these detailed changes integrate into the broader scope of the infectious process.

Upon completion of this session, participants should be able to:

- Describe how detailed biochemical studies can impact our understanding of broader themes of bacterial pathogenesis.
- Explain multiple mechanisms by which post-translational modifications and protein-protein interactions can impact pathogenesis.
- Recognize how a variety of different host cell processes are affected by bacterial infection.

SYMPOSIUM

073 The Great Indoors: Recent Advances in the Ecology of Built Environments

3:00 pm - 5:30 pm
Location: Esplanade Ballroom 300

Convener:

Jonathan A. Eisen; Univ. of California, Davis, CA.

Presentations:

3:00 pm

microBEnet: The Microbiology of the Built Environment Network

Jonathan A. Eisen; Univ. of California, Davis, CA.

3:30 pm

Examination of the Environmental Air Microbiome Using Deep Sequencing

Nicholas A. Be[1], J. B. Thissen[1], J. E. Allen[1], V. Fofanov[2], H. Koshinsky[2], C. Jaing[1]; [1]Lawrence Livermore Natl. Lab., Livermore, CA, [2]Eureka Genomics, Hercules, CA.

3:45 pm

A Microbial Analysis of Environmental Surfaces in Hotel Rooms

Katie R. Kirsch[1], S. Sirsat[1], J. Neal[1], S. Kline[2], B. Almanza[3], O. Stroia[2]; [1]Univ. of Houston, Houston, TX, [2]Univ. of South Carolina, SC, [3]Purdue Univ., IN.

4:00 pm

Stability of Airborne Microbes to Master Environmental Variables

Mark Hernandez; Univ. of Colorado, Boulder, CO.

4:30 pm

Microbial Communities Associated With Flue Gas Desulfurization Systems

John M. Senko, B. P. Brown; The Univ. of Akron, Akron, OH.

4:45 pm

Drinking Water Delivery Networks as Microbial Ecosystems

Kimberly A. Ross; Univ. of Colorado at Boulder, Boulder, CO.

5:00 pm

The Effect of Environmental Conditions on the Allergenic Potency of *Aspergillus fumigatus* Spores

Jordan Peccia; Yale Univ., New Haven, CT.

Although humans in industrialized countries spend nearly 90% of their time in enclosed buildings, we know very little about the biology of the indoor environment. However, this is starting to change. Over the past few years, the field of indoor ecology has grown dramatically. Ecologists are beginning to apply ecological theory and concepts to understanding buildings as ecosystems. A new understanding of the biodiversity of built environments is emerging, as well as a new appreciation of the importance of interactions between humans and non-human life indoors. The proposed symposium will showcase this emerging understanding. We will feature presentations that demonstrate the utility of ecological theory for understanding built environments, that describe the dynamics of biodiversity indoors and that illustrate the interactions of humans with indoor ecology. Our focus will be on the ecology of the dominant forms of non-human life indoors — microorganisms — and their interactions with humans.

Upon completion of this session, participants should be able to:

- Discuss how ecological concepts and approaches can be used to interpret molecular surveys of microbial communities.
- Recognize the opportunities afforded by collaborations between ecologists, buidling scientists, architects and biomedical researchers in describing the ecology of built environments.
- Explain value of viewing buildings as ecosystems.

SPECIAL INTEREST SYMPOSIUM

074 The Highway to Success for Women in Microbiology: Avoiding the Potholes and Roadblocks

3:00 pm - 5:30 pm
Location: Room 254

Developed by the Committee on the Status of Women in Microbiology

Conveners:

Lorraine A. Findlay; Nassau County Comm. Coll. and Med. Ctr., Garden City, NY.

Hazel A. Barton; Univ. of Akron, Akron, OH.

Presentations:

3:00 pm

Gender Equity Across Work Sectors: Common Challenges and Unique Stressors

Joan Herbers; Association for Women in Sci., Alexandria, VA.

3:30 pm

Beyond Bias and Barriers: Prospects for Women in Academic Science

Joan Steitz; Howard Hughes Medical Institute, Yale Univ., New Haven, CT.

4:00 pm

Why Can't a Woman Be More Like a Man? Does Subtle Bias Still Affect Women in STEM?

Joan C. Williams; Univ. of California, Hastings College of the Law, San Francisco, CA.

4:30 pm

Strategic Negotiation for Women in Science

Ericka Gray; DisputEd, Boston, MA.

5:00 pm

How to Position Yourself for Advancement

Shirley M. Malcom; American Association for the Advancement of Sci., Washington, DC.

This session, sponsored by the Committee on the Status of Women in Microbiology, will provide strategies to assist women to remain and advance in careers in microbiology. Women in large numbers still continue to leave careers in microbiology and the sciences in general, and women continue to encounter glass ceilings and be under-rewarded in professional environments. Topics will include: When and why women are lost from science careers; How to balance the building of a career while raising a family - what are the inherent problems and what is the best timing; How to prepare for promotion and advancement; How to negotiate for a salary - women can have different negotiation styles; How to resolve gender discrimination and harassment issues; How to gain assertiveness, assure proper acknowledgement, and resolve conflicts. All members of ASM can gain useful information from this session.

Upon completion of this session, participants should be able to:

- Identify and apply strategies to remain in a science career.
- Organize to successfully prepare for a promotion and negotiate a salary.
- Identify and apply strategies to resolve conflicts and gender discrimination issues.

SYMPOSIUM

075 Ion Homeostasis in Bacteria

3:00 pm - 5:30 pm
Location: Esplanade Ballroom 301

Conveners:

Ian R. Booth; Univ. of Aberdeen, Aberdeen, United Kingdom.
Samantha Miller; Univ. of Aberdeen, Aberdeen, United Kingdom.

Session Introduction:

Samantha Miller; Univ. of Aberdeen, Aberdeen, UK.

Presentations:

3:00 pm

Potassium Homeostatis in Gram-negative Bacteria and its Integration with Cell Physiology

Ian R. Booth; Dept. of Molecular and Cell Biology, Univ. of Aberdeen, Aberdeen, United Kingdom.

3:30 pm

Potassium Transport in *Staphylococcus aureus* and its Role in Antimicrobial Susceptibility

Casey M. Gries, K. W. Bayles; UNMC, Omaha, NE.

3:45 pm

The Pivotal Twin-Histidine Element of the *Escherichia coli* Ammonium Channel AmtB Functions as a Substrate Selectivity Filter

Jason A. Hall[1], D. Yan[2]; [1]Univ. of California, San Diego, La Jolla, CA, [2]Indiana Univ. Sch. of Med., Indianapolis, IN.

4:00 pm

The Conformational States of MscS

James Naismith; Univ. of St. Andrews, St. Andrews, United Kingdom.

4:30 pm

Mutational Analysis of MscS in *Escherichia coli*

Susan S. Black, V. Prazak, M. D. Edwards, S. Miller, I. R. Booth; Univ. of Aberdeen, Aberdeen, UNITED KINGDOM.

4:45 pm

Molecular Determinants of the MscL Oligomeric State

Troy A. Walton[1,2], C. S. Gandhi[1,2], D. C. Rees[1,2]; [1]California Inst. of Technology, Pasadena, CA, [2]Howard Hughes Med. Inst., Pasadena, CA.

5:00 pm

Structure and Function of a Potassium Ion Transporter TrkH

Ming Zhou; Columbia Univ., New York, NY.

The growth and survival of bacteria is conditional on the regulated flux of major cations and anions. We are familiar with the regulatory circuits that determine the intracellular levels of potentially toxic metals, such as zinc and copper ions, but we are often neglectful in developing our understanding of the most basic ions, potassium, sodium, protons and chloride. In this session we will present three major aspects of ionic regulatory mechanisms, including uptake and efflux of ions, but we will also place this understanding of mechanism in the wider context of cell physiology. We hope to have additional short presentations regarding novel phenomena, opportunities for therapeutic interventions that act via transport mechanisms, and other wider aspects of ion homeostasis. Opportunities will be created to ask questions regarding the basic properties of the cell in respect to ion homeostasis. By the end of the session we expect that participants will have a deeper understanding of ion transport, a seemingly abstruse but fundamental topic to cell physiology.

Upon completion of this session, participants should be able to:

- Explain the importance of ionic homeostasis in bacteria and the mechanisms by which it is achieved.
- Describe the molecular mechanisms of uptake of potassium and its integration with metabolism.
- Identify the properties of efflux systems, their regulation and their integration with cell physiology.

SYMPOSIUM

076 Mechano-Microbiology: How Bacteria Sense and Respond to Physical Forces

3:00 pm - 5:30 pm
Location: Esplanade Ballroom 305

Convener:

Zemer Gitai; Princeton Univ., Princeton, NJ.

Presentations:

3:00 pm

Studying the Assembly of the Bacterial Cell Wall by Watching Cells Push on their Surroundings

Douglas Weibel; Univ. of Wisconsin-Madison, Madison, WI.

3:30 pm

Robust Chiral Cell-wall Elongation and Division

Kerwyn C. Huang; Stanford Univ., Stanford, CA.

3:45 pm

Pseudomonas aeruginosa Sense and Respond to Mechanical Stimulation

Alexandre Persat, Z. Gitai; Princeton Univ., NJ.

4:00 pm

Mechanical Activation of Bacterial Adhesion

Wendy Thomas; Univ. of Washington, Seattle, WA.

4:30 pm

The Roles of Pel and Psl in Early *P. aeruginosa* Biofilm Formation Studied by High-Throughput, Automated Tracking and Analysis

Vernita D. Gordon, B. J. Cooley, T. Thatcher, G. L'Her, A. Kissinger, E. Reed, J. Stuart; Univ. of Texas at Austin, Austin, TX.

4:45 pm

Molecular Architecture and Assembly Principles of *Vibrio cholerae* Biofilms

Veysel Berk[1], J. C. F. Fong[2], G. T. Dempsey[3], O. N. Develioglu[4], X. Zhuang[3], J. Liphardt[1], F. H. Yildiz[2], S. Chu[1]; [1]Univ. of California Berkeley, Berkeley, CA, [2]Univ. of California Santa Cruz, Santa Cruz, CA, [3]Harvard Univ., Cambridge, MA, [4]Taksim Training and Res. Hosp., Istanbul, TURKEY.

5:00 pm

Electric Company: Development of the *Geobacter* Conductive Biofilm

Daniel Bond; Univ. of Minnesota, Minneapolis, MN.

While bacteria have long been known to sense and respond to chemical signals from their environments, recent work indicates that they can also sense and respond to physical signals. Such signals include physical confinement, shear stresses, association with solid surfaces, and even electrical stimuli. In addition to exploring how different types of physical forces affect bacteria, we will also consider the vast range of size scales affected by physical stimuli, including intracellular organization, cell-cell associations, and communitywide organization in biofilms. Finally, we may touch on how bacteria can not only sense their existing physical environment, but can also actively manipulate that same environment. The area of mechanomicrobiology is highly inter-disciplinary and in this session we hope to bring together microbiologists, biophysicists, cell biologists, and engineers to discuss this exciting emerging field.

Upon completion of this session, participants should be able to:

- Describe the types of physical forces in their environments affect bacterial physiology.
- Explore the scales affected by physical forces, including subcellular organization, cell-cell adhesion, and community interactions.
- Identify some mechanisms by which bacteria sense, respond, and potentially reshape their physical environmensts.

SYMPOSIUM

077 Microbial Colonization and the Host: Do the Colonists Reshape the Landscape?

3:00 pm - 5:30 pm
Location: Room 102

Convener:

Laura J. Knoll; Univ. of Wisconsin-Madison, Madison, WI.

Presentations:

3:00 pm

Unexpected Benefits to the Host from the "Parasite" *Toxoplasma gondii*

Laura Knoll; Univ. of Wisconsin-Madison, Madison, WI.

3:30 pm

Production of Gamma-Aminobutyric Acid by Intestinal Commensal Bifidobacterium dentium

Karina Pokusaeva, J. Versalovic; Baylor Coll. of Med., Houston, TX.

3:45 pm

Spatial Systems Biology: Imaging the Effect of the Microbiome on Gut Metabolism with Mass Spectrometry

Christopher M. Rath[1], T. Alexandrov[1], S. Higginbottom[2], D. Relman[2], M. Fishbach[3], J. Sonnenburg[2], P. C. Dorrestein[1]; [1]Univ. of California at San Diego, CA, [2]Stanford Univ. Sch. of Med., CA, [3]Univ. of California at San Francisco, CA.

4:00 pm

Microbial Modulation of Diversity and Disease in the Caterpillar Gut

Jo Handelsman; Yale Univ., New Haven, CT.

4:30 pm

Acyl-homoserine Lactone Quorum Sensing and Interspecies Competition

Josephine R. Chandler[1], N. S. Robins[2], E. P. Greenberg[1]; [1]Univ. of Washington, Seattle, WA, [2]Univ. of Arizona, Tucson, AZ.

4:45 pm

Eavesdropping on Small-Molecule-Mediated Conversations in the Nostril Microbiota

B. E. Jacobson[1], J. Claesen[2], E. E. Pagano[1], M. Zimmerman[3], K. L. Goguen[1], T. C. Scharschmidt[2], M. S. Wollenberg[1], M. A. Fischbach[2], **Katherine P. Lemon**[1,4]; [1]Forsyth Inst., Cambridge, MA, [2]Univ. of California, San Francisco, San Francisco, CA, [3]Inst. of Molecular Systems Biology, Zurich, SWITZERLAND, [4]Children's Hosp. Boston, Harvard Med. Sch., Boston, MA.

5:00 pm

Malaria and Filarial Co-infections in Humans: Immunologic and Clinical Implications

Thomas B. Nutman; NIH, Bethesda, MD.

This session will examine the diverse mechanism whereby microbial colonization benefits the host. Colonization has traditionally been defined as a microbial community that does not affect the host. Emerging evidence now shows that microbial communities play several different beneficial roles including resisting infection from pathogenic microbes and modulating the immune response. Presentations will focus on the co-evolution of microbes with each other and the host. We will also examine the consequences to the host when colonizing microbes removed. Data from bacteria, viruses, fungi, and parasite infections in their respective insect, mouse and human hosts will be presented. Examples will include how microbes that are usually considered pathogens can play protective roles against subsequent lethal challenges or during inflammatory diseases. This session will challenge canonical thinking about chronic infections and host/microbe interactions.

Upon completion of this session, participants should be able to:

- Explain that many microbes have co-evolved with their hosts and that the host ascribes benefits from that interaction.
- Explore the consequences to the host when one of its colonizing microbes in removed.

SYMPOSIUM

078 New Data Shed New Light on Old Questions

3:00 pm - 5:30 pm
Location: Room 133

Convener:

Laura L. Mays Hoopes; Pomona Coll., Claremont, CA.

Presentations:

3:00 pm

Giant Viruses Change the Perception of Viruses

James L. Van Etten; Univ. of Nebraska, Lincoln, NE.

3:30 pm

The Permian-Triassic Extinction Event is Associated with the Evolution of Acetoclastic Methanogenesis via Horizontal Gene Transfer

Gregory P. Fournier, E. Alm, D. Rothman; MIT, Cambridge, MA.

3:45 pm

Functional Profiling of the *E. coli* Genes in Long-Term Stationary Phase

Yuta Otsuka[1], R. Takeuchi[1], H. Dose[1], H-C. Huang[2], H-F. Juan[3], M. Yamada[4], H. Matsuno[5], B. L. Wanner[6], H. Mori[1]; [1]Graduate Sch. of Biological Sci., NARA Inst. of Sci. and Technology, Ikoma, JAPAN, [2]Inst. of BioMed. Informatics, Natl. Yang-Ming Univ., Taipei, TAIWAN, [3]Dept. of Life Sci., Natl. Taiwan Univ., Taipei, TAIWAN, [4]Faculty of Agriculture, Yamaguchi Univ., Yamaguchi, JAPAN, [5]Faculty of Sci., Yamaguchi Univ., Yamaguchi, JAPAN, [6]Dept. of Biological Sci., Purdue Univ., West Lafayette, IN.

4:00 pm

Empowering Hispanics while Conducting Research in Geomicrobiology and Metagenomics

Lilliam Casillas-Martinez; Biology, Univ. of Puerto Rico, Humacao, PR.

Division W Lecturer and Carski Foundation Distinguished Undergraduate Teaching Award

4:30 pm

De Novo Assembly Of Transcripts From The Deep Sea Reveals Metabolisms Of Novel Lineages

Brett J. Baker; Univ. of Michigan, Ann Arbor, MI.

4:45 pm

CACAO: Competitive Annotation of Gene Function

Brenley K. McIntosh[1], D. P. Renfro[1], R. Lovering[2], S. Ades[3], R. Britton[4], I. Friedberg[5], L. Hughes[6], S. Trevino[7], A. Cheng Vollmer[8], F. McCarthy[9], J. Willey[10], B. Pruess[11], S. Perdue[12], J. Kowalski[12], T. Paustian[13], D. Migl[1], D. A. Siegele[1], A. E. Zweifel[1], J. C. Hu[1]; [1]Texas A&M Univ., College Station, TX, [2]Univ. Coll., London, London, United Kingdom, [3]Penn State Univ., PA, [4]Michigan State Univ., MI, [5]Miami Univ., OH, [6]Univ. of North Texas, TX, [7]Houston Baptist Univ., TX, [8]Swarthmore Coll., PA, [9]Mississippi State Univ., MS, [10]Hofstra Univ., NY, [11]North Dakota State Univ., ND, [12]Univ. of Wisconsin, Parkside, WI, [13]Univ. of Wisconsin, WI.

5:00 pm

New Epigenetics in Eukaryotic Microbes

Laura Mays Hoopes; PomonaColl.Dept.ofBiology, Claremont, CA.

The symposium will introduce many of the new paradigms in microbiology, presenting new findings in a way that is digestible and applicable to teaching. Our featured topics will be how the discovery of mimiviruses challenges viral evolutionary theories and changes the definition of "life," how microbial ecology is transformed by new studies of "superorganisms" and metagenomes and geological aggregates of microbes as opposed to individuals, and how understanding epigenetics and other non-DNA based regulatory systems, which can be poorly understood by educators, interconnect many regulatory systems.

Upon completion of this session, participants should be able to:

- Explain how epigenetics has impacted knowledge of microbe phenotypes.
- Summarize the data from NextGen Sequencing and Geomicrobiology and how new information implies species associations.
- Describe new findings about giant viruses and how they impact understanding of viral classifcation and definitions of life.

SYMPOSIUM

079 New Insights into Fungal Pathogenesis

3:00 pm - 5:30 pm
Location: Room 132

Conveners:

Kirsten Nielsen; Univ. of Minnesota, Minneapolis, MN.
Robert Cramer; Montana State Univ., Bozeman, MT.

Presentations:

3:00 pm

Titan Cell Production Promotes the Virulence of *Cryptococcus neoformans*

Kirsten Nielsen; Univ. of Minnesota, Minneapolis, MN.

3:30 pm

Cryptococcal Laccase Expression Interferes with Pulmonary Control of Highly Virulent *Cryptococcus neoformans* H99 by Modulating the Adaptive Immune Response

Yafeng Qiu[1,2], M. Davis[1,2], J. Dayrit[1], J. Carolan[1,2], J. Freij[1,2], P. Vedula[1,2], J. Osterholzer[1,2], P. Willianmson[3], M. Olszewski[1,2]; [1]Dept of VA, Ann Arbor, MI, [2]Univ. of Michigan, Ann Arbor, MI, [3]Natl. Inst. of Allergy and Infectious Diseases, NIH, Bethesda, MD.

3:45 pm

Cryptococcus neoformans Extracellular Vesicles Can Be Categorized by Morphological and Functional Differences

Julie M. Wolf, A. Casadevall; Albert Einstein Coll. of Med., New York, NY.

4:00 pm

Mechanisms and Therapeutic Implications of *Aspregillus fumigatus* Hypoxia Adaptation

Robert Cramer; Montana State Univ., Bozeman, MT.

4:30 pm

Critical Contribution Of Translational Control To The Unfolded Protein Response (UPR) In The Fungal Pathogen *Aspergillus fumigatus*

Karthik M. Krishnan[1], M. Zhang[2], N. Fedorova[3], W. C. Nierman[3], L. J. Lu[2], D. S. Askew[1]; [1]Univ. of Cincinnati, Cincinnati, OH, [2]Cincinnati Children's Hosp. Res. Fndn., Cincinnati, OH, [3]The J. Craig Venter Inst., Rockville, MD.

4:45 pm

Fungicidal Drugs Induce a Common Oxidative Damage Cellular Death Pathway

Peter Belenky[1], D. Camacho[1], J. J. Coillins[1,2]; [1]HHMI, Boston, MA, [2]Boston Univ., Boston, MA.

5:00 pm

Fungal Virulence and Iron Homeostasis in *Cryptococcus neoformans*

Jim Kronstad; The Univ. of British Columbia, Vancouver, Canada.

Division F Lecturer

The incidence of life threatening fungal infections continues to increase due to expansion of immunocompromised patient populations. In this session, we will explore recent developments in our understanding of how these human pathogenic fungi are able to cause disease and how this increased understanding may be utilized therapeutically to improve patient outcomes. Recent research developments that will be discussed during this session include mechanisms of fungal adaptation to host microenvironments that allow robust in vivo fungal growth, host induced changes in fungal morphology that alter host fungal recognition and effector cell mediated killing, and fungal mediated host evasion strategies that encompass both microenvironmental and immune induced mechanisms. Taken together,

these seminars will present an excellent overview of our current understanding of fungal pathogenesis mechanisms that is applicable to a broad spectrum of fungal-host interactions and provide a foundation for discussion on how these mechanisms can be used to develop new therapeutic options for these often lethal infections.

Upon completion of this session, participants should be able to:

- Describe new developments in fungal pathogenesis.
- Identify basic mechanisms by which certain fungi cause disease.

SYMPOSIUM PACE CA FL

080 QUIZ BUSTERS: So you THINK You Know Microbiology! An Interactive Quiz

3:00 pm - 5:30 pm
Location: Esplanade Ballroom 304
ASCLS P.A.C.E.®: 273-009-12

Conveners:

Roberta Carey; Centers for Disease Control and Prevention, Atlanta, GA.

Peter Gilligan; Univ. of North Carolina Hosp., Chapel Hill, NC.

3:00 pm – 3:30 pm

Enteric Epidemics: History Revisited and Lessons Learned

L. Barth Reller; Clinical Microbiology, Duke Univ. Med. Ctr., Durham, NC.

ABMM/ABMLI Professional Recognition Award

QUIZ BUSTERS TEAMS:

Team NYCASM—New York City Branch ASM

Susan Whittier; Columbia Univ. Med Ctr, New York, NY.

Karen Alleva-Celic; New York-Presbyterian Hosp./Weill Cornell Med. Ctr., New York, NY.

Kathy Fauntleroy; New York-Presbyterian Hosp., New York, NY.

Team ISM—Illinois Branch ASM

William Janda; Univ. of Illinois-Chicago, Chicago, IL.

Bridget Blumer; ACL-Illinois, Rosemont, IL.

Violeta Rekasius; Loyola Univ. Med. Ctr., Maywood, IL.

Team NCASM—Northern California Branch ASM

Niaz Banaei; Stanford Univ., Palo Alto, CA.

Nancy Watz; Stanford Univ., Palo Alto, CA.

Indre Budvytiene; Valleycare Hlth. System, San Francisco Bay Area, CA.

Team SCASM—Southern California Branch ASM

Charlotte Egan; Orange County Publ. Hlth. Lab., CA.

Marie Pezzlo; Univ. of California Irvine Med. Ctr., Irvine, CA.

Margie Morgan; Cedars-Sinai Med. Ctr., Los Angeles, CA.

This is the ultimate test of knowledge in the clinical microbiology laboratory. Which experts are truly experts and where should questions be sent? Upon completion of this exciting Quiz Busters Session, the participants should be able to: identify those conventional and unconventional methods of identifying microorganisms from clinical specimens worth maintaining. From the question and answer format, they should be able to determine those new procedures that clinical microbiology laboratories should consider utilizing to identify organisms more rapidly and more accurately.

Upon completion of this session, participants should be able to:

- Determine the optimal methods for identifying emerging infectious diseases.
- Discuss detection of recently described types of anitimicrobial resistance.
- Optimize the steps necessary to identify a newly described organism and compare it to any others that may have recently been recovered.

Course Level: Intermediate

SYMPOSIUM

081 Recent Advances in RNA Polymerase Structure/ Function and Transcriptional Regulation

3:00 pm - 5:30 pm
Location: Esplanade Ballroom 302

Convener:

Robert Landick; Univ. of Wisconsin-Madison, Madison, WI.

Presentations:

3:00 pm

Structural Studies of Bacterial Transcription Initiation

Seth Darst; Rockefeller Univ., New York, NY.

3:30 pm

Metagenomic Sigma-Promoter Diversity for Genome-Wide Prediction and Genetic Engineering

Virgil Rhodius[1], T. Segall-Shapiro[2], K. Clancy[3], T. Peterson[3], C. A. Gross[1], C. A. Voigt[2]; [1]Univ. of California, San Francisco, CA, [2]Massachusetts Inst. of Technology, Cambridge, MA, [3]Life Technologies, Carlsbad, CA.

3:45 pm

Quantitative Analysis of RNA Dynamics in *Escherichia coli* by RNA Sequencing

Huiyi Chen, K. Shiroguchi, X. S. Xie; Harvard Univ., Cambridge, MA.

4:00 pm

Molecular Basis of the Stringent Response: How ppGpp and DksA Interact with *E. coli* RNA Polymerase

Wilma Ross; Univ. of Wisconsin-Madison, Madison, WI.

4:30 pm

The Lipoprotein Lpp, a New σE Activator

Monica S. Guo[1], S. Lima[2], R. T. Sauer[2], C. A. Gross[1]; [1]Univ. of California - San Francisco, San Francisco, CA, [2]Massachusetts Inst. of Technology, San Francisco, MA.

4:45 pm

A Lineage-Specific Insertion in the β' Subunit Gates the Secondary Channel of RNA Polymerase

Ran Furman[1], O. V. Tsodikov[2], I. Artsimovitch[1]; [1]the Ohio State Univ., Columbus, OH, [2]University of Michigan, Ann Arbor, MI.

5:00 pm

Regulation of RNA Polymerase: From the Catalytic Center to Genome Distribution

Robert Landick; Bacteriology, Univ. of Wisconsin, Madison, WI.

The past several years have witnessed continued advances in our understanding of RNA polymerase structure and how changes in structure are coupled to regulatory decisions. These include insights into conformational changes that underpin regulation of both the initiation of transcription and the elongation of RNA transcripts. It is now possible to connect these structural insights to regulatory mechanisms in ways that not only define the details of the particular system under study, but also generate principles that can be applied to other regulatory systems by inference. This session will provide attendees up-to-date knowledge of these recent advances that can be applied to countless problems in microbiology.

Upon completion of this session, participants should be able to:

- Describe recent advances in the structure/function of RNA polymerase and transcriptional regulation.
- Define questions about transcriptional regulation and RNA polymerase structure/function that result from these recent advances.
- Describe RNA polymerase structure/function and transcriptional regulation.

SYMPOSIUM PACE CA FL

082 Sound Bites to Superbugs: How to Communicate Risk to the Public and Physicians

3:00 pm - 5:30 pm
Location: Esplanade Ballroom 306

When Claiming ASCLS P.A.C.E. credits, please refer to the numbers listed after each presentation title.

Convener:

Tara C. Smith; Univ. of Iowa, Iowa City, IA.

Presentations:

3:00 pm

Science Denial and the Internet (273-010a-12)

Tara C. Smith; Epidemiology, Univ. of Iowa, Iowa City, IA.

3:30 pm

Emerging Microbial Threats: Communication Challenges and Opportunities (273-010b-12)

James Hughes; Emory Univ., Atlanta, GA.

4:00 pm

Improving Risk Communication: The Importance of Individual Perceptions of Risk (273-010c-12)

Robyn Wilson; The Ohio State Univ., Columbus, OH.

4:30 pm

A Scientist's Guide to Defeating Science Denial (273-010d-12)

Josh Rosenau; Natl. Ctr. for Sci. Ed., Oakland, CA.

Science denial is prominent in many areas of expertise. When individuals deny health and medical information, consequences can be serious. Anti-vaccination sentiment has increased and led to outbreaks of preventable disease. In this session, attendees will learn how to communicate risk effectively to the general public; to understand why individuals do not accept scientific evidence; and to work with physicians to facilitate increased understanding.

Upon completion of this session, participants should be able to:

- Describe strategies of science denial.
- Explain methods of risk communication.
- Communicate with laypersons and media on scientific topics.

Course Level: Beginner

SYMPOSIUM

083 Symbiosis as a Driver of Ecology and Evolution

3:00 pm - 5:30 pm
Location: Esplanade Ballroom 303

Conveners:

Edward G. Ruby; Univ. of Wisconsin-Madison, Madison, WI.

Nicole Dubilier; Max Planck Inst. for Marine Microbiol., Bremen, Germany.

Presentations:

3:00 pm

Symbiosis as Evolutionary Innovation in Agriculture in Ants

Cameron Currie; Univ. of Wisconsin-Madison, Madison, WI.

Division R Lecturer

3:30 pm

A Bacterial Sphingolipid Triggers Multicellularity in the Closest Relative To Animals

Rossanna A. Alegado[1], L. W. Brown[2], R. Kontnik[2], S. Cao[2], R. Zuzow[3], S. Fairclough[1], J. Clardy[2], N. King[1]; [1]Univ. of California Berkeley, Berkeley, CA, [2]Harvard Med. Sch., Boston, MA, [3]Stanford Univ. Sch. of Med., Stanford, CA.

3:45 pm

Veritas Est Lux: Symbiont Light Regulates Host Cryptochrome Transcription in the *Euprymna scolopes-Vibrio fischeri* Association

Elizabeth A. C. Heath-Heckman, S. M. Peyer, M. J. McFall-Ngai; Univ. of Wisconsin-Madison, Madison, WI.

4:00 pm

Genomic Insights into the Marine Sponge Microbiome

Ute Hentschel-Humeida; Univ. of Würzburg, Würzburg, Germany.

4:30 pm

Stability of the Defensive Symbiosis between the Bryozoan *Bugula neritina* and its γ-Proteobacterial Symbiont

Grace E. Lim-Fong, D. Paulus, A. Worrell, V. Arnone; Randolph-Macon Coll., Ashland, VA.

4:45 pm

Genome Evolution in the Horizontally-Transmitted Chemoautotrophic Symbiont of a Deep-Sea *Bathymodiolus* Mussel

Jillian M. Petersen[1], L. Sayavedra[1], S. Wetzel[1], M. Richter[1], E. Pelletier[2,3,4], V. Barbe[2,3,4], N. Dubilier[1]; [1]Max Planck Inst. for Marine Microbiol., Bremen, Germany, [2]Commissariat à l'Energie Atomique et aux Energies Alternatives/Genoscope, Évry, France, [3]Ctr. Natl. de la Recherche Scientifique, Évry, France, [4]Université d'Evry Val d'Essone, Évry, France.

5:00 pm

Establishment of Infant Gut Microbiota: Consumption of Human Milk Oligosaccharides by Bacteroides

Angela Maria Marcobal Barranco; Stanford Univ., Stanford, CA.

Biology is experiencing a revolution in its vision of how animals and plants live in the world. We now know such organisms do not exist as individuals, but function together with consortia of microorganisms, many of which define where and how the organism lives. These mutualistic associations can be ancient, and the co-evolution of an animal host with one or more specific symbionts will often affect the present-day behavior, morphology and metabolism of both partners. As a result, the host species can now live in a new environment, on novel nutrients, and the symbiont will have adapted to the specific ecology of its host. This session will explore the evolutionary and ecological consequences of symbiosis in both invertebrate and vertebrate hosts, as well as the adaptations that have occurred in their specific microbial partners that increase the symbiont's evolutionary trajectory and ecological competitiveness. Thus, studies of the microbiota of marine sponges, social insects and humans are joining to reveal the principles underlying the development and function of symbioses in general.

Upon completion of this session, participants should be able to:

- Describe the cological forces driving the success of microbial symbioses.
- Evaluate the complexity of microbial consortia and their functions.
- Recognize the role of co-evolved symbionts in promoting the health of the host.

SYMPOSIUM

084 What's for Dinner? Connecting Bacterial Metabolism with Host Interaction

3:00 pm - 5:30 pm
Location: Room 130

Convener:

Andreas Baumler; Univ. of California at Davis, Davis, CA.

Presentations:

3:00 pm

Campylobacter in the Chicken Gut: Tales from the Zinc Age

Victor J. Dirita; Univ. of Michigan Med. Sch., Ann Arbor, MI.

Division B Lecturer

3:30 pm

The Probiotic *Escherichia Coli* Nissle 1917 Needs Iron To Reduce Salmonella Colonization And Dissemination

Elisa Deriu[1], M. Pezeshki[1], R. Ochoa[1], H. Contreras[1], R. A. Edwards[1], S. Libby[2], F. Fang[2], M. Raffatellu[1]; [1]Univ. of California, Irvine, CA, [2]Univ. of Washington, Seattle, WA.

3:45 pm

The PI-6 Island of the Crohn's Disease-Associated *E. coli* Strain NRG857 is Required for Resistance to Host-Defense Peptides and for Stable Mouse Colonization

Joseph B. McPhee, B. K. Coombes; McMaster Univ., Hamilton, ON, CANADA.

4:00 pm

A Breathtaking Feat: Microbiota Changes during Gut Inflammation are Driven by Anaerobic Respiration

Sebastian E. Winter; Univ. of California at Davis, Davis, CA.

4:30 pm

Flexible Energy Metabolism and Respiratory Pathways are Key Contributors to *E. coli* Fitness during UTI

Christopher J. Alteri, S. D. Himpsl, H. L. T. Mobley; Univ. of Michigan Med. Sch., Ann Arbor, MI.

4:45 pm

Glycosyl Hydrolases Involved in the Consumption of Human Milk Oligosaccharides by *Bifidobacterium longum* subsp. infantis

Daniel Garrido, S. Ruiz-Moyano, R. Jimenez-Espinoza, H-J. Eom, D. Block, D. A. Mills; Univ. of California, Davis, Davis, CA.

5:00 pm

A Paradigm for Glycan Acquisition by the Human Gut *Baceroidetes:* The Starch Utilization System (SUS) of *Bacteroides thetaiotaomicron*

Nicole Koropatkin; Univ. of Michigan Med. Sch., Ann Arbor, MI.

Microbial metabolism in the host underlies both beneficial and pathogenic interactions. The host response can dramatically alter growth conditions, which impacts pathogens but also alters the microbial community structure in some niches, such as the intestinal tract. This session will focus on emerging mechanistic studies elucidating how metabolism impacts colonization of specific niches in the host.

Upon completion of this session, participants should be able to:

- Discuss key metabolic pathways of microbes that are relevant during their interaction with a host.
- In a broader context, explain how these metabolic pathways could be seen as potential targets of future intervention strategies.

SYMPOSIUM

085 When Good Bugs Go Bad: Microbiome Dynamics and Disease

3:00 pm - 5:30 pm
Location: Room 103

Conveners:

Forest Rohwer; San Diego State Univ., San Diego, CA.

Lita M. Proctor; Natl. Human Genome Res. Inst/NIH, Bethesda, MD.

Presentations:

3:00 pm

The Shifting Holobiont: Mutualism to Pathogenesis

Forest Rohwer; San Diego State Univ., San Diego, CA.

3:30 pm

DNA Virome in the Human Distal Esophagus

Yingfei Ma[1], M. Thiagarajan[2], R. Madupu[2], M. Torralba[2], R. Richter[2], T. Parsons[1], V. M. Srinivasa[1], C. W. Nossa[3], S. M. Brown[1], Y. Chen[1], Y. Shao[1], M. Poles[1], F. Francois[1], M. Traube[1], M. Goutte[4], U. Karaoz[5], S. Yooseph[2], Y-H. Rogers[2], P. S. Yachimski[4], E. L. Brodie[5], K. E. Nelson[2], Z. Pei[1], Z. Pei[1], L. Yang[1]; [1]New York Univ., Sch. of Med., New York, NY, [2]The J. Craig Venter Inst., Rockville, MD, [3]Rice Univ., Houston, TX, [4]Vanderbilt Univ. Sch. of Med., Nashville, TN, [5]Lawrence Berkeley Natl. Lab., Berkeley, CA.

3:45 pm

Mobilization of *Staphylococcus aureus* Pathogenicity Islands by Similar Helper Phages Exhibit Combination-Dependent Size-Determination

Altaira Dearborn, T. Dokland; Univ. of Alabama at Birmingham, Birmingham, AL.

4:00 pm

The Evolution of Multicellular Life is Accompanied by the Emergence of Cancer: Insights from Tumor-bearing Hydra

Thomas C. Bosch; Christian-Albrechts Univ.-Kiel, Kiel, Germany.

4:30 pm

Microbiome Profile Of Primary Immunodeficient Patients: How Does Human Immunity Shape Bacterial Communities?

Julia Oh[1], S. Conlan[1], C. Deming[1], J. Thompson[1], A. Freeman[2], NISC Comparative Sequencing Program, F. Candotti[1], P. Murray[3], S. Holland[2], M. Turner[4], H. Kong[4], J. Segre[1]; [1]Natl. Human Genome Res. Inst./NIH, Bethesda, MD, [2]Natl. Inst. of Allergy and Infectious Disease/NIH, Bethesda, MD, [3]NIH Clinical Ctr., Bethesda, MD, [4]Natl. Cancer Inst./NIH, Bethesda, MD.

4:45 pm

Application of Quantitative Proteomics Methods to Microbial Communities: from Acid Mine Drainage to Human Gut Microbiota

Chongle Pan[1], A. Erickson[1], Z. Li[1], R. Adams[1], N. Justice[2], A. Mosier[2], R. Lamendella[3], J. Jansson[3], B. Cantarel[4], C. Fraser-Liggett[4], C. Fraser-Liggett[4], C. Fraser-Liggett[4], J. Banfield[2], R. Hettich[1]; [1]Oak Ridge Natl. Lab., Oak Ridge, TN, [2]Univ. of California, Berkeley, CA, [3]Lawrence Berkeley Natl. Lab., Berkeley, CA, [4]Univ. of Maryland Sch. of Med., College Park, MD.

5:00 pm

Modeling Intestinal Dysbiosis in Zebrafish

Karen Guillemin; Univ. of Oregon, Eugene, OR.

The human microbiome consists of thousands of viral and microbial species which inhabit the human body and have co-evolved with us to protect against pathogens, regulate organ development and supply nutrients and essential co-factors for health. The members of the microbiome, which include viruses, phage, bacteria, archaea and eukaryotic microbes, interact to maintain this ecosystem but sometimes microbiomes can go awry and imbalances in microbiome function can lead to disease. This symposium will explore the various roles that the microbiome and its specific members play in the initiation and persistence of diseases. Emergent properties of the microbiome ecosystem will be compared and contrasted across various diseases. This session will also address the roles of the microbiome in disease as an evolutionary continuum from mutualism to pathogenesis

Upon completion of this session, participants should be able to:

- Discuss the interplay of microbiota with the host in disease initiation.
- Compare and contrast the roles of different members of the microbiome in diseases.
- Explore the roles of the microbiome and disease in an evolutionary context.

SYMPOSIUM PACE CA FL

086 Zoonoses in Companion and Farm Animals

3:00 pm - 5:30 pm
Location: Esplanade Ballroom 309

When Claiming ASCLS P.A.C.E. credits, please refer to the numbers listed after each presentation title.

Convener:

Andreas Sing; Bavarian Hlth. and Food Safety Authority, Oberschleißheim, Germany.

Presentations:

3:00 pm

Emerging or Re-emerging Zoonotic Diseases of Pets: From Exotic Pets to Zoonoses in the Bedroom (273-011a-12)

Bruno B. Chomel; Univ. of California Davis Sch. of Vet. Med., Davis, CA.

3:30 pm

Molecular Typing as a Framework for Understanding Host-pathogen Interaction (273-011b-12)

Lothar H. Wieler; Free University of Berlin, Berlin, Germany.

4:00 pm

Unwanted Tropical Souvenirs–Zoonoses and Travel (273-011c-12)

Sally J. Cutler; Univ. of East London, London, United Kingdom.

4:30 pm

Animal Bite Wound Infections from A to Z (Alligators to Zebras) (273-011d-12)

Ellie J. C. Goldstein; RM Alden Res. Lab., Santa Monica, CA.

5:00 pm

Experiences with Zoonoses in a State Public Health Laboratory (273-011e-12)

Andreas Sing; Bavarian Hlth. and Food Safety Authority, Oberschleißheim, Germany.

Most emerging infectious diseases of the last few decades are caused by zoonotic pathogens. The session will enhance the knowledge on a variety of relevant zoonotic pathogens — viruses, bacteria and parasites — of both companion and farm animals to be encountered in the daily life of a medical microbiologist, medical practitioner or veterinarian. Relevant issues of zoonotic diseases will be presented from different aspects and levels: medical and veterinarian, laboratory and clinical, public health and medical care, local to global, “old” and “emerging” diseases.

Upon completion of this session, participants should be able to:

- Identify relevant pathogens to encounter after companion and farm animal contact.
- Explain relevant issues of zoonotic diseases on several levels (local to global, diagnostic to clinical).
- Discuss the need of an interdisciplinary approach to zoonoses.

Course Level: Beginner

Monday, June 18

Division Lectures

Division	Time	Location	Session #
C	8:15 a.m. - 10:45 a.m.	Esplanade Ballroom 309	93
D	8:15 a.m. - 10:45 a.m.	Room 104	89
E	3:00 p.m. - 5:30 p.m.	Room 133	159
G	3:00 p.m. - 5:30 p.m.	Room 104	157
I	3:00 p.m. - 5:30 p.m.	Room 130	156
K	3:00 p.m. - 5:30 p.m.	Esplanade Ballroom 310	154
P	11:00 a.m. - 12:30 p.m.	Room 133	Business Meeting
S	3:00 p.m. - 5:30 p.m.	Room 132	158
T	3:00 p.m. - 5:30 p.m.	Room 132	158
X	3:00 p.m. - 5:30 p.m.	Room 254	151
Z	8:15 a.m. - 10:45 a.m.	Room 103	90

Division Business Meetings

Division	Time	Location
G	11:00 a.m. - 12:00 p.m.	Esplanade Ballroom 302
I	11:00 a.m. - 11:30 a.m.	Esplanade Ballroom 303
P	11:00 a.m. - 12:30 p.m.	Room 133
Q	11:00 a.m. - 11:30 a.m.	Esplanade Ballroom 304
X	11:00 a.m. - 12:00 p.m.	Esplanade Ballroom 301
Y	7:00 a.m. - 8:00 a.m.	Esplanade Ballroom 301

PLENARY

087 Biogeochemical Cycling: Past, Present and Future

8:15 am - 10:45 am
Location: Esplanade Ballroom 305

Conveners:

Alexandra Z. Worden; Monterey Bay Aquarium Res. Inst., Moss Landing, CA.

Stephen J. Giovannoni; Department of Microbiology, Oregon State Univ., Corvallis, OR.

Presentations:

8:15 am

Sulfate Reducing Bacteria as the Storytellers of Earth History

David T. Johnston; Harvard Univ., Cambridge, MA.

8:45 am

Microbial NitrogenTransformations Control the Ocean N Budget: Perspectives on Nitrate Consumption in Surface and Low Oxygen Waters

Bess B. Ward; Princeton Univ., Princeton, NJ.

Proctor & Gamble Award in Applied Environmental Microbiology Award

9:15 am

Sources and Cycling of Marine Nitrous Oxide

Karen Casciotti; Stanford Univ., Palo Alto, CA.

9:45 am

Cloud Services: Bacteria and Sulfur Cycling in the Surface Ocean

Mary Ann Moran; Univ. of Georgia, Athens, GA.

10:15 am

Genomic Insights into the Role of Diatoms in Marine Ecosystems

E. Virginia Armbrust; School of Oceanography, Univ. of Washington, Seattle, WA.

The Earth's climate and biogeochemical cycles are entering a period of accelerated change as the result of human activities. Microbial evolution has been driven by energy from light and biogeochemical transformations, and in turn, microorganisms have shaped the evolution of biogeochemical cycles. This symposium addresses new knowledge about modern microbial ecosystems and the impact that information is having on our understanding of geochemical history. Technological advances, including next generation sequencing and the improved scope and resolution of isotopic analyses are yielding insights into the evolution of microbial metabolism and the complex arrangements of metabolic processes into networks of community interaction. These advancements are also facilitating reconstruction of ancient patterns of change in geochemical cycles from the geological record as well as discoveries on present day activities of individual taxa. How does this new information impact our understanding of past, present and possible future scenarios of geochemical change? This session will explore fundamental elemental cycles such as the sulfur, nitrogen and carbon cycles and address new insights on the evolution and ecology of key taxa. At a broader level, we will discuss how these cycles, and the complex microbial interactions that mediate them, operate in modern times as well as perspectives on past and future times.

Upon completion of this session, participants should be able to:

- Discuss special features of earth's early atmospheric composition and microbial modifications to the atmosphere that made it habitable for multiple life forms.
- Discuss critical biogeochemical processes operating today and the organisms responsible for these processes.
- Discuss potential issues and changes to how microbes mediate today's climate and atmospheric conditions.

PLENARY

088 Interrogating the Genome

8:15 am - 10:45 am
Location: Room 102

Convener:

Carol A. Gross; Univ. of California at San Francisco, San Francisco, CA.

Presentations:

8:15 am

Transcription Circuits Evolve

Alexander D. Johnson; Univ. of California at San Francisco, San Francisco, CA.

8:45 am

Regulatory Evolution in *Saccharomyces*

Rachel Brem; Univ. of California, Berkeley, Berkeley, CA.

9:15 am

What do Molecular Fluctuations Tell Us about Cellular Organization?

Hana El-Samad; Univ. of California at San Francisco, San Francisco, CA.

9:45 am

Phenotype Sequencing: Identifying the Genes That Cause a Phenotype Directly from Pooled Sequencing of Independent Mutants

Christopher Lee; Univ. of California Los Angeles, Los Angeles, CA.

10:15 am

Using Systems Approaches to Dissect Central Bacterial Cellular Processes

Carol A. Gross; Univ. of California at San Francisco, San Francisco, CA.

The proliferation of sequence data provides an enormous opportunity to enhance our understanding of biological systems. Functional genomics utilizes sequence information to accelerate our understanding of gene function and pathway construction using a variety of technologies. The speakers in this session are at the forefront of these emerging approaches, including evolutionary genomics, genome-scale phenotyping and examining decision making at the cellular scale. Participants will not only be exposed to new fields, but are likely to get new ideas for their own research.

Upon completion of this session, participants should be able to:

- Develop an understanding of cutting edge genomic approaches.
- Describe how systems and molecular approaches synergize.
- Describe evolutionary genomics.

PLENARY

089 Microbes Trigger and Shape Immunity

8:15 am - 10:45 am
Location: Room 104

Convener:

Sarkis K. Mazmanian; California Inst. of Technology, Pasadena, CA.

Presentations:

8:15 am

Antiviral Immunity at Mucosal Surfaces

Akiko Iwasaki; Immunobiology, Yale Univ. Sch. of Med., New Haven, CT.

Eli Lilly and Company Research Award

8:45 am

Learning to Tolerate Our Microbial Self

Sarkis K. Mazmanian; Biology, California Inst. of Tech., Pasadena, CA.

9:15 am

Using Bacteria to Probe Human Innate Immune Diversity

Samuel I. Miller; Univ. of Washington, Seattle, WA.

9:45 am

Nets and Harpoons: Innate Immune Mediators of Host-Microbe Interaction in the Small Intestine

Charles Bevins; Univ. of California Davis, Davis, CA.

10:15 am

....and Immunity Shapes Microbes

Jeffrey N. Weiser; Department of Microbiology, Univ. of Pennsylvania, Philadelphia, PA.

Division D Lecturer

Mucosal surfaces are colonized by microbes that interact with the immune system. This session will focus on mucosal interactions and how microbes promote and alter the development of the immune system. Bacteria occupy nearly every niche in ecology. Animals are no exception: almost every environmentally exposed surface of the body is colonized with bacteria. Although adversely affected by bacterial infections (whose occurrence is relatively rare given the ubiquity of bacterial colonization), mammals have developed an essential requirement for association with bacteria. Adaptive co-evolution has guided this dynamic molecular conversation for millennia. However, the mechanism(s) employed by pathogenic and symbiotic bacteria to network with the immune system are only now being revealed. This symposium will bring together leading experts in the growing field of understanding how microbes shape their immune environment during both infections and symbiosis.

Upon completion of this session, participants should be able to:

- Describe the mechanisms by which commensal microbes promote developemnt of the immune response.
- Explain the basic elements of mucosal immune systems and how they interact with microbes.
- Describe how microbes alter and promote the evolution of immune responses.

PLENARY

090 One Health: Humans, Animals and the Environment

8:15 am - 10:45 am
Location: Room 103

Conveners:

Stanley Maloy; San Diego State Univ., San Diego, CA.

Ronald M. Atlas; Graduate Dean, Univ. of Louisville, Louisville, KY.

Presentations:

8:15 am

One Health Approach to Otters, Oocysts and Oceans

Patricia Conrad; School of Veterinary Medicine, Univ. of California - Davis, Davis, CA.

Division Z Lecturer

8:45 am

Microbe Hunting

Ian Lipkin; Columbia Univ. Med. Ctr., New York, NY.

9:15 am

All Disasters Happen at the Local Level: One Health in our Backyards

Nikos Gurfield; County of San Diego, San Diego, CA..

9:45 am

Vaccines to Prevent Emerging Invasive *Salmonella* Infections of Humans

Myron M. Levine; Center for Vaccine Development, Univ. of Maryland Sch. of Med., Baltimore, MD

Maurice Hilleman/Merck Award

The health of humans, animals, and the environment are inextricably interconnected. Disruption of the environment often creates new niches for the evolution of infectious diseases, and provides opportunities for the transmission of pathogens to animals or humans. The majority of infectious diseases that affect humans are acquired from animals. The ease and speed of travel makes it possible for a new human disease acquired from the environment or animals in one part of the world to rapidly spread to the rest of the world. Animals also often acquire infectious diseases from humans. Thus, human health depends upon health of animals and the environment. However, the fields of human and veterinary medicine and environmental sciences often fail to recognize this linkage. The panel will address these issues and discuss the impact of the One Health concept on the future of human and veterinary medicine and environmental policy.

Upon completion of this session, participants should be able to:

- Describe the impact of environmental health on transmission of infectious disease to animals and emerging disease in humans.
- Describe the impact of animal health on the transmission of infectious disease to humans.
- Describe the impact of human health on the transmission of infectious disease to animals.

PLENARY

091 Unseen Forces: Microbes Shape Animal Biology

8:15 am - 10:45 am
Location: Room 130

Conveners:

Michael G. Hadfield; Univ. of Hawaii at Manoa, Honolulu, HI.

Margaret McFall-Ngai; Univ. of Wisconsin, Madison, WI.

Presentations:

8:15 am

Nested Ecosystems: The Many Layers of Animal-Bacteria Interactions

Michael G. Hadfield; Univ. of Hawaii at Manoa, Honolulu, HI.

8:45 am

The Origin and Evolution of Animal-Bacterial Interactions

Nicole King; Univ. of California, Berkeley, Berkeley, CA.

9:15 am

Microbial Interfaces in Animal Life Cycles

Thomas C. Bosch; Christian-Albrechts Univ.-Kiel, Kiel, Germany.

9:45 am

Animal and Microbial Genomes: Intertwining of Old and New

Tomislav Domazet-Loso; Ruder Boskovic Inst., Zabreg, Croatia.

10:15 am

Talking with the Animals: The Health Consequences of Resident Microbes

Angela Douglas; Cornell Univ., Ithaca, NY.

Research in microbiology over the last 20 years has convincingly demonstrated that the vast diversity of life is microbial, and that the evolution of plants and animals during the most recent 20% of the earth's history has occurred as a patina upon a microbe-dominated landscape. In addition, emerging data are revealing that, to maintain their health and the stability of their associated ecosystems, plants and animals require coevolved interactions with the microbial world. Integration of these recent and seminal discoveries across the discipline of biology is critical for all aspects of the life sciences, from evolutionary to biomedical to environmental biology; however, such a revolution in thought will be impossible without important changes in the basic fabric of the discipline. Specifically, over the last 50 years subspecialties have taken highly divergent trajectories. The resulting intellectual 'siloing', together with the current structures of departments and professional societies, has made it increasingly difficult to create the kind of synthetic approaches essential to biology in the 21st century. This plenary session highlights the efforts of an international group of scientists, working through the NSF-supported National Evolutionary Synthesis Center, to define mechanisms by which to catalyze this change in the conceptual framework in biology.

Upon completion of this session, participants should be able to:

- Integrate concepts of microbiology into other disciplines in the biological and geological sciences (e.g., developmental biology, neurobiology).
- Encourage members of the ASM community to bring their expertise in mirobiology to the broader arena of macrobiology.
- Expose the community of microbiologists to individuals in other fields who are exploring the impact of microbiology on their area of science.

SYMPOSIUM

PACE CA FL

092 Best Practices in STI Testing for HIV, Syphilis, GC and Chlamydia

8:15 am - 10:45 am
Location: Esplanade Ballroom 303

When Claiming ASCLS P.A.C.E. credits, please refer to the numbers listed after each presentation title.

Conveners:

Muhammad Morshed; Univ. of British Columbia, Vancouver, Canada.
Michael Pentella; State Hygienic Lab., Iowa City, IA.

Presentations:

8:15 am

Serologic Testing for Syphilis with a Reverse Sequence Algorithm (273-012a-12)

Karen Hoover; Centers for Disease Control and Prevention, Atlanta, GA.

8:45 am

Current Guidelines for Chlamydia and Gonorrhea Screening and Diagnosis (273-012b-12)

Barbara Van Der Pol; Indiana Univ., Bloomington, IN.

9:15 am

HIV Testing and the Detection of Acute Infection (273-012c-12)

Mark Pandori; San Francisco Dept. of Publ. Health, San Francisco, CA.

9:45 am

HIV Testing: New Technology and New Approaches for Accurate and Timely Diagnosis (273-012d-12)

Michele Owen; Centers for Disease Control and Prevention, Atlanta, GA.

10:15 am

HIV Drug Resistance in the Context of Emerging Viral Mutants and New Anti-retroviral Therapies (273-012e-12)

Harald Kessler; Med. Univ. of Graz, Steria, Austria.

Sexually transmitted infection is one of the key areas in the infectious disease arena. This session will provide current knowledge on best practices for HIV, Syphilis, Gonorrhea (GC) and Chlamydia tracomatis (CT) testing. The proposed session will address global controversies in the selection of syphilis screening algorithm, key questions and more refined guidelines in the context of recent CDC guidelines. The audience will also be able to get current updates on CT/GC diagnosis and their treatment efficacy along with growing resistance problems. The latest rapid HIV test methodologies and need to have quality systems in place will be discussed along with challenges of HIV-1 and HIV-2 viral load quantification in the context of growing non-B HIV subtypes in patient mix. In addition, this session will address new classes of antiretroviral drugs which are requiring an extension of genotyping menu — what technological advances are in the horizon for diagnosis and patient management.

Upon completion of this session, participants should be able to:

- Review benefits and pitfalls of syphilis screening test algorithms.
- Report the current update on GC diagnosis and recent trend of growing drug resistance.
- Analyze rapid HIV testing, viral load quantification and antiretroviral drug resistance monitoring using genotyping.

Course Level: Intermediate

SYMPOSIUM PACE CA FL

093 Diagnostic and Therapeutic Implications of Novel Mechanisms of Resistance

8:15 am - 10:45 am
Location: Esplanade Ballroom 309

When Claiming ASCLS P.A.C.E. credits, please refer to the numbers listed after each presentation title.

Convener:

Upinder Singh; Departments of Internal Medicine and Microbiology, Stanford Univ. Sch. of Med., Stanford, CA.

Presentations:

8:15 am

Resistance Mechanisms in Human Fungal Infections and the Consequences for Diagnosis and Treatment (273-013a-12)

Theodore C. White; Univ. of Missouri-Kansas City, Kansas City, MO.

8:45 am

Deep Sequencing of Viral Populations to Detect Emerging Drug Resistance: Technical and Clinical Challenges (273-013b-12)

Robert W. Shafer; Stanford Univ., Stanford, CA.

9:15 am

Mechanisms Driving Malaria Genome Plasticity (273-013c-12)

Pradipsinh Rathod; Univ. of Washington, Seattle, WA.

9:45 am

Clinical Management of Some Antimicrobial Resistant Infections (273-013d-12)

Stanley Deresinski; Stanford Univ., Stanford, CA.

10:15 am

The Failure Story of Vancomycin-resistant *S. aureus* (273-013e-12)

Patrice Courvalin; Inst. Pasteur, Paris, France.

Division C Lecturer and BD Award for Research in Clinical Microbiology

With a kick-off introduction on the world-wide scourge of bacterial resistance and dissemination from one of the world's foremost authorities on the subject, Dr. Patrice Courvalin, winner of this year's Becton-Dickinson award, the session will focus on some of the current major issues regarding microbial resistance. How has genetic sequencing enhanced our ability to predict resistance in HIV and improve treatment for AIDS? What are the tools needed to combat the spreading threat of drug-resistant malaria? What is happening in the realm of antifungals for Candida and related yeast? The final presentation will present series of instructive true patient cases involving resistant organisms. This symposium will focus on the academic work that underlies development of new diagnostic and therapeutic modalities and the current practical implications for clinicians on the frontline of encountering resistant organisms in their patients

Upon completion of this session, participants should be able to:

- Explain the mechnisms of drug resistance for bacteria, viruses, protozoa and fungi.
- Discuss novel emerging mechanisms of resistance.
- Explain the clinical implications of resistance.

Course Level: Advanced

SYMPOSIUM PACE CA FL

094 Getting By or Getting Along? Multidisciplinary Cases in Enhancing Patient Care from the Laboratory to the Bedside

8:15 am - 10:45 am
Location: Esplanade Ballroom 304

When Claiming ASCLS P.A.C.E. credits, please refer to the numbers listed after each presentation title.

Convener:

Colleen S. Kraft; Emory Univ., Atlanta, GA.

Presentations:

8:15 am

Screening Patients, Screaming Providers: Lessons from Initiating Pre-surgical MRSA Surveillance (273-014a-12)

Jesse T. Jacob; Emory Univ., Atlanta, GA.

8:45 am

Lost in Translation: "I Want the Old *C. difficile* Test Back!" (273-014b-12)

Colleen S. Kraft; Emory Univ., Atlanta, GA.

9:15 am

It Takes a Village: Maximizing Relationships and Aligning Priorities to Tackle Blood Culture Contamination Rates (273-014c-12)

Cindy B. McCloskey; Univ. of Oklahoma Hlth. Sci. Ctr., Oklahoma City, OK.

9:45 am

Gone FISHing! Collaboration and Conflicts with an Antimicrobial Stewardship Team in Implementing PNA-FISH (273-014d-12)

Jerod L. Nagel; Univ. of Michigan Hlth. System, Ann Arbor, MI.

10:15 am

Public Health Laboratories: Free Reference Laboratories or Value-added Service? (273-014e-12)

Duane W. Newton; Univ. of Michigan Hlth. System, Ann Arbor, MI.

Do you feel as though you speak a different language than the individuals who utilize your clinical laboratory? Are you sometimes concerned about when and how issues are raised and feel that the important questions are never considered? During this interactive symposium, a multidisciplinary group from different institutions will present representative cases with perspectives from the infection preventionist, the pharmacist, the clinician, and the laboratorian. Topics that will be discussed include: 1) instituting changes in antimicrobial susceptibility testing and reporting, 2) the laboratory role in infection prevention, 3) assessment and introduction of new laboratory tests, 4) pre-analytical process improvement, and 5) coordination between clinical and public health laboratories. The presentations will focus on decision making and interaction with other providers including physicians, pharmacists, and hospital administration.

Upon completion of this session, participants should be able to:

- Identify opportunities to enhance patient care through collaboration between laboratorians, clinicians, and public health practitioners.
- Explain the benefits and limitations of different approaches to engaging partners.
- Describe possible solutions to challenging clinical issues that have been developed through effective partner engagement.

Course Level: Beginner

SYMPOSIUM PACE CA FL

095 The Gut Microbiome: Using the "Rest of the Story" to Inform Patient Care

8:15 am - 10:45 am

Location: Esplanade Ballroom 306

When Claiming ASCLS P.A.C.E. credits, please refer to the numbers listed after each presentation title.

Conveners:

David W. Craft; Hershey Med. Ctr., Hershey, PA.

Jonathan M. Zenilman; Johns Hopkins Bayview Med. Ctr., Baltimore, MD.

Presentations:

8:15 am

Clinical Microbiology Laboratory Standard Practices (273-122a-12)

David W. Craft; Hershey Med. Ctr., Hershey, PA.

8:45 am

Gut Check: Extremely High Complexity Testing (273-122b-12)

Benjamin C. Kirkup; Walter Reed Army Inst. of Res., Silver Spring, MD.

9:15 am

Microbiology and Microbiome of Chronic Wounds: What Have We learned? (273-122c-12)

Jonathan M. Zenilman; Johns Hopkins Bayview Med. Ctr., Baltimore, MD.

9:45 am

The Role of Early Life Antibiotic Exposure in Murine Metabolic Development (273-122d-12)

Martin J. Blaser; NYU Sch. of Med., New York, NY.

10:15 am

Metagenomic Aspects of Pediatric Abdominal Pain and Irritable Bowel Syndrome (273-122e-12)

James Versalovic; Baylor Coll. of Med. and Texas Children's Hosp., Houston, TX.

The microbial ecology of the human gastrointestinal tract is the foundational discipline of the NIH Human Microbiome Project. Simultaneously, the rising incidence of community and nosocomially acquired gastrointestinal tract infections has inspired new technology and practices in the clinical microbiology laboratory and has increasingly reformed infection control practice in the hospital setting. The clinical microbiology lab is challenged to provide diagnostic support of therapeutic decisions in which best practices are dictated by the phenotypic isolation and identification of an infectious etiology from a GI tract sample with a complex and varied microbial ecology. This seminar will provide insight into the best practices and constraints of current diagnostic laboratory capability and potential solutions from the human microbiome research bench. This forum should also provide an excellent opportunity for discourse between the clinical microbiologist and those basic science researchers and clinicians pursuing an understanding of the diagnostic and therapeutic implications of the human microbiome and the potential for changing laboratory practice, clinical algorithms, therapeutic decisions and infection control practice.

Upon completion of this session, participants should be able to:

- Describe best practices of stool culture with limitations of conventional culture techniques compared with genome-based methods.
- Examine molecular techniques and clinical algorithms used to mitigate nosocomial infection and the translational microbial pathogenesis research informing those efforts.
- Summarize the features and techniques of studying the human microbiome and the application to gut commensal and pathogen ecology involved in gastrointestinal disease.

Course Level: Intermediate

SYMPOSIUM

PACE CA FL

096 New Technology: Is the Juice Worth the Squeeze?

8:15 am - 10:45 am
Location: Esplanade Ballroom 308

When Claiming ASCLS P.A.C.E. credits, please refer to the numbers listed after each presentation title.

Convener:

Roberta Carey; Centers for Disease Control and Prevention, Atlanta, GA.

Presentations:

8:15 am

Laboratory Developed Tests in New York State: The Review and Approval Process (273-123a-12)

Mike Ryan; New York State Dept. of Health, Albany, NY.

8:45 am

Is MALDI-TOF Mass Spectrometry Ready for the Masses? (273-123b-12)

Nathan A. Ledeboer; Pathology, Med. Coll. of Wisconsin, Milwaukee, WI.

9:15 am

Multiplex Testing: Are Too Many Too Much? (273-123c-12)

Christine C. Ginocchio; Microbiology and Molecular Diagnostics, North Shore-LIJ Hlth. System Lab., New Hyde Park, NY.

9:45 am

Mapping a Course to Successful Implementation of a PCR Assay (273-123d-12)

Richard L. Hodinka; Clinical Virology Lab., Children's Hosp. of Philadelphia, Philadelphia, PA.

10:15 am

Questions to Consider: If You Don't, Your Administrator Will (273-123e-12)

Grover Smith; WakeMed Hlth. & Hosp., Raleigh, NC.

Everyone would like to do the newest methodology and have the most current technology and toys in their lab. However new technologies come with a price beyond the actual instrument. They must be validated sufficiently, staff must be trained, specific regulatory requirements, such as those with laboratory developed tests, add to the complexity of introducing a new test methodology. Beside economic concerns, one must prove that this new test will impact patient care and improve outcome. Is the juice worth the squeeze in the end? This symposium will focus on understanding how to plan and implement new diagnostic technologies and how to evaluate the costs in resources, personnel, and documentation attached to making this decision.

Upon completion of this session, participants should be able to:

- Explain the key regulatory, logistical and economic considerations of bringing new technology into their laboratories.
- List essential elements and documentation required to validate a PCR test or other new technology.
- Explain situations when a faster test may not improve patient outcome.

Course Level: Intermediate

POSTER SESSIONS

097 – 119 Poster Sessions see pages 143 – 163

233 Late Breaker Poster Session see page 164

10:45 am – 12:30 pm
Location: Hall C

SPECIAL INTEREST SYMPOSIUM

120 A Century of Bacteriophages

11:00 am - 12:30 pm
Location: Room 130

Developed by the Center for the History of Microbiology/ ASM Archives

Convener:

James A. Poupard; Pharma Inst. of Philadelphia, Inc., Philadelphia, PA.

Presentations:

11:05 am

A Century of Bacteriophages

William C. Summers; Molecular Biophysics and Biochemistry, Yale Univ., New Haven, CT.

This is the annual History of Microbiology Lecture, sponsored by the Center for the History of Microbiology/ASM Archives. Bacteriophages were first recognized by Felix d'Herelle in 1916, but his first encounter with their effects was in 1911-1912 when he noted "cultural irregularities" of interest when he was studying *Coccobacillus acridiorum*. Thus, one can reasonably claim that 2012 might be the centennial of the bacteriophage phenomenon. The history of phage is one that is embedded in the study of epizootics: phage are infections of bacterial populations. This early focus quickly led d'Herelle to employ them as antibacterial agents, just as he was using *C. acridioruman* anti-locust epizootic infection. The first third of the century of phage was devoted to this therapeutic application of these biological antibiotics. In the middle third of its history, phage were studied as biological objects in their own right. The "nature" of phage was central to the development of modern molecular biology and understanding of the so-called "central dogma." Phages have played a central role in gene engineering and biotechnology, based on this knowledge. In more recent years, attention has returned to the role phages play in diseases and large and small ecosystems. This lecture will provide a chronology of the past century of phage research, but also highlight changing emphasis, changing styles of research, and changing importance of research questions, all related to the ubiquitous bacteriophage.

Upon completion of this session, participants should be able to:

- Describe the way phages were discovered and first characterized as a new kind of microbe.
- Explain the evidence on which early uses of phage as antibacterial agents were based.
- Explain the basic biology of phages to their medical and ecological importance.

State of the Society Address

12:15 pm – 1:00 pm
Location: Room 103

Presentation:

David C. Hooper; Massachusetts General Hosp., Boston, MA

President's Forum

121 A Brave New World of Technology: Informing Science and Health

1:00 pm - 2:00 pm
Location: Room 103

Convener:
David C. Hooper; Massachusetts Gen. Hosp., Boston, MA.

Presentations:

1:00 pm-1:30 pm
Whole-genome Characterization of Methyladenine Residues in Highly Pathogenic Strains of *E. coli* and *V. cholerae* and Their Impact on Function
Eric E. Schadt; Mount Sinai Sch. of Med., New York, NY.

1:30 pm -2:00 pm
New Technological Approaches to Understanding Bacterial Virulence
John J. Mekalanos; Microbiology and Molecular Genetics, Harvard Med. Sch., Boston, MA.

POSTER SESSIONS

122 – 144 Poster Sessions see pages 166 – 185

1:00 pm – 2:45 pm
Location: Hall C

SYMPOSIUM

PACE CA FL

145 Best Practices for Rapid and Emerging Diagnostic Techniques

3:00 pm - 5:30 pm
Location: Esplanade Ballroom 308

When Claiming ASCLS P.A.C.E. credits, please refer to the numbers listed after each presentation title.

Conveners:
Jayne B. Morrow; Natl. Inst. of Standards and Technology, Gaithersburg, MD.
Stephen A. Morse; Centers for Disease Control and Prevention, Altanta, GA.

Presentations:

3:00 pm
Full-genome Sequencing in the Clinical Microbiology Laboratory (273-124a-12)
James Musser; The Methodist Hosp. Res. Inst., Houston, TX.

3:30 pm
Rapid Molecular Methods for Microbial Assessment of Ambient Water Quality (273-124b-12)
John F. Griffith; Southern California Coastal Water Res. Project, Costa Mesa, CA.

4:00 pm
Testing Limits of Next Generation Sequencing for Diagnostics (273-124c-12)
Jeffrey T. Foster; Northern Arizona Univ., Flagstaff, AZ.

4:30 pm
Accuracy, Precision and Detection Levels Associated with Quantitative PCR and 454 Pyrosequencing of Amplicons (273-124d-12)
Jordan Peccia; Yale Univ., New Haven, CT.

Rapid and emerging diagnostics are changing the way we see microbes and how we treat disease. The focus of this session will be to discuss current best practices for integrating new technological capabilities and methods to address complex environmental, food, water, security and clinical diagnostic needs. Talks will provide high level guidance on the implementation of controls for analytical method, process performance and results interpretation. Invited speakers will provide examples of implementation of controls for gauging the measurement performance of new and emerging techniques (genomics methods and next generation sequencing) as well as comparisons of new techniques to traditional methods.

Upon completion of this session, participants should be able to:

- Demonstrate a high level knowledge of current best practices for rapid diagnostics of microbial contamination and/or clinical presentation of disease.
- Review controls for new and emerging diagnostic techniques.
- Describe examples of implementing controls for measurement assurance and interpretation of results.

Course Level: Intermediate

SYMPOSIUM

146 Chromosome Structure and Dynamics

3:00 pm - 5:30 pm
Location: Esplanade Ballroom 302

Convener:
Sankar Adhya; Natl. Cancer Inst., Bethesda, MD.

Presentations:

3:00 pm
Transcription Factor Binding to a DNA Zip Code Controls Interchromosomal Clustering at the Nuclear Periphery
Jason Brickner; Northwestern Univ., Chicago, IL.

3:30 pm
A Dual Site-Specific Recombination System to Measure Spatial Proximity between Two Bacterial Chromosomes
Michael J. Bland[1,2], M-E. Val[1,2], D. Mazel[1,2]; [1]Inst. Pasteur, Paris CEDEX 15, France, [2]CNRS UMR3525, Paris, France.

3:45 pm
DNA Sequence Selection by the Nucleoid and Regulatory Protein Fis
Stephen P. Hancock[1], S. Stella[2], R. C. Johnson[1]; [1]Univ. of California, Los Angeles, Los Angeles, CA, [2]Natl. Cancer Res. Ctr. (CNIO), Madrid, Spain.

4:00 pm
Nucleoproten Complexes in the Extracellular Matrix are Critical for the Structural Integrity of Bacterial Biofilms
Steven D. Goodman; Univ. of Southern California, Los Angeles, CA.

4:30 pm
DNA Lesions Induce Re-Pairing of Bacterial Chromatids: Implications for DNA Repair
Nelia Shechter, L. Zaltzman, A. Weiner, V. Brumfeld, E. Shimoni, A. Minsky; Weizmann Inst. of Sci., Rehovot, Israel.

4:45 pm
Gene 5.5 Protein of Bacteriophage T7 in Complex with *E. coli* H-NS and tRNA Masks tRNA Priming in T7 DNA Replication
Bin Zhu, S-J. Lee, C. C. Richardson; Harvard Med. Sch., Boston, MA.

5:00 pm

Bacterial Chromosomes as Topological Machines: The Role of DNA Thermodynamics

Andrew A. Travers; Lab. of Molecular Biology, Cambridge, United Kingdom.

The recent explosion in technology has resulted in the accumulation of immense amounts of information relating to patterns of gene expression in both bacteria and eukaryotes but has left largely unanswered the central question of how these patterns of gene expression are related to the 3D organization and dynamics of the chromosome. To answer this question requires knowledge of the 3D structure of the chromosome and of how this structure might influence gene expression. In both bacteria and eukaryotes there is strong evidence that the chromosomal DNA does not exist as a random jumble but instead is organized into discrete regions — in bacteria these approximate to the macrodomains and in eukaryotes to chromosomal territories. We believe that the greatest advances in the understanding of gene expression in future years will come from an integration of the structural, bioinformatic and biochemical approaches to this problem. The subject remains one of the most important remaining questions in biology and this session will explore the concept that the information for forming an ordered chromatin structure is encoded in the DNA genome itself, and will enable the establishment of a coherent framework of concepts relating to how different regions of the DNA genome communicate with each other.

SYMPOSIUM

PACE CA FL

147 The Continuing Plague of Foodborne-associated Outbreaks

3:00 pm - 5:30 pm
Location: Esplanade Ballroom 304

When Claiming ASCLS P.A.C.E. credits, please refer to the numbers listed after each presentation title.

Convener:

John Besser; Centers for Disease Control and Prevention, Atlanta, GA.

Presentations:

3:00 pm

Foodborne Illness and Microbial Risk (273-125a-12)

I. Kaye Wachsmuth; Intl. Publ. Hlth. Consultant, DeLand, FL.

Gen-Probe Joseph Public Health Award

3:30 pm

Foodborne Outbreak Detection: Where is it at, Where is it Heading, and Why that Matters (273-125b-12)

John Besser; Centers for Disease Control and Prevention, Atlanta, GA.

4:00 pm

Salmonella's Assault on the Food Supply: Battling Back with the Old, the New, and the Unexpected (273-125c-12)

Eric Brown; Food and Drug Admin., College Park, MD.

4:30 pm

Campylobacter: Rapid Tests, Outbreaks and More (273-125d-12)

Collette Fitzgerald; Centers for Disease Control and Prevention, Atlanta, GA.

5:00 pm

Dissecting Causation & the Science Behind the Litigation (273-125e-12)

Angela Spivey; McGuire Woods LLP, Atlanta, GA.

Foodborne illnesses outbreaks are occurring at what seems to be an increasing frequency. Detection, prevention and control of foodborne illness and outbreaks involve multiple levels of laboratories and scientists from multiple disciplines. Attendees of this symposium will hear from scientific experts in this area who will discuss new technologies, capabilities, developments and future challenges. Legal issues involving foodborne outbreaks will be described by a widely known and accomplished personal injury and products liability attorney.

Upon completion of this session, participants should be able to:

- Review the newer methods to detect foodborne outbreaks.
- Review new developments in Pulse Net.
- Explain the legal issues surrounding foodborne outbreaks.

Course Level: Intermediate

SYMPOSIUM

148 Cooperation and Conflict in Microbes

3:00 pm - 5:30 pm
Location: Room 102

Convener:

E. Toby Kiers; VU Univ., Amsterdam, The Netherlands.

Presentations:

3:00 pm

Power Struggles in the Rhizosphere: Mechanisms Stabilizing Cooperation in the Mycorrhizal and Nitrogen-fixing Symbioses

E. Toby Kiers; VU Univ., Amsterdam, The Netherlands.

3:30 pm

Corrinoid Exchange as a Model for Molecular Interactions in Microbial Communities

Michi Taga, E. C. Seth, T. S. Crofts; Univ. of California, Berkeley, Berkeley, CA.

3:45 pm

Ecological Populations Of Bacteria Act As Socially Cohesive Units Of Antibiotic Production And Resistance In The Wild

Otto X. Cordero[1], H. K. Wildschutte[1,2], B. Kirkup[1,3], T. Mincer[4], M. Polz[1]; [1]Massachusetts Inst. of Technology, Cambridge, MA, [2]Bowling Green State Univ., Bowling Green, OH, [3]Walter Reed Army Inst. of Res., Silver Spring, MD, [4]Woods Hole Oceanographic Inst., Woods Hole, MA.

4:00 pm

Quorum Sensing and the Confusion about Diffusion

Stuart A. West; Univ. of Oxford, Oxford, United Kingdom.

4:30 pm

Modeling Syntrophy: Using Synthetic Biology to Engineer Cooperation between Shewanella and Geobacter

Aunica L. Kane, D. R. Bond, J. A. Gralnick; Univ. of Minnesota, St. Paul, MN.

4:45 pm

Kin Recognition Regulates Outer Membrane Exchange between Myxobacteria Biofilm Cells

Darshankumar Pathak, X. Wei, A. Dey, D. Wall; Univ. of Wyoming, Laramie, WY.

5:00 pm

Cooperation and Conflict in Social Amoebae

Joan E. Strassmann; Washington Univ., St. Louis, St. Louis, MO.

The evolution of cooperation and cheating in microbes has received much theoretical and empirical attention in recent years. Microbes practice a variety of social behaviors involving complex systems of cooperation and communication. Why do microorganisms engage in these behaviors given that cooperative individuals can be exploited by selfish cheaters? Microbes provide novel experimental opportunities to answer this and other long-standing problems in evolution, such as horizontal transmission of genes and communication to coordinate cooperation. Understanding cooperation among microbes may shed light on the origin of multicellular life, and allow us to maximize benefits microbes provide to their hosts, such as agricultural plants. Understanding other kinds of cooperation can help us determine why pathogenic microbes become more deadly. Work in this area has demonstrated the importance of microbe relatedness, kin discrimination, and competition between relatives in driving the evolution of microbe behavior. Our understanding of the social lives of microbes has been revolutionized in the past decade; this symposium will explore these exciting advances.

Upon completion of this session, participants should be able to:

- Define the term 'Social Evolution' and why the concept is important in the study of microbes.
- Recognize the importance of using microbes as models systems in the study of evolution of conflict and cooperation.
- Explore how social evolution may be functioning in their own study systems.

SYMPOSIUM

149 CRISPR Interference: RNA-directed Adaptive Immunity in Bacteria and Archaea

3:00 pm - 5:30 pm
Location: Esplanade Ballroom 303

Convener:
Luciano Marraffini; The Rockefeller Univ., New York, NY.

Presentations:

3:00 pm

CRISPR-Cas Immune Systems and RNA-mediated Interference in Bacteria and Archaea

Rodolphe Barrangou; Danisco, USA, Inc., Madison, WI.

3:30 pm

Excision Events in the Old Ends of CRISPR Loci Remove Spacers that No Longer Match Coexisting Mobile Elements

Christine L. Sun, B. C. Thomas, J. F. Banfield; Univ. of California, Berkeley, Berkeley, CA.

3:45 pm

P. aeruginosa Yersinia Subtype CRISPR-Cas System Mediates Two Distinct Phenotypic Outputs Utilizing a Single crRNA

Kyle C. Cady[1], G. E. Heussler[1], A. L. Socha[2], J. H. Hammond[1], G. A. O'Toole[1]; [1]Dartmouth Med. Sch., Hanover, NH, [2]Dartmouth Coll., Hanover, NH.

4:00 pm

Short Interfering crRNA Maturation in the CRISPR-Cas System II

Emmanuelle Charpentier; Umea Univ., Umea, Sweden.

4:30 pm

Prevention of Horizontal Gene Transfer During Bacterial Infection By CRISPR Interference

David Bikard, D. Mucida, A. Hatoum-Aslan, L. A. Marraffini; The Rockefeller Univ., New York, NY.

4:45 pm

CRISPR-Cas Mediated Phage Resistance in *Lactococcus lactis*

Anne M. Millen[1], P. Horvath[2], P. Boyaval[2], D. A. Romero[1]; [1]DuPont Danisco, Madison, WI, [2]DuPont Danisco, Dangé-Saint-Romain, FRANCE.

5:00 pm

Memories of Prior Encounters Stimulate Adaptive CRISPR Immunity

Konstantin Severinov; Rutgers, Piscataway, NJ.

In recent years, clustered regularly interspaced short palindromic repeats (CRISPR) loci have been revealed to encode a novel genetic interference mechanism that uses small guide RNA molecules to defend archaea and bacteria from bacteriophage and plasmid invasion. This pathway also constitutes a primitive adaptive immune system, plays a fundamental role in the evolution of prokaryotes and has potential for both industrial and biomedical applications. In this symposium we will discuss (1) recent advances in our understanding of the mechanism of CRISPR interference and (2) the impact of CRISPR loci on lateral gene transfer and the evolution of bacteria. The symposium will provide a perspective on the present and future of this exciting field.

Upon completion of this session, participants should be able to:

- Explain the molecular mechanism of CRISPR immunity.
- Explain the importance of CRISPR loci in the evolution of bacteria.
- Recognize the potential for applications of the CRISPR interference pathway.

SYMPOSIUM PACE CA FL

150 Downsides of Really Sensitive (and not so sensitive) New Technologies

3:00 pm - 5:30 pm
Location: Esplanade Ballroom 309

When Claiming ASCLS P.A.C.E. credits, please refer to the numbers listed after each presentation title.

Convener:
Daniel S. Shapiro; Univ. of Nevada, Reno, NV.

Presentations:

3:00 pm

Some Limitations of Nucleic Acid Amplification Tests (273-126a-12)

Daniel S. Shapiro; Univ. of Nevada Sch. of Med., Reno, NV.

3:30 pm

Current Challenges in Fungal Molecular Diagnostics (273-126b-12)

Brian L. Wickes; Microbiology, Univ. of Texas Hlth. Sci. Ctr. at San Antonio, San Antonio, TX.

4:00 pm

Cost-effectiveness of PCR for Detection of PCP in HIV-infected Patients (273-126c-12)

Julie R. Harris; Enteric Diseases Epidemiology Branch, Centers for Disease Control and Prevention, Atlanta, GA.

4:30 pm

Nucleic Acid Testing IP after *Mayo* and *eBay* (273-126d-12)

Bill Murray; Cepheid, Sunnyvale, CA.

This symposium will discuss the problems that are inherent in depending upon nucleic acid testing in clinical microbiology. These include: 1.) Lack of having a living organism with which to perform susceptibility testing (e.g., Neisseria gonorrhoeae). 2.) "Noise" in 16S rRNA gene sequence databases resulting in inaccuracy in bacterial identification. 3.) Inability to distinguish species solely on the basis of 16S rRNA gene sequences (e.g., E. coli vs. Shigella). 4.) Need to use additional gene sequences (e.g., for mycobacterial identification). 5.) Persistence of the nucleic acid in killed organisms; thus a "test of cure" cannot be depended upon (e.g., Neisseria gonorrhoeae). 6.) Difficulty in validating multiplex assays that include uncommon or novel pathogens (e.g., various uncommonly sought viruses in multiplex respiratory panels). 7.) Susceptibility testing with genotypes: a moving target and potentially an issue with intellectual property. 8.) Small volume of sample used may result in missing a low number of organisms present. 9.) Technologist practices, moving into a STAT lab (non-microbiologists), and collection site contamination.

Upon completion of this session, participants should be able to:

- Discuss the problems that are inherent in depending nucleic acid testing in clinical microbiology.
- Review the cost effectiveness of PCR systems.
- Identify challenges in implementation, validation, and accuracy of molecular amplification systems.

Course Level: Advanced

SYMPOSIUM

151 Ecology and Evolution of Unicellular Eukaryotes

3:00 pm - 5:30 pm
Location: Room 254

Convener:

Nicole King; Univ. of California, Berkeley, Berkeley, CA.

Presentations:

3:00 pm

Choanoflagellate Colonies and the Origin of Animal Multicellularity

Nicole King; Univ. of California, Berkeley, Berkeley, CA.

3:30 pm

The Self-Contained Microbiome of a Holotrich in the Crop of the Folivorous Hoatzin

Filipa Godoy-Vitorino[1], D. Tighe[1], T. Woyke[1], S. Malfatti[1], M. Garcia-Amado[2], P. Hugenholtz[3], M. G. Dominguez-Bello[4], S. G. Tringe[1]; [1]DOE-Joint Genome Inst., Walnut Creek, CA, [2]Venezuelan Inst. of Scientific Res. (IVIC), Caracas, Venezuela, Bolivarian Republic Of, [3]Australian Ctr. for Ecogenomics,Sch. of Chemistry and Molecular BioSci.s and Inst. for Molecular BioSci., The Univ. of Queensland, St. Lucia, Australia, [4]Univ. of Puerto Rico, Rio Piedras Campus, Biology Dept., San Juan, PR.

3:45 pm

An Analysis of Eukaryotic Communities in Red and Green Snow of the Colorado Rocky Mountains

Courtney S. Naff, S. K. Schmidt; Univ. of Colorado Boulder, Boulder, CO.

4:00 pm

Germline-Soma Distinctions across the Eukaryotic Tree of Life

Laura Katz; Smith Coll., Northhampton, MA.

Division X Lecturer

4:30 pm

Precursors of the Lignin-specific Pathway in Algae Play a Potential Role in Chemical Defense Against their Symbiotic and Pathogenic Partners

Rebecca J. Case, L. Labeeuw; Univ. of Alberta, Edmonton, AB, Canada.

4:45 pm

Transcriptomics Studies Indicate Molecular Mechanism of Enhanced Growth of the Black Yeast *Wangiella dermatitidis* in Response to Low-dose Ionizing Radiation

Kelly L. Robertson[1], A. Mostaghim[1], C. Cuomo[2], Z. Wang[1]; [1]Naval Res. Lab., Washington, DC, [2]Broad Insitute, Cambridge, MA.

5:00 pm

Horizontal Gene Transfer has Shaped Public Goods Games in Osmotrophic Eukaryotes

Thomas Richards; Natural History Museum, London, United Kingdom.

The unicellular eukaryotes, long overshadowed by research on the plants and animals, have a deep evolutionary history and diverse ecological strategies. This session aims to address recent advances in the study of these fascinating organisms, from multiple branches of the tree of life — including the closest living relatives of animals, aquatic fungi and fungal-like microbial eukaryotes and other lineages. New insights will be presented regarding the ability of some unicellular eukaryotes to distinguish germline and somatic genomes, phylogenetic relationships among diverse enigmatic taxa, genome organization and evolution, and interspecies interactions.

Upon completion of this session, participants should be able to:

- Discuss the evolution of eukaryotes and how unicellular organisms inform us about multicellular taxa.
- Explore why unicellular eukaryotes appear to exchange genes in particular environments.
- Discuss genome evolution and how interspecies interactions might shape ecology and evoltuin of unicellular eukaryotes.

SYMPOSIUM

152 Enviable Microbial Powers to Tap Earth's Energy

3:00 pm - 5:30 pm
Location: Esplanade Ballroom 301

Conveners:

Antje Boetius; Alfred Wegener Inst. for Polar and Marine Res., Bremerhaven, Germany.

Joseph Graber; U.S. Dept. of Energy, Washington, DC.

Presentations:

3:00 pm

TBD

Antje Boetius; Alfred Wegener Inst. for Polar and Marine Res., Bremerhaven, Germany.

3:30 pm

Environmental Proteomics of Methane Seep Sediments: An Activity-Based Examination of Metabolism and Functional Diversity

Jeffrey Marlow[1], J. Steele[1], C. Pan[2], K. Chourney[2], R. Hettich[2], E. Reichert[1], S. Connon[1], V. Orphan[1]; [1]California Inst. of Technology, Pasadena, CA, [2]Oak Ridge Natl. Lab., Oak Ridge, TN.

3:45 pm

Genomic Analysis Reveals Correlation Between Functional Diversity and Structural Organization of the Cellulosome

C. L. Hemme[1], **Yue Huang**[1], Y-J. Lee[1], Q. He[2], B. Dassa[3], R. Lamed[3], E. Bayer[3], J. Zhou[1]; [1]Univ. of Oklahoma, Norman, OK, [2]Univ. of Tennessee, Knoxville, TN, [3]Weizmann Inst. of Sci., Rehovot, ISRAEL.

4:00 pm

Making a Living in a Microbial Mat: Understanding Energy Flows at Both the Population and Single Cell Scale

Jennifer Pett-Ridge; Lawrence Livermore Natl. Lab., Livermore, CA.

4:30 pm

Lipid Production in *Rhodobacter sphaeroides:* From Photosynthetic Membranes to Biofuels

Kimberly C. Lemmer, T. J. Donohue; Univ. of Wisconsin, Madison, WI.

4:45 pm

Characterization Of The Thermophilic, Anode Respiring Bacterium (ARB), *Thermincola Ferriacetica* In The Biofilm Anode Of A Microbial Electrolysis Cell (MEC)

Prathap Parameswaran, T. Bry, S. C. Ayyappan, B. E. Rittmann, C. I. Torres; Arizona State Univ., Tempe, AZ.

5:00 pm

Electric Currents Associated with Centimeter Long Bacteria in Marine Sediment

Lars P. Nielsen; Aarhus Univ., Aarhus, Denmark.

Microorganisms drive biogeochemical cycles of carbon, nitrogen and sulfur on Earth. They are responsible for a significant proportion of Earth's biomass, for remineralization of organic matter, and for significant fluxes of several important climate-active gases, including CO2, N2O and CH4. Bacteria and Archaea have evolved a plethora of metabolic pathways to tap Earth's energy, allowing them to live literally everywhere, and influencing substantially the chemistry that appear like visionary engineering solutions to humans' ever-increasing need for sustainable energy. These include for example generating hydrogen from sunlight, making fertilizer from air, and biofuel from cellulose, recycling refractory detritus to energy-rich food, switching from methane to hydrogen fuel cells, tapping the diffuse electricity of the seabed, and many more. Progress in this field is based on new technologies for the sensing of microbial processes on scales from cells to communities, improved insight into genomic functions, and interdisciplinary advances at the interface of physics, chemistry and biology. Studies presented will include examples from terrestrial and marine environments, with a focus on environmental microbiology and community ecology.

Upon completion of this session, participants should be able to:

- Recognize microbes as drivers of Earth's biogeochemical cycles.
- Identify key microbial functions relevant in yielding and sharing energy.
- Discuss new methods in the field of sensing microbial biogeochemical processes.

SYMPOSIUM

153 Evolution and Development of the Microbiome

3:00 pm - 5:30 pm
Location: Room 103

Conveners:

Maria G. Dominguez-Bello; Univ. of Puerto Rico, San Juan, PR.
Ruth E. Ley; Cornell Univ., Ithaca, NY.

Presentations:

3:00 pm

Evolution of Host Adapted Bacteria

Stephan Schuster; Penn State Univ., State College, PA.

3:30 pm

A Gnotobiotic Mouse Model for Characterizing Phage-Bacterial Host Dynamics in the Human Gut

Alejandro Reyes[1], F. Rohwer[2], J. I. Gordon[1]; [1]Ctr. for Genome Sci. & Systems Biology. Washington Univ. Sch. of Med., Saint Louis, MO, [2]Dept. of Biology, San Diego State Univ., San Diego, CA.

3:45 pm

Early Life Microbiota Shapes Adult Metabolism and Body Composition

Laura M. Cox[1], I. Cho[1], A. V. Alekseyenko[1], E. Venturini[1], J. Zavadil[1], K. Raju[1], M. J. Blaser[1,2]; [1]NYU Langone Med. Ctr., New York, NY, [2]New York Harbor Dept. of VA Med. Ctr., New York, NY

4:00 pm

Host Genetic Control of the Microbiome

Ruth E. Ley; Microbiology, Cornell Univ., Ithaca, NY.

4:30 pm

Human Microbiome Development Across Multiple Body Sites in Healthy Infants: Assembly and Re-assembly Following Antibiotic Therapy

Elizabeth K. Costello, D. A. Relman; Stanford Univ. Sch. of Med., Stanford, CA.

4:45 pm

Antibiotic Resistance in Non-Food Animals: Impact of Animal Hosts on the Resistance Ecology

Lu Zhang, Y. Li, X. Li, H. H. Wang; The Ohio State Univ., Columbus, OH.

5:00 pm

The Microbiome of Isolated Peoples

Maria G. Dominguez-Bello; Univ. of Puerto Rico, San Juan, PR.

Our understanding of the development of the microbiome within a host, as well as the evolution of the microbiome both within the human species and more broadly throughout the mammals, is now being profoundly transformed by studies collecting thousands of sequences from each of thousands of samples. In this session, we highlight these recent studies that aim at understanding the human microbiome from an evolutionary and ecological view, including comparative studies among human groups and among vertebrates, and the evolution of individual members of the microbiome. The session will thus offer an especially broad and multidisciplinary view of the microbiome, which will go far beyond the knowledge gained in the individual fields of clinical microbiology, microbial ecology, and genomics to provide a broad synthesis.

Upon completion of this session, participants should be able to:

- Describe current understanding of the microbiome at the levels of the microbial community and specific host-adapted bacteria.
- Discuss the diversity and function of the human microbiome in different human populations and in relation to other vertebrates.

- Discuss mechanisms that drive community structures in the microbiota of humans and other animals.

SYMPOSIUM

154 Expanding the Metabolic Blueprint

3:00 pm - 5:30 pm
Location: Esplanade Ballroom 310

Convener:

Mecky Pohlschröder; Univ. of Pennsylvania, Philadelphia, PA.

Presentations:

3:00 pm

An Enlarged Genetic Code Increases the Substrate Range of Methanogenic Archaea

Joseph Krzycki; The Ohio State Univ., Columbus, OH.

Division K Lecturer

3:30 pm

Eating Iron And Loving It: Ferrous Iron Metabolism in *Rhodopseudomonas palustris* TIE-1

Arpita Bose[1], D. K. Newman[2], P. R. Girguis[1]; [1]Harvard Univ., Cambridge, MA, [2]California Inst. of Technology, Pasadena, CA.

3:45 pm

Engineering the cyanobacterium *Synechococcus* sp. PCC 7002 to produce 3-hydroxypropionate

Matthew Begemann[1], E. Schmitt[2], B. Pfleger[1]; [1]Univ. of Wisconsin-Madison, Madison, WI, [2]Univ. of Minnesota, Twin Cities, MN.

4:00 pm

Using Metabolomics to Study Metabolic Transitions in Bacterial Systems

Daniel Amador-Noguez; Princeton Univ., Princeton, NJ.

4:30 pm

***In vivo* Identification of Allosteric Protein-Metabolite Interactions that Control Enzyme Activity**

Hannes Link, K. Kochanowski, U. Sauer; Institute of Molecular Systems Biology, ETH Zurich, Zurich, Switzerland.

4:45 pm

New Genomics Approaches For Characterizing Microbial Secondary Metabolites

Roland D. Kersten[1], Y. Xu[2], P-Y. Qian[2], M. A. Fischbach[3], B. S. Moore[1,4], P. C. Dorrestein[4,5,1]; [1]Scripps Inst. of Oceanography, La Jolla, CA, [2]KAUST Global Collaborative Res., Div. of Life Sci., Sch. of Sci., Hong Kong Univ. of Sci. and Technology, Clear Water Bay, Hong Kong, CHINA, [3]Dept. of Bioengineering and Therapeutic Sci. and California Inst. of Quantitative BioSci.s, UCSF, San Francisco, CA, [4]Skaggs Sch. of Pharmacy and Pharmaceutical Sci., UCSD, La Jolla, CA, [5]Dept. of Pharmacology and Dept. of Chemistry and Biochemistry, UCSD, La Jolla, CA.

5:00 pm

Microbial Metabolic Systems Biology

Bernhard Palsson; Bioengineering, Univ. of California, San Diego, San Diego, CA.

Promega Biotechnology Research Award

Our understanding of microbial physiology and metabolism is being revolutionized by genome enabled and systems biology approaches. These approaches combined with traditional microbial physiology and genetic studies are providing an unprecedented view into the novel biochemistry of microbes, and the complexity of their metabolic networks. This session will highlight several major advances in the field. Attendees will learn about pyrrolysine, the twenty-second amino acid, which is necessary for all known pathways of methane formation from methylamines by methanogenic Archaea and which redefines the genetic code of Archaea. The ground-breaking use of metabolomics to study metabolic transitions in bacterial systems will also be addressed. One focus will be the regulation of the acidogenic-solventogenic transition in C. acetobutylicum. Finally, systems biology has led to the formulation of mechanistic metabolic genotype-phenotype relationships for microbes. The last talk will summarize this development that has been 15 years in the making including the basic and applied uses of such relationships.

Upon completion of this session, participants should be able to:

- Describe new approaches to studying microbial physiology and metabolism.
- Explain quantitative modeling and its role in studying metabolic networks.
- Describe new metabolic pathways.

SYMPOSIUM

PACE CA FL

155 Microbiology Literature Review 2012

3:00 pm - 5:30 pm
Location: Esplanade Ballroom 306

ASCLS P.A.C.E.®: 273-127-12

Convener:

Robin Patel; Mayo Clinic, Atlanta, GA.

Presenters:

Ferric C. Fang; Univ. of Washington Sch. of Med., Seattle, WA.

Robin Patel; Division of Infectious Diseases and Clinical Microbiology, Mayo Clinic, Rochester, MN.

Betty A. Forbes; Virginia Commonwealth Univ. Med. Ctr., Richmond, VA.

Wendy Armstrong; Emory Univ., Altanta, GA.

This session will review the microbiology literature from the past year, highlighting some of the most notable manuscripts dealing with pathogenesis, epidemiology, vaccines, diagnostics, and therapeutics.

Upon completion of this session, participants should be able to:

- Review the past year's most noteworthy publications.
- Re-state recent advances in infectious diseases epidemiology, pathogenesis, vaccines, diagnostics, and therapeutics.
- Recognize recent advances relating to HIV infection and place in perspective.

Course Level: Intermediate

SYMPOSIUM

156 The Microbiome of Nature's Vampires: Roles in Health and Disease

3:00 pm - 5:30 pm
Location: Room 130

Conveners:

Joerg Graf; Univ. of Connecticut, Storrs, CT.

Clay Fuqua; Indiana Univ., Bloomington, IN.

Presentations:

3:00 pm

Dynamics and Interactions of Bacterial Symbionts in Bloodsucking Ixodid Ticks

Clay Fuqua; Biology, Indiana Univ., Bloomington, IN.

Division I Lecturer

3:30 pm

Presence and Diversity of "*Candidatus* Midichloria mitochondrii" in Lone Star Ticks

Amanda J. Williams-Newkirk[1,2], M. Frace[1], T. R. Mixson-Hayden[1], G. A. Dasch[1]; [1]Ctr.s for Disease Control & Prevention, Atlanta, GA, [2]Emory Univ., Atlanta, GA.

3:45 pm

Tsetse Fly (Diptera: Glossinidae) Symbiont Metabolic Integration

Rita V. Rio, C. A. McLain, A. K. Snyder; West Virginia Univ., Morgantown, WV.

4:00 pm

Nutritional Dynamics of Digestive-Tract Microbiomes: Insights from RNA-Seq Studies of the Leech, *Hirudo verbana*

Joerg Graf; Dept of Mol. and Cell Biology, Univ. of Connecticut, Storrs, CT.

4:30 pm

Houseflies as Potential Vectors for Antibiotic Resistant Bacteria

Wenfei Wang; Dept. of Food Sci. and Technology, The Ohio State Univ., Columbus, OH.

4:45 pm

The Innate Immune Gene Caudal is a *Plasmodium falciparum* Agonist in *Anopheles gambiae*

April M. Clayton[1], Y. Dong[1], M. Mulenga[2], C. Cirimotich[1], G. Dimopoulos[1]; [1]Johns Hopkins Sch. of Publ. Hlth., Baltimore, MD, [2]Malaria Inst. at Macha, Macha, ZAMBIA.

5:00 pm

The Evolutionary Ecology of Arboviruses: Lessons from Dengue

Shannon Bennett; California Academy of Sci., San Francisco, CA.

Animals such as ticks, leeches and mosquitoes feed on blood, giving them the unique ability to directly inject microbes into the animals they feed on. As blood is deficient in key nutrients, such as vitamin B, symbiotic bacteria are considered critical in providing these to the host. In this symposium, we will present both sides of these interactions, the human pathogens and the microbiome. The pathogens can be interlopers that utilize sangivorous animals as a vector or members of the microbiome that are opportunistic pathogens. The Division I lecture by Dr. Clay Fuqua will focus on the diversity and dynamics of endogenous microbial communities of ixodid ticks and their potential impact on pathogen transmission. The contribution of the medicinal leech microbiome to host physiology and its potential to cause wound infections during leech therapy will be explored. In the next invited lecture, the evolution of the mosquito-transmitted dengue virus during epidemics will be described. Additional talks covering other aspects of microbes associated with blood-feeding animals will be selected from the abstracts.

Upon completion of this session, participants should be able to:

- Identify the beneficial and pathogenic microorganisms found in some blood-feeding animals.
- Describe aspects of the physiology and evolution of the microbial community, and their interaction with the sangivorous host.
- Discuss the differences between core community constituents and transient inhabitants.

SYMPOSIUM

157 New Biological Questions Brought by Species Pan-genomes

3:00 pm - 5:30 pm
Location: Room 104

Conveners:

Laurence Rohmer; Univ. of Washington, Seattle, WA.
Michael A. Jacobs; Univ. of Washington, Seattle, WA.

Presentations:

3:00 pm

A Comparative Genomics Approach to Track Recent Evolution in *Shigella dysenteriae* Genomes

Laurence Rohmer; Microbiology, Univ. of Washington, Seattle, WA.

3:30 pm

Pathogenome Plasticity and Dynamics in Microbial Outbreak Populations

Mark Eppinger, S. Agrawal, S. Daugherty, K. Galens, A. Maroo, L. Tallon, H. Tettelin, C. Fraser-Liggett, J. Ravel; Inst. for Genome Sci. (IGS), Univ. of Maryland, Sch. of Med., Baltimore, MD.

3:45 pm

Systematic and Logical Exploration of *Actinomyces* Secondary Metabolism Diversity

James R. Doroghazi, K-S. Ju, W. W. Metcalf; Univ. of Illinois, Urbana, IL.

4:00 pm

Changing Paradigm on the Evolution of *Mycoplasmas* by Exploring Their Pan-genome

Christine Citti; Institut Natl. de la Recherche Agronomique, Toulouse, France.

Division G Lecturer

4:30 pm

Rampant Horizontal Transfer in *Pseudomonas syringae* as a Driver of Virulence Evolution and Ecological Shifts

David Baltrus[1], K. Dougherty[1], A. Romanchuk[2], C. Jones[2]; [1]Univ. of Arizona, Tucson, AZ, [2]Univ. of North Carolina at Chapel Hill, Chapel Hill, NC.

4:45 pm

Divergence of Human-derived *LactoBacillus reuteri* Strains Reveals Unique Probiotic Profiles

Jennifer K. Spinler[1], E. B. Hollister[1], A. Sontakke[1], P. L. Oh[2], J. Walter[2], S. K. Highlander[1], J. Versalovic[1]; [1]Baylor Coll. of Med., Houston, TX, [2]Univ. of Nebraska, Lincoln, NE.

5:00 pm

Different Methods to Calculate Bacterial Pan-genomes: Benchmarks, Progress and Pitfalls to Avoid

David Ussery; Technical Univ. of Denmark, Kongens Lyngby, Denmark.

High-throughput sequencing is radically changing the way we do research in biology. This session will discuss the utilization of genome sequences to tackle questions that could not be answered with traditional techniques and is aimed at communicating to biologists the potential of these new methods. More specifically, the role of high-throughput sequencing is particularly important to investigate the relationship between bacteria and their environment. The analysis of species pan-genomes is uncovering new information about functions necessary for bacteria to thrive in given habitats. In addition, the impact of an environment on bacterial evolution can now easily be followed by massive parallel sequencing, both in laboratory and environmental conditions. For example, this brings novel insight on the

advent and unfolding of pathogens outbreaks and bacterial resistance to antibiotics. Hence these new approaches show great potential to drive new discoveries in medical microbiology and environmental microbiology.

Upon completion of this session, participants should be able to:

- Convey the idea that the role of high-throughput sequencing is particularly important to investigate the relationship between bacteria and their environment.
- Discuss how to create species pangenomes and how pangenomes reveal how genes in individual members of a species confer their particular phenotype.
- Discuss how massive parallel sequencing allows to investigate the impact of an environment on bacterial eveolution.

SYMPOSIUM

158 Parallels in Innate Immune Responses to Bacterial and Viral Infections

3:00 pm - 5:30 pm
Location: Room 132

Convener:

Laimonas Laimins; Northwestern Univ., Chicago, IL.

Presentations:

3:00 pm

Cells Lose their Inhibitions: Rotavirus Repression of the Interferon Response

John Patton; NIH, Bethesda, MD.

Division T Lecturer

3:30 pm

Canonical and non-canonical Inflammasomes coordinate Host Response to intracellular *Salmonella typhimurium*

Petr Broz[1], N. Kayagaki[2], V. M. Dixit[2], D. M. Monack[1]; [1]Stanford Univ., Stanford, CA, [2]Genentech Inc., South San Francisco, CA.

3:45 pm

Cytokine IL-22 Promotes Growth of *Salmonella typhimurium* in the Inflamed Gut

Judith Behnsen[1], C. P. Wong[1], R. A. Edwards[1], W. Ouyang[2], M. Raffatellu[1]; [1]Univ. of California, Irvine, Irvine, CA, [2]Genentech, South San Francisco, CA.

4:00 pm

Inflammosome Activation by Bacterial Pathogens

Russell Vance; Univ. of California, Berkeley, Berkeley, CA.

4:30 pm

Overlapping Roles Of Nipah Virus P Gene Products In Controlling The Human Endothelial Innate Immune Response

Michael K. Lo[1], M. E. Peeples[2,3], W. J. Bellini[1], S. T. Nichol[1], C. Spiropoulou[1], P. A. Rota[1]; [1]Ctr.s for Disease Control & Prevention, Atlanta, GA, [2]The Res. Inst., Nationwide Children's Hosp., Columbus, OH, [3]The Ohio State Univ., Dept. of Pediatrics, Columbus, OH.

4:45 pm

The Identification and Characterization of a *Campylobacter jejuni* Effector Protein that Activates the p38 and Erk 1/2 Signaling Pathways

Derrick R. Samuelson, T. P. Eucker, M. E. Konkel; Washington State Univ., Pullman, WA.

5:00 pm

Human Papillomaviruses Suppress Innate Immune Surveillance during Persistent Infections

Laimonis A. Laimins; Dept. of Microbiology and Immunology, Northwestern Univ., Chicago, IL.

Division S Lecturer

Both bacteria and viruses need to evade innate immune surveillance to establish productive infections. There exist many similarities in how viruses and bacteria target innate immune surveillances as well as significant differences and these will be highlighted in this session. This topic will be of great interest to the members attending the ASM meeting, as it will address important mechanisms used by viruses and bacteria in microbial pathogenesis.

Upon completion of this session, participants should be able to:

- Describe how bacteria and viruses suppress innate immune surveillance.
- Identify common innate immune targets between bacteria and viruses.
- Explain how viral and bacterial proteins have evolved to facilitate evasion and allow for productive replication.

SYMPOSIUM

159 Phagocytes: Heroes and Victims of Infection

3:00 pm - 5:30 pm
Location: Room 133

Convener:

Mary O'Riordan; Univ. of Michigan, Ann Arbor, MI.

Presentations:

3:00 pm

Macrophage Cytosolic Surveillance Pathways during Infection and Immunity

Daniel Portnoy; Univ. of California, Berkeley, Berkeley, CA.

Division E Lecturer

3:30 pm

***Toxoplasma gondii* Polymorphic Effectors Determine Macrophage Polarization and Intestinal Inflammation**

K. K. D. Jensen, **Jeroen P. J. Saeij;** MIT, Cambridge, MA.

3:45 pm

***Bacillus anthracis* Edema Toxin Modifies Macrophage Function through a Signaling Mechanism Utilizing the Adenomatous Polyposis Coli Protein (APC)**

Jason L. Larabee, J. D. Ballard; Univ. of Oklahoma Hlth.Sci. Ctr., Oklahoma city, OK.

4:00 pm

Mechanics of Amino Acid Metabolism in Immunity

Peter Murray; St. Jude Children's Res. ospital, Memphis, TN.

4:30 pm

***Neisseria gonorrhoeae* Alters Antimicrobial Granule Mobilization and Phagolysosome Formation to Survive Intracellularly in Human Neutrophils**

M. Brittany Johnson, A. K. Criss; Univ. of Virginia, Charlottesville, VA.

4:45 pm

The NLRP3 Inflammasome Modulates Immune Tolerance in Sepsis through Processing of HMGB1

Maya Saleh; Medicine, McGill Univ. Hlth. Ctr., Montreal, Canada.

5:00 pm

Mobilization of Phagosome Anti-microbial Defenses by the ER Stress Sensor Ire1 Alpha

Mary O'Riordan; Microbiol. & Immunol., Univ. of Michigan, Ann Arbor, MI.

Phagocytes, such as macrophages, are early responders to microbial invasion, and play a pivotal role in the outcome of infection. These innate immune cells have potent anti-microbial functions triggered by recognition of microbial components. Phagocytes are also essential for educating other cells in the immune system to stimulate effective immunity. However, macrophages can be targeted by pathogens to serve as reservoirs of microbial replication or to derail signaling, resulting in unproductive systemic immune responses. This session will elucidate molecular mechanisms that regulate early interactions of phagocytes with invading pathogens, providing a framework for interpreting the more complex consequences of infection.

Upon completion of this session, participants should be able to:

- Define key roles of phagocytes in defense against infection.
- Identify important innate immune signaling pathways that activate anti-microbial defense mechanisms.
- Discuss cutting edge advances in understanding molecular mechanisms that govern activation of macrophages and how these mechanisms contribute to the host response to infection.

SYMPOSIUM

160 Small Words, Big Impact: Intercellular Communication Among Bacteria

3:00 pm - 5:30 pm
Location: Esplanade Ballroom 305

Convener:
Michael J. Federle; Univ. of Illinois at Chicago, Chicago, IL.

Presentations:

3:00 pm
Acyl-homoserine Lactone Quorum Sensing and Bacterial Cooperation
E. Peter Greenberg; Dept of Microbiology, Univ. of Washington, Seattle, WA.
D.C. White Research and Mentoring Award

3:30 pm
Horizontal Gene Transfer by *Vibrio cholerae* on Chitinous Surfaces in the Environment Is Coordinated by Nucleotide Scavenging, Anti-activator Protein, CytR
E. Antonova[1], E. Bernardy[1], B. Duke[1], M. Nellessen[2], **Brian K. Hammer**[1]; [1]Georgia Inst. of Technology, Atlanta, GA, [2]Emory Univ., Atlanta, GA.

3:45 pm
Microfluidic Study of Competence Regulation in Single Cells of *Streptococcus mutans*
Minjun Son[1], I. Kwak[1], S. J. Ahn[2], R. A. Burne[2], S. J. Hagen[1]; [1]Dept. of Physics, Univ. of Florida, Gainesville, FL, [2]Dept. of Oral Biology, Univ. of Florida, Gainesville, FL.

4:00 pm
A Spring-loaded Mechanism Regulating Bacterial Quorum Sensing
Matthew Neiditch; Univ. of Med. and Dentistry of New Jersey, Newark, NJ.

4:30 pm
Characterization of Contact Dependent Growth Inhibition in *Burkholderia spp.*
Melissa S. Anderson, E. C. Garcia, P. A. Cotter; Univ. of North Carolina - Chapel Hill, Chapel Hill, NC.

4:45 pm
Cell-cell Communication Modulates Virulence in the Plant Pathogen Xylella Fastidiosa
Michael Ionescu[1], E. Beaulieu[1], A. M. da Silva[2], S. Chatterjee[1], N. Killiny[1], R. P. P. Almeida[1], S. E. Lindow[1]; [1]UC Berkeley, Berkeley, CA, [2]Sao Paulo Univ., Sao Paulo, BRAZIL.

5:00 pm
Inter-kingdom Chemical Signaling in Host-bacterial Associations
Vanessa Sperandio; Univ. of Texas Southwestern Med. Ctr., Dallas, TX.

Bacterial cell-to-cell communication, commonly referred to as quorum sensing, is now recognized to be a common means by which bacteria coordinate gene regulation and group behavior. The types of processes continue to expand, and include control of multi-species biofilm development, bistability in population dynamics, and biowarfare between species. Regulation of cell-cell communication is also fascinating and can involve multiple signaling molecules, small regulatory RNAs, and intracellular second-messenger compounds. Important questions to explore include: how diverse is the bacterial chemical lexicon, how are signals delivered between cells, how are they detected robustly, how is information encoded in molecules transformed into a response, what is the set of processes controlled by communication, how did these collective behaviors evolve and how do they avoid exploitation, can communication be interrupted or manipulated for medical or industrial purposes?

Upon completion of this session, participants should be able to:

- Describe recurring themes and become aware of new paradigms used by bacteria to signal between individual cells.
- Recognize the types of signaling molecules produced by bacteria and the mechanisms by which they are detected by cells.
- Explore strategies to interfere with intercellular signaling for the development of novel anti-microbial therapeutics.

Tuesday, June 19

Division Lectures

Division	Time	Location	Session #
A	3:00 p.m. - 5:30 p.m.	Room 103	227
AA	3:00 p.m. - 5:30 p.m.	Esplanade Ballroom 309	222
H	3:00 p.m. - 5:30 p.m.	Room 104	217
L	8:15 a.m. - 10:45 a.m.	Esplanade Ballroom 304	166
N	3:00 p.m. - 5:30 p.m.	Esplanade Ballroom 303	229
O	3:00 p.m. - 5:30 p.m.	Room 102	225
U	3:00 p.m. - 5:30 p.m.	Room 132	230
V	3:00 p.m. - 5:30 p.m.	Esplanade Ballroom 309	222

Division Business Meetings

Division	Time	Room
A	12:00pm - 2:00 p.m.	Esplanade Ballroom 300
B	11:00 a.m. - 1:00 p.m.	Esplanade Ballroom 302
D	11:00 a.m. - 1:00 p.m.	Esplanade Ballroom 302
E	11:00 a.m. - 1:00 p.m.	Esplanade Ballroom 302
H	2:00 p.m. - 2:30 p.m.	Room 104
N	2:15 p.m. - 2:45 p.m.	Room 270
O	12:30 p.m. - 2:00 p.m.	Esplanade 304

PLENARY

161 Friend or Foe: Inter-organismal Interactions in the Microbial World

8:15 am – 10:45 am
Location: Room 104

Convener:

Peggy Cotter; Univ. of North Carolina-Chapel Hill, Chapel Hill, NC.

Presentations:

8:15 am

Effectors of the Type VI Secretion System

Joseph Mougous; Univ. of Washington, Seattle, WA.

8:45 am

Contact Dependent Growth Inhibition in Gram-negative Bacteria: Is Killing Neighbors Really the Goal?

Peggy Cotter; Univ. of North Carolina-Chapel Hill, Chapel Hill, NC.

9:15 am

Bacteriophage Abortive Infection through a Suicidal Bacterial Type III Toxin-Antitoxin System

George Salmond; Univ. of Cambridge, Cambridge, United Kingdom.

9:45 am

The Side Effects of CRISPR/Cas Adaptive Immunity

Luciano Marraffini; The Rockefeller Univ., New York, NY.

10:15 am

It Matters Who You Meet: Spatial Structure and the Evolution of Microbial Cooperation

Kevin Foster; Univ. of Oxford, Oxford, United Kingdom.

Microbes rarely live alone. Whether in or on eukaryotic hosts or in environmental niches, bacteria typically share their living spaces with other bacteria, bacteriophages and eukaryotic microbes. Interactions between bacteria and other organisms, including members of the same species, may be cooperative or competitive. Discoveries in recent years have shed light on the molecular mechanisms underlying these interactions. Two speakers in this session will describe how bacteria use specialized secretion systems (Two Partner Secretion systems and Type VI secretion systems) to kill some neighboring bacteria upon contact while sparing others. The contributions these systems make to the development of a polymicrobial community will be discussed. Two other speakers will describe how bacteria defend themselves against predation by bacteriophages. One will discuss how a toxin-antitoxin system is used as a phage abortive infection system and the other will discuss how CRISPRs function as bacterial adaptive immune systems that prevent reinfection by viruses to which the bacteria have been exposed previously. Our fifth speaker will discuss interbacterial interactions from the perspective of sociobiology and social evolution. He will describe how bacteria can be used as models to understand complex social behaviors such as cooperativity, mutualism and spite.

Upon completion of this session, participants should be able to:

- Explain how bacteria use contact-dependent killing mechanisms to compete with neighboring bacteria.
- Explain how bacteria use toxin-antitoxin and CRISPR systems to defend themselves against bacteriophages.
- Explain how bacteria can be used as models to understand sociobiology and the evolution of inter-organismal behaviors.

PLENARY

162 Imagine a World without Viruses

8:15 am – 10:45 am
Location: Room 102

Convener:
Curtis Suttle; Univ. of British Columbia, B.C., Canada.

Presentations:

8:15 am
Viruses in the Sea: Drivers of Global Processes and the Greatest Reservoir of Unknown Diversity
Curtis Suttle; Univ. of British Columbia, Vancouver, Canada.

8:45 am
Viral Ancestors to Antiviral Systems
Luis Villareal; Univ. of California, Irvine, Irvine, CA.

9:15 am
Persistent Viruses in Plants and Fungi: Molecular Hitchhikers or Epigenetic Elements?
Marilyn Roossinck; Pennsylvania State Univ., University Park, PA.

9:45 am
Megavirus chilensis: One Step Closer to Understanding the Origin of Giant DNA Viruses
Jean M. Claverie; Univ. of Mediterranée Sch. of Med., Marseilles, France.

10:15 am
Exploring the World of Mycobateriophages: Discovery, Genomics and Comparative Analysis
Graham Hatfull; Dept. of Biological Sciences, Univ. of Pittsburgh, Pittsburgh, PA.

What would the living world be like without viruses? If one considers viruses only as pathogens, the idea might sound quite attractive. But in fact, without viruses, the living world would be very different in some surprising ways. The speakers in this session will show why it is becoming increasingly clear that viruses must be considered as integral players in many biological processes. For a start, without viruses, complex organisms like humans might never have evolved. The human genome would look entirely different without viruses — some estimates suggest that as much as 8% of the human genome may be viral in origin. Viruses are by far the most numerous entities in the biosphere — the ocean alone is thought to contain ~4X1030 viruses, containing as much carbon as 75 million blue whales! Because of the role marine viruses play in controlling the populations of marine microbes, they are significant players in biogeochemical cycles. Viruses' biological roles extend far beyond simply killing cells; viruses can also help their hosts. The realization that viruses can serve as co-evolved, beneficial symbionts offers exciting possibilities for applications in many fields including human and animal health, crop productivity and biotechnology.

Upon completion of this session, participants should be able to:

- Recognize the role of viruses in evolution.
- Recognize that viruses can be symbionts as well as pathogens.
- Recognize the role of viruses in shaping the human genome and in biogeochemical cycles.

PLENARY

163 Synthetic Biology

8:15 am – 10:45 am
Location: Room 103

Convener:
Danielle Tullman-Ercek; Univ. of California, Berkeley, Berkeley, CA.

Presentations:

8:15 am
Coping with Stress in a Synthetic World
Lingchong You; Duke Univ., Durham, NC.

8:45 am
Engineered Gene Circuits: From Oscillators to Synchronized Clocks and Biopixels
Jeff M. Hasty; Bioengineering, Univ. of California San Diego, San Diego, CA.

9:15 am
Building Synthetic Pathways for Production of Advanced Biofuels
Michelle Chang; Univ. of California, Berkeley, Berkeley, CA.

9:45 am
Designing Biological Systems for Sustainability
Pamela Silver; Harvard Univ., Cambridge, MA.

10:15 am
Changing Chasses and Inventing Elements: Developing a Combined Systems Biology and Engineering Approach to Designing Complex Function in Cells
Adam Arkin; Univ. of California, Berkeley, Berkeley, CA.

The combination of advances in DNA synthesis, DNA sequencing, the quantitative measurement of biological systems, and computing power have enabled the rise of the field of Synthetic Biology: the rigorous application of engineering principles to the design of biological systems. Inherent in such an engineering design goal is 1) the creation of modular, biological parts that can be assembled to make devices that exhibit controlled dynamical or logical behavior, and 2) the ability to predict complex, systems-level behavior in cells or populations. This session will highlight recent successes of Synthetic Biology in bacterial systems, and their application to areas such as alternative energy, biochemical production, and therapeutics.

Upon completion of this session, participants should be able to:

- Describe how modeling can be used to guide the design of synthetic biological systems.
- Explain how genetic regulation can be manipulated in a logical manner to result in novel behaviors in individual cells and systems of cells.
- Describe how synthetic biology techniques can be used to create new biological products in microbes.

PLENARY

164 Who's in Charge? How Microbes Affect Animal Behavior

8:15 am – 10:45 am
Location: Room 130

Convener:
Kevin R. Theis; Michigan State Univ., East Lansing, MI.

Presentations:

8:15 am

Odor-producing Microbes: The Unheralded Machinery Behind Animal Chemical Communication

Kevin R. Theis; Zoology, Michigan State Univ., East Lansing, MI.

8:45 am

The Holgenome Concept: Role of Microbiota in Adaptation, Behavior and Evolution of Higher Organisms

Eugene Rosenberg; Tel Aviv Univ., Tel Aviv, Israel.

9:15 am

Impact of Commensal Gut Microbiota on Brain Development and Behavior

Rochellys Diaz Heijtz; Karolinska Inst., Stockholm, Sweden.

9:45 am

Zombie Ants: The Precise Manipulation of Social Insect Behavior by a Fungal Parasite

David P. Hughes; Pennsylvania State Univ., University Park, PA.

10:15 am

Manipulation of a Parasitoid Wasp by an Inherited Virus

Julien Varaldi; Univ. of Lyon, Lyon, France.

All animals intimately associate with symbiotic microbes and it has been suggested that the genetic contributions of these microbes are orders of magnitude greater than those of their hosts. As such, the potential effects of microbes on animal biology appear near infinite and, as a seemingly paradigm-shifting consequence, animals are increasingly being viewed as holobionts or supraorganisms rather than as isolated entities. The aim of this plenary session is to enhance and expand our collective knowledge of how symbiotic microbes shape the behavior of their animal hosts in both beneficial and harmful ways. For animals, behavior is the sole means for mediating their situation and position within dynamic environments, so developing proximate and ultimate understandings of symbionts' influences on host behavior is an important phase in the maturation of animal biology. This session features an international panel of transdisciplinary scientists who will discuss how microbes influence the locomotive, reproductive, communicative and emotive behaviors of their hosts, and furthermore how they shape the evolution and structure of animal societies. Collectively, the cutting edge research of these scientists illustrates the transcendent developments occurring at the interface of behavioral, microbial and evolutionary ecology.

Upon completion of this session, participants should be able to:

- Describe the scope and magnitude of the proximate and ultimate effects symbiotic microbes have on the behavior of their animal hosts.
- Illustrate how contemporary advances in the tools and paradigms of microbiology are enabling scientists in numerous disciplines to solve long-standing puzzles in animal behavior.
- Demonstrate that behaviorally-relevant animal-microbial symbioses are particularly suitable systems for addressing many of the big questions at the interface of microbial, developmental and evolutionary ecology.

SYMPOSIUM PACE CA FL

165 Best Practices in the Work-up of Specimens from the CNS and Other Sites: How Far Should You Go?

8:15 am – 10:45 am
Location: Esplanade Ballroom 308

When Claiming ASCLS P.A.C.E. credits, please refer to the numbers listed after each presentation title.

Conveners:

Robert Sautter; Carolinas Pathology Group, Charolotte, NC.
Audrey N. Schuetz; Weill Cornell Med. Ctr.-New York, New York, NY.

Presentations:

8:15 am

Encephalitis (273-128a-12)

Sandra Richter; Cleveland Clinic, Cleveland, OH.

8:45 am

Meningitis and CNS Shunt Infections (273-128b-12)

Audrey N. Schuetz; Weill Cornell Med. Coll., New York, NY.

9:15 am

Controversies and Best Practices: Workup and Susceptibility Testing of Isolates from Anaerobic and Acute/Chronic Wounds (273-128c-12)

Larry Gray; Trihealth Lab., Cincinnati, OH.

9:45 am

Controversies and Best Practices: Identification and Susceptibility Testing of Gram-positives in Urine (273-128d-12)

Paul Schreckenberger; Loyola Univ. Med. Ctr., Chicago, IL.

The first portion of the session will cover challenges in the diagnosis of encephalitis, meningitis, and shunt infections of the central nervous system (CNS). Serologic, culture, and molecular testing methods for the detection of common and emerging CNS pathogens will be discussed. The information presented will aid in test selection for small volume CNS specimens. The second portion of the session will review clinical microbiology cases to illustrate the controversies and best practices in the field. The topics covered include how far to go in the workup and susceptibility testing of isolates from anaerobic cultures and from acute and chronic wound cultures. The final session will address how far to go with Gram-positive organisms growing in significat numbers in urine cultures, and the do's and don'ts of susceptibility testing of Gram-positives in urine.

Upon completion of this session, participants should be able to:

- Review the epidemiology and laboratory diagnosis of central nervous system infections.
- Discuss the prioritization of testing for central nervous system speciments received in limited quantities.
- Describe the major controversies in the workup and susceptibility testing of isolates from anaerobic and wound cultures, and Gram-positive bacteria recovered from urine.

Course Level: Intermediate

SYMPOSIUM PACE CA FL

166 Complications and Implications of New Technologies for Diagnosis of Infectious Disease

8:15 am – 10:45 am
Location: Esplanade Ballroom 304

When Claiming ASCLS P.A.C.E. credits, please refer to the numbers listed after each presentation title.

Conveners:

Karen C. Carroll; The John Hopkins Univ. Sch. of Med., Baltimore, MD.,
Ellen Jo Baron; Stanford Univ. Sch. of Med., Stanford, CA; Cepheid, Inc.

Presentations:

8:15 am

Rapid Detection on Multidrug Resistant Bacteria; Progress and Challenges (273-129a-12)

Dan Diekema; Univ. of Iowa Carver Coll. of Med., Iowa City, IA.

Division L Lecturer

8:45 am

Clinical Impact of Molecular Testing for *C. difficile* Diagnosis: There's Good News and Bad (273-129b-12)

Karen C. Carroll; Johns Hopkins Univ. Sch. of Med., Baltimore, MD.

9:15 am

MALDI-TOF and Respiratory Viral Panels: Challenges and Considerations of Implementing New Technologies for Diagnosis of Infectious Diseases (273-129c-12)

Christopher Doern; Children's Med. Ctr. of Dallas, Dallas, TX.

9:45 am

"Rx: PCR for Everything" Encounters between Clinicians and Novel Diagnostic Tests (273-129d-12)

Anne J. Blaschke; Univ. of Utah, Salt Lake City, UT.

Linking the impact of rapid available and emerging technologies with physician knowledge of timely local disease incidence and patient outcomes is key to improved diagnostic problem solutions. Delays in pathogen identification and antimicrobial resistance testing contribute to morbidity and mortality. Rapid assays that identify pathogens and antimicrobial resistance immediately from specimen or after culture could considerably improve patient outcomes. The deployment of promising new technologies and techniques in a manner that ensures optimal application is a challenge for leaders in the laboratory and at the bedside. This session will discuss available and emerging technologies, interventions designed to improve the communication between public health and the front line and improved outcomes for the patients these systems serve.

Upon completion of this session, participants should be able to:

- Examine how new technology is integrated into the clinical laboratory.
- Examine how information about the potential applications and limitations of new technology is reliably communicated to clinical and non-clinical stakeholders.
- Describe an example communication system.

Course Level: Intermediate

SYMPOSIUM PACE CA FL

167 Pathogen Discovery: Linking a Novel Microbe to Human Disease

8:15 am – 10:45 am

Location: Esplanade Ballroom 303

When Claiming ASCLS P.A.C.E. credits, please refer to the numbers listed after each presentation title.

Convener:

Charles Chiu; Univ. of California, San Francisco, San Francisco, CA.

Presentations:

8:15 am

Do Parasites Harbor Novel Pathogens? (273-130a-12)

Dylan Pillai; Univ. of Calgary, Calgary, Canada.

8:45 am

Pathogenicity and Molecular Characterization of Simian Adenoviruses with Capacity to Infect Humans through Cross-species Transmission (273-130v-12)

Charles Chiu; Laboratory Medicine and Medicine/Infectious Diseases, Univ. of California, San Francisco, San Francisco, CA.

9:15 am

A Novel Rhabdovirus Associated with Acute Hemorrhagic Fever in Central Africa (273-130c-12)

Joseph Fair; Global Viral Forecasting, San Francisco, CA.

9:45 am

Enteroaggregative *E. coli* 0104:H4 as a Lethal Pathogen: The Role of Genomics in Rapid Identification and Diagnostic Development (273-130d-12)

David Rasko; Univ. of Maryland, Baltimore, MD.

10:15 am

Growing Numbers of Human Parvoviruses and their Potential Pathogenicity (273-130e-12)

Eric Delwart; Blood Systems Res. Inst., San Francisco, CA.

The rapid emergence of high-throughput diagnostics in microbiology — microarrays, mass spectrometry, and next-generation "deep" sequencing — has ushered in a new era of pathogen discovery. Yet the discovery of a novel agent in human clinical samples is merely the first step in establishing a causal relationship between the microbe and disease (Koch's postulates). Determining whether or not a detected agent is truly a pathogen often requires a combination of phylogenetic analysis, traditional laboratory methods, such as culture, serology, and PCR, as well as extensive follow-up clinical, pathological, and epidemiological investigation. Here we will discuss the coupling of powerful pathogen discovery technologies with more conventional methods to connect a novel microbe to disease, and highlight the challenges as well as perils involved in attempting to establish such a link.

Upon completion of this session, participants should be able to:

- Explain how state-of-the-art genomics tools are now being routinely employed for pathogen discovery.
- Describe the follow-up investigations that are required to link discovery of a novel microbe to human disease.
- Identify how genomics-based technologies for pathogen discovery can inform the development of next-generation diagnostic tools in clinical microbiology.

Course Level: Intermediate

SYMPOSIUM PACE CA FL

168 Screening and Surveillance for Antibiotic Resistance (Global, Local and Bedside Considerations)

8:15 am – 10:45 am

Location: Esplanade Ballroom 306

When Claiming ASCLS P.A.C.E. credits, please refer to the numbers listed after each presentation title.

Convener:

Fiona Walsh; ACW Res. Ctr. Dept. of Agriculture, Zürich, Switzerland.

Presentations:

8:15 am

The Soil Antibiotic Resistome: A Community of Multi-drug Resistant Bacteria (273-131a-12)

Fiona Walsh; ACW Res. Ctr. Dept. of Agriculture, Zurich, Switzerland.

8:45 am

Bottlenecks in the Transfer of Antibiotic Resistance Genes from Environmental Bacteria to Pathogens (273-131b-12)

Jose L. Martinez; Centro Nacional de Biotecnologia Madrid, Madrid, Spain.

9:15 am

Monitoring Antibiotic Resistance Genes and their Transferability in Agro-ecosystems (273-131c-12)

Kornelia Smalla; Julius-Kuhn Inst., Braunschweig, Germany.

9:45 am

Predictive Modeling: A Paradigm Shift in Screening and Surveillance (273-131d-12)

Ari Robicsek; Northshore Univ. HealthSystem, Evanston, IL.

10:15 am

Predicting the Future for Antibiotics (273-131e-12)

Stuart B. Levy; Tufts Univ. Sch. of Med., Boston, MA.

Abbott-ASM Lifetime Achievement Award

The antibiotic resistance cycle: from environment to clinic and back again. In order to fully understand how antibiotic resistance has developed and will proceed we need to identify and characterize antibiotic resistance in each section of the bacterial community, not just the medical community. As most antibiotics and resistance genes are thought to have come from the environment this is an important source of resistance. This topic will discuss the roles of intrinsic resistance and horizontal transfer of resistance as well as the characterization of resistance mechanisms of relevance to human pathogens within the antibiotic resistance cycle. This session will highlight the routes of transmission of antibiotic resistant bacteria to humans such as food and water. Speakers will address the detection and dissemination of resistance across a range of clinical and nonclinical settings with an aim to promoting a better understanding of the antibiotic resistance cycle and to identify novel opportunities for intervention and prevention.

Upon completion of this session, participants should be able to:

- Recognize that antibiotic resistance is no longer a problem confined to hospitals.
- Identify how the environment has influenced the development and spread of antibiotic resistance.
- Recognize antibiotic reistance as a cycle in which our daily activities influence the course of antibiotic resistance development and spread.

Course Level: Intermediate

POSTER SESSIONS

169 – 191 Poster Sessions see pages 187 – 207

10:45 am – 12:30 pm
Location: Hall C

SPECIAL INTEREST SYMPOSIUM

192 H5N1: Research Controversy and Dual Use Research Issues

11:00 am – 1:30 pm
Location: Room 104

Developed by the Public and Scientific Affairs Board (PSAB)

Conveners:

Paul Keim; Northern Arizona Univ., Flagstaff, AZ.

Kenneth I. Berns; Genetics Institute, Univ. of Florida, Gainsville, FL.

Developed by the Public and Scientific Affairs Board (PSAB). The session will feature the following speakers who will discuss research, biosafety, biosecurity and USG policy issues related to dual use research of concern.

11:00 am

The H5N1 Controversy and Publication Issues

Lynn W. Enquist; Department of Molecular Biology, Princeton University, Princeton, NJ.

11:30 am

Influenza Research, Biosafety, Biosecurity and H5N1 Issues

Nancy Cox; Centers for Disease Control and Prevention, Influenza Division, Atlanta, GA.

12:00 pm

A Review of the Scientific Developments Involving the H5N1 Work

Yoshihiro Kawaoka; Univ. of Wisconsin-Madison, Madison, WI.

12:30 pm

The USG Policy for Oversight of Life Sciences Dual Use Research of Concern—Implementation Issues

Dennis Dixon; National Institute of Allergy and Infectious Diseases, Bethesda, MD.

1:00 pm

H5N1 Research: Alternative Perspectives

Michael Osterholm; University of Minnesota, Minneapolis, MN.

SPECIAL INTEREST SYMPOSIUM

PACE CA FL

193 ASM Partnering with the CDC for Evidence-based Medicine Projects

11:00 am – 1:30 pm
Location: Esplanade Ballroom 305

When Claiming ASCLS P.A.C.E. credits, please refer to the numbers listed after each presentation title.

Developed by the Committee on Professional Practice

Convener:

Alice S. Weissfeld; Microbiol. Specialists Inc., Houston, TX.

Presentations:

11:00 am

Introduction to How ASM/CDC came to work together on the Infectious Disease Evidence-based Medicine Projects (273-155a-12)

Alice S. Weissfeld; Microbiol. Specialists Inc., Houston, TX.

11:30 am

How the CDC Laboratory Medicine Best Practices Projects Work (273-155b-12)

Nancy E. Cornish; Centers for Disease Control and Prevention, Atlanta, GA.

12:00 pm

Experiences from the Front Lines: The Job of the Review Coodinator (273-155c-12)

Mark T. LaRocco; Houston, TX.

12:30 pm

Experiences from the Front Lines: The Job of the Expert Panelist and Team Leader (273-155d-12)

Donna Wolk; Univ. of Arizona, Tucson, AZ.

1:00 pm

How to Write a Paper that Can be Used in an Evidence-based Evaluation (278-155e-12)

Michael A. Saubolle; Pathology, Good Samaritan Med. Ctr., Phoenix, AZ.

Developed by the Committee on Professional Practice One of the key initiatives of the new Committee on Professional Practice is to establish an ASM process for examining evidence surrounding key issues in clinical microbiology. This symposium will describe how the first guideline was written.

Upon completion of this session, participants should be able to:

- Describe the difference between evidence-based reviews and practice guidelines.
- Describe the process of formulating a question and getting search items together to answer that question.
- Describe the process of writing a paper for the peer-reviewed literature that could qualify for review by someone examining evidence in this subject matter.

Course Level: Intermediate

SPECIAL INTEREST SYMPOSIUM

PACE CA FL

194 The Practice of Clinical Microbiology and Pediatrics

11:00 am – 1:30 pm
Location: Esplanade Ballroom 306

Developed by the Public and Scientific Affairs Board

When Claiming ASCLS P.A.C.E. credits, please refer to the numbers listed after each presentation title.

Conveners:

Carey-Ann D. Burnham; Pediatrics, Washington Univ. Sch. of Med., St Louis, MO., Christopher Doern; Univ. of Texas Southwestern Med. Ctr., Dallas, TX.

Christopher Doern; Univ. of Texas Southwestern Med. Ctr, Dallas, TX.

Presentations:

11:00 am

Optimizing Blood Culture Practice (273-156a-12)

Christopher Doern; Univ. of Texas Southwestern Med. Ctr., Dallas, TX.

11:30 am

Challenges in Evidence-based *C. difficile* Testing (273-156b-12)

Carey-Ann D. Burnham; Pediatrics, Washington Univ. Sch. of Med., St Louis, MO.

12:00 pm

Post Vaccine Evolution of *Rotavirus* Epidemiology (273-156c-12)

Paula Revell; Baylor Coll. of Med., Houston, TX.

12:30 pm

Shiga Toxin Testing: Is it Really the Right Thing to Do? (273-156d-12)

Phil Tarr; Washington Univ. in St. Louis Sch. of Med., St. Louis, MO.

1:00 pm

Recurrent MRSA Infections (273-156e-12)

Stephanie Fritz; Washington Univ. in St. Louis Sch. of Med., St. Louis, MO.

This symposium will focus on five contemporary, challenging issues faced by those who practice pediatric specific clinical microbiology. The epidemiology of pediatric diseases, such as the agents of bacteremia in the post vaccine era as well as *C. difficile* which has implications in the practice of clinical microbiology. In addition, the introduction of new diagnostic methodologies and laboratory best practices in pediatrics will be reviewed

Upon completion of this session, participants should be able to:

- Discuss the pediatric specific issues pertaining to *C. difficile* testing, Shiga Toxin testing and interferon gamma release assays.
- Discuss optimal blood culture practices for children, and barriers to such practices, and possible methods/modes to circumvent these barriers.
- Describe the epidemiology of rotavirus disease in the post-vaccine era.

Course Level: Intermediate

POSTER SESSIONS

195 – 216 Poster Sessions see pages 209 – 228

1:00 pm – 2:45 pm
Location: Hall C

SYMPOSIUM

217 All's Well that Ends and Mends Well: Maintenance of Genomic Integrity

3:00 pm – 5:30 pm
Location: Room 104

Convener:

Stephen Kowalczykowski; Univ. of California-Davis, Davis, CA.

Presentations:

3:00 pm

Telomeres

Vicki Lundblad; Salk Inst. for Biological Studies, San Diego, CA.

Division H Lecturer

3:30 pm

Induction of Ultrafine Anaphase Bridges at Telomeres

B. Nera, A. Chiu, **Lifeng Xu**; Univ. of California at Davis, Davis, CA.

3:45 pm

A Single Extra Chromosome Prevents Meiosis in Yeast

Eugene Kroll[1], G. Koniges[1], B. Dunn[2], S. Coyle[3], F. Rosenzweig[1]; [1]Univ. of Montana, Missoula, MT, [2]Stanford Univ., Palo Alto, CA, [3]UCSF, San Francisco, CA.

4:00 pm

Regulation of Recombinational DNA Repair

Wolf-Dietrich Heyer; Univ. of California-Davis, Davis, CA.

4:30 pm

A RadA Recombinase Paralog From The Hyperthermophilic Crenarchaeon *Sulfolobus solfataricus* Functions Early In Homologous Recombination

William J. Graham, V, J. L. Andersen, C. A. Haseltine; Washington State Univ., Pullman, WA.

4:45 pm

A Dominant Role for an Error-Prone DNA Polymerase in Recombination Drives Evolution

Richard T. Pomerantz[1], I. Kurth[1], M. F. Goodman[2], M. O'Donnell[1]; [1]Rockefeller Univ., New York, NY, [2]Univ. of Southern California, Los Angeles, CA.

5:00 pm

Mechanism and Visualization of DNA-Break Repair

Stephen Kowalczykowski; Univ. of California-Davis, Davis, CA.

Maintaining genomic integrity is an essential aspect of life. The DNA in all organisms can become broken during the course of normal cellular replication, and the ends of linear chromosomes in particular, without the function of telomerase, would be a source of persistent DNA breaks. This session will cover molecular and cellular aspects of genome maintenance. One topic will be the essential function of telomerase, an enzyme charged with the responsibility of replicating DNA at the ends of chromosome; telomere dysfunction in humans leads to many pathologies. Other topics will include the mechanism and regulation of DNA-break repair, a multi-component biological pathway designed to restore, with high fidelity, integrity to broken DNA. As with telomerase, the orthologues of many microbial genes involved in recombinational DNA repair are associated with tumor suppression. The connections between DNA replication, recombinational repair and telomere function will be featured.

Upon completion of this session, participants should be able to:

- Explain mechanisms of chromosome maintenance.
- Identify the functions of telomerase and the proteins involved in recombinational DNA-break repair.
- Describe the connections between microbial systems and the human diseases associated with chromosome maintenance.

SYMPOSIUM

PACE CA FL

218 Best Practices in Clinical Microbiology: Beyond the Routine Culture, What Micro Labs Could be Doing to Further Patient Care

3:00 pm – 5:30 pm
Location: Esplanade Ballroom 308

When Claiming ASCLS P.A.C.E. credits, please refer to the numbers listed after each presentation title.

Convener:

Julie A. Ribes; Univ. of Kentucky, Lexington, KY.

Presentations:

3:00 pm

Optimal Diagnostics for Urinary Tract Infections in Children (273-132a-12)

Susan Richardson; The Hosp. for Sick Children, Toronto, Canada.

3:30 pm

Microsporidia: Beyond Microscopy (273-132b-12)

Bobbi Pritt; The Mayo Clinic, Rochester, MN.

4:00 pm

Best Practices for the Optimal Recovery of *Campylobacter jejuni* from Stool Samples (273-132c-12)

Geraldine Hall; Cleveland Clinic and Case Western Reserve Univ. Sch. of Med., Cleveland, OH.

4:30 pm

MALDI-TOF and Cystic Fibrosis (273-132d-12)

Robert Jerris; Children's Healthcare of Atlanta, Atlanta, GA.

It is exciting to be in the field of Clinical Microbiology with all the changes in methodologies that are occurring. Culture techniques are being replaced by non-culture techniques and those tried and true culture procedures are being changed to meet the demands of specific patient populations that we serve. In this session, our speakers will address the current and future best practices for the diagnosis of urinary tract infections in children, as well as the best practices for the detection of microsporidial and campylobacter infections. The final speaker of the session will discuss the use of MALDI-TOF to identify respiratory isolates from patients with cystic fibrosis. Sufficient time will be available at the end of the session to answer questions from the attendees.

Upon completion of this session, participants should be able to:

- Delineate the best approach to the evaluation of urine specimens for children with urinary tract infections.
- Identify optimal testing options for the diagnosis of Microsporidium and Campylobacter infections.
- Discuss the performace characteristics of MALDI-TOFF organism identification on respiratory isolates from cystic fibrosis patients.

Course Level: Intermediate

SYMPOSIUM

219 Beyond the Central Dogma: Diversity in Regulation of Gene Expression

3:00 pm – 5:30 pm
Location: Room 130

Convener:

Jörg Vogel; Univ. Würzburg, Würzburg, Germany.

Presentations:

3:00 pm

New Mechanisms of mRNA Activation by Small RNA

Jörg Vogel; Univ. Würzburg, Würzburg, Germany.

3:30 pm

High Resolution Transcriptome Map of an Emerging Human Pathogen: *Burkholderia pseudomallei*

Tannistha Nandi[1], A. P. Singh[1], C. Ong[2], P. Tan[1,3]; [1]Genome Inst. of Singapore, Singapore, [2]Defense Med. and Environmental Res. Inst., Singapore, [3]Duke-NUS Graduate Med. Sch., Singapore.

3:45 pm

A Global View of the Translational Response to Cold Shock in *E. coli* Through Ribosome Footprinting

David H. Burkhardt, C. A. Gross; UCSF, San Francisco, CA.

4:00 pm

Stress Regulates Intron and Intein Function in Bacteria

Marlene Belfort; Univ. of Albany, Albany, NY.

4:30 pm

A Long, Riboswitch-Regulated Antisense RNA in *L. monocytogenes* Regulates *pocR* and Highlights a Novel Gene Regulatory Paradigm

J.R. Mellin[1], T. Tiensuu[2], C. Bécavin[1], J. Johannson[2], P. Cossart[1]; [1]Inst. Pasteur, Paris, France, [2]Umeá Univ., Umeá, Sweden.

4:45 pm

Engineering CRISPR System for Predictable Control of Gene Expression

Lei Qi, R. Haurwitz, A. Arkin; UC Berkeley, Berkeley, CA.

5:00 pm

AAA+ Proteases: Remodelers of Proteins and the Proteome

Tania Baker; Massachussetts Inst. of Technology, Cambridge, MA.

The tenets of the Central Dogma of Molecular Biology were first put forth in the late 1950's, and held that the transfer of genetic information from DNA to protein (via RNA) was unidirectional. Since this time, we have come to understand that the replication and the expression of genetic information can be regulated in myriad ways that fall outside this dogma. This session will focus on recent advances in our understanding of such molecular mechanisms, including the role of small non-coding RNA, proteolysis, DNA mobility, and RNA splicing.

Upon completion of this session, participants should be able to:

- Discuss new roles for small non-coding RNAs in the regulation of gene expression and bacterial physiology.
- Identify new regulatory roles for proteolysis and splicing in bacterial gene expression.

SYMPOSIUM

220 Biodegradation: Application of Basics to Real-world Problems

3:00 pm – 5:30 pm
Location: Esplanade Ballroom 310

Convener:

Elizabeth Edwards; Univ. of Toronto, Toronto, Canada.

Presentations:

3:00 pm

Unravelling Pathways and Organisms in Anaerobic Benzene-degrading Communities

Elizabeth A. Edwards; Univ. of Toronto, Toronto, Canada.

3:30 pm

The Genetic Basis of Resistance to Crosslinking Aldehydes in *Methylobacterium extorquens*

Dipti Nayak, C. Marx; Harvard Univ., Cambridge, MA.

3:45 pm

Cyanobacteria Mediated Carbonate Precipitation in Flue Gas Corrosive Environment

Nina Kamennaya[1], L. Mahoney[1], E. Holman[2], M. Zemla[1], J. Cappuccio[1], H-Y. Holman[1], K. L. Chavarria[3], S. Swarbreck[4], C. Ajo-Franklin[1], M. Auer[1], T. Northen[1], C. Jansson[1]; [1]Lawrence Berkeley Natl. Lab., Berkeley, CA, [2]Univ. of California, Berkeley, CA, [3]Univ. of California, San Diego, CA, [4]University of East Anglia, Norwich, United Kingdom.

4:00 pm

Stable Isotope Probing Analyses of Tertiary Butyl Alcohol Biodegradation

Michael Hyman; North Carolina State Univ., Raleigh, NC.

4:30 pm

The Micropollutant Biotransformation Capacity of a Microbial Community is Positively Correlated with its Diversity

David R. Johnson[1,2], K. Fenner[1,2], D. E. Helbling[1], T. Lee[3], J. Park[3]; [1]Swiss Federal Inst. of Aquatic Sci. & Technology (Eawag), Dübendorf, Switzerland, [2]Swiss Federal Inst. of Technology (ETHZ), Zürich, Switzerland, [3]Yonsei Univ., Seoul, KOREA, REPUBLIC OF.

4:45 pm

Reductive Dehalogenation of Monochlorobenzene in Microcosms

Jennifer L. Nelson, G. T. Graham, S. H. Zinder; Cornell Univ., Ithaca, NY.

5:00 pm

Dehalococcoides Biochemistry and Genomics: Implications on *in situ* Bioremediation of Halogenated Compounds

Lorenz Adrian; Helmholtz Ctr. for Environmental Res. (UFZ).

One approach to remediating persistent organic chemical pollutants in the environment is their degradation to harmless products by aerobic or anaerobic microorganisms. While much progress has been made studying biodegradation in a laboratory setting, it is not always clear whether these studies are relevant to processes occurring in polluted habitats. This session will address understanding and manipulating microbial processes important to "real world" problems, such as the reductive dechlorination of chloroorganic pollutants, anaerobic biodegradation of aromatics, and aerobic breakdown of the gasoline additive methyl tertiary butyl ether. In each of these cases fundamental information about microorganisms has influenced strategies to remediate toxic chemicals.

Upon completion of this session, participants should be able to:

- Recognize novel organisms and pathways involved in microbial degradation of pollutants.
- Describe novel approaches to studying organisms involved in these processes.

SYMPOSIUM

221 Frontiers in Experimental Evolution

3:00 pm – 5:30 pm
Location: Esplanade Ballroom 301

Conveners:

David A. Stahl; Univ. of Washington, Seattle, WA.
Matthew D. Kane; Natl. Sci. Fndn., Arlington, VA.

Presentations:

3:00 pm

Evolution of an Obligate Mutualism

Kristina Hillesland; Univ. of Washington, Bothell, WA.

3:30 pm

Physiological Roles and Evolutionary Implications of Alternative DNA Polymerases During Periods of Feast and Famine in *E. coli*

Christopher H. Corzett, M. F. Goodman, S. E. Finkel; Univ. of Southern California, Los Angeles, CA.

3:45 pm

Uncovering the Basis of Trade-offs in *E. coli* Populations Evolved In Single and Multi-resource Environments

Rebecca Satterwhite, T. F. Cooper; Univ. of Houston, Houston, TX.

4:00 pm

How Do Viruses Avoid Extinction?

Paul Turner; Yale Univ., New Haven, CT.

4:30 pm

Evidence of Niche-Specific Adaptive Mutation Accumulation in a Novel Ecotype in an Experimental Population of *E. coli* Following the Evolution of a Key Adaptation

Zachary D. Blount[1,2], R. E. Lenski[1,2]; [1]Michigan State Univ., East Lansing, MI, [2]Beacon Ctr. for the Study of Evolution in Action, East Lansing, MI.

4:45 pm

Repeatable Genomic Evolution in an Experimental System of Bacteria and Bacteriophage

Elizabeth B. Perry, B. J. M. Bohannan; Univ. of Oregon, Eugene, OR.

5:00 pm

Experimental Evolution of New Genes

Dan I. Andersson; Univ. of Uppsala, Uppsala, Sweden.

Microorganisms are the oldest, most abundant, and most diverse forms of life on Earth. This session will describe research at the frontier in understanding the origins, maintenance and consequences of this microbial diversity. Speakers will present a variety of talks in which microbes are the stars in experimental studies of evolutionary patterns and processes. Attendees will learn about how specific traits of microorganisms, such as short generation times, small genome sizes, and the ability to store and revive ancestral populations, study population mixture interactions, and directly quantify fitness and adaptation, all make microbes ideal model systems for experiments in manipulative evolution. Results of such studies not only help explain the history of life on Earth, but also contribute knowledge of great value to science and society.

Upon completion of this session, participants should be able to:

- Explain how evolutionary patterns and processes can be studied empirically through experiments with microorganisms.
- Identify some of the cutting-edge questions in microbial evolution that are being addressed through experimental approaches.
- Discuss some of the broader impacts to science and society that are being addressed through experimental studies of microbial evolution.

SYMPOSIUM PACE CA FL

222 Immunological Tools and Biomarkers for Infectious Diseases

3:00 pm – 5:30 pm
Location: Esplanade Ballroom 309

When Claiming ASCLS P.A.C.E. credits, please refer to the numbers listed after each presentation title.

Conveners:

Deshratn Asthana; Univ. of Miami, Miami, FL.
Erik Munson; Wheaton Franciscan Lab., Wauwatosa, WI.

Presentations:

3:00 pm

Malaria Immunology and Vaccines (273-133a-12)

Patrick Duffy; NIH, Bethesda, MD.
Division AA Lecturer

3:30 pm

The Host Immune Response and Biomarkers of Dengue Infection (273-133b-12)

Azliyati Azizan; Univ. of South Florida, Tampa, FL.

4:00 pm

Emerging Biomarkers/Surrogate Markers in Infectious Diseases in Particular, HIV/AIDS (273-133c-12)

Deshratn Asthana; Univ. of Miami, Miami, FL.

4:30 pm

Innate Cell and Cytokine Responses to Viral Infections: Are There Unique Characteristics? (273-133d-12)

Christine Biron; Brown Univ., Providence, RI.

5:00 pm

The Contribution of "YOU" to your Immunological Health: Positive or Negative (273-133e-12)

Bruce Rabin; Univ. of Pittsburgh Med. Ctr., Pittsburgh, PA.
Division V Lecturer and Abbott Award in Clinical and Diagnostic Immunology

Innate immunity has been identified to play an important role in host response in infectious diseases. The past decade has seen a significant expansion and understanding of the field. In addition, the session will provide current knowledge on malaria immunology and vaccines in clinical trials. Overview of immunopathogenesis of dengue and influenza viruses along with current and future directions of immunotherapy and vaccine design. The proposed session will address innate immunity, immune and surrogate markers in HIV-infection and their value in patient care and management. In addition, session will cover immunological markers of viral infections in general and how these markers can provide insights for therapeutic approaches to infections. The audience will also be able to get an overview on immune system as a window in one's psychosocial history. Since humeral and cellular immune parameters being measured in the laboratory had their quantitative and qualitative function influenced at a time much earlier than when the blood specimen was collected for analysis and how all of this impacts on patient's well-being.

Upon completion of this session, participants should be able to:

- Summarize the current update on malaria immunology and status of vaccines in development.
- Review host responses to dengue and influenze infections and implications for therapy and vaccine design.
- Summarize innate immune markers in HIV infections.

Course Level: Intermediate

SYMPOSIUM PACE CA FL

223 Interactive Controversies in Antimicrobial Resistance Detection: Can You and Experts Agree?

3:00 pm – 5:30 pm
Location: Esplanade Ballroom 304
ASCLS P.A.C.E.®: 273-134-12

Convener:

Rebecca Horvat; Univ. of Kansas Med. Ctr., Kansas City, KS.

Presentations:

Phenotypic Methods for Detection of Resistance

Dan Amsterdam; Univ. at Buffalo Sch. of Med., NY.

Molecular Diagnostics Can Improve Antimicrobial Therapy and Stewardship

Fred Tenover; Cepheid, Sunnyvale, CA.

Molecular Detection of *Neisseria gonorrhoeae*

Michael Loeffelholz; Univ. of Texas Med. Branch, Galveston, TX.

Culture and Antimicrobial Susceptibility of *N. gonorrhoeae*

John Papp; Centers for Disease Control and Prevention, Atlanta, GA.

Use of First Clinical Isolate in Antibiogram Data

Rebecca T. Horvat; Pathology and Lab Medicine, Univ. of Kansas Med. Ctr., Kansas City, KS.

Use of All Clinical Isolates in Antibiogram Data

John Stelling; Brigham and Women's Hosp., Boston, MA.

Different practices have developed in clinical microbiology laboratories to test analysis or evaluate trends. This session presents various practices that use different methods, analysis or reporting strategies. The issues in this session will focus on: 1) the use of phenotypic vs genotypic methods for detection of resistance; 2) use of molecular testing to detect *Neisseria gonorrhea* versus culture which allows for

evaluation of antimicrobial susceptibility; and 3) use of the first clinical isolate to report in the antibiogram versus using all isolates collected within a time period. Each participant will be able to evaluate their own practices based on the ideas presented.

Upon completion of this session, participants should be able to:

- Evaluate the use of reporting minimum inhibitory concentrations versus only interpretive categories on antimicrobial susceptibility results.
- Determine the utilization of diagnostic testing results using various methods (culture versus molecular detection).
- Assess the use of all clinical isolates for presentation in an annual antibiogram compared to using the first isolate per patients.

Course Level: Advanced

SYMPOSIUM

224 The Limits of Microbial Life

3:00 pm – 5:30 pm
Location: Esplanade Ballroom 302

Conveners:

Mary A. Voytek; Natl. Aeronautics and Space Admin., Washington, DC.

Mark Young; Thermal Biology Institute, Montana State Univ., Bozeman, MT.

Presentations:

3:00 pm

Extremely Acid Saline Environments as Biospheres: Approaching the Limits of Life

Kathy Benison; Central Michigan Univ., Mount Pleasant, MI.

3:30 pm

Metagenomic and Phylogenetic Analysis of Deep-Sea Ferromanganese Nodules from the South Pacific Gyre

Benjamin J. Tully, G. Horn, W. C. Nelson, J. F. Heidelberg; Univ. of Southern California, Los Angeles, CA.

3:45 pm

Microbial Community Composition and Gene Expression in the Atmosphere over the Brazilian Amazon

Ann M. Womack[1], P. E. Artaxo[2], F. Ishida[3], K. J. Jardine[4], S. R. Saleska[5], K. T. Wiedemann[2], B. J. M. Bohannan[1], J. L. Green[1]; [1]Univ. of Oregon, Eugene, OR, [2]Univ. of São Paulo, São Paulo, Brazil, [3]Escritório Central do Projeto LBA/INPA, Manaus, Brazil, [4]Biosphere 2, Tucson, AZ, [5]Univ. of Arizona, Tucson, AZ.

4:00 pm

Chaotropic and Hydrophobic Substances can Determine Limits for Life in the Biosphere

John E. Hallsworth; Queens' Univ. Belfast, Belfast, United Kingdom.

4:30 pm

Fungal Metabolism at pH 1: Genomic, Transcriptomic, and Proteomic Analyses of a Natural Microbial Community

Christopher S. Miller[1], A. Mosier[1], I. V. Grigoriev[2], C. Pan[3], R. L. Hettich[3], S. W. Singer[4,5], J. F. Banfield[1]; [1]Univ. of California Berkeley, Berkeley, CA, [2]DOE Joint Genome Inst., Walnut Creek, CA, [3]Oak Ridge Natl. Lab., Oak Ridge, TN, [4]Lawrence Berkeley Natl. Lab, Berkeley, CA, [5]Joint BioEnergy Inst., Emeryville, CA.

4:45 pm

Marine Viral Survival Skills: How Oceanic Microbial Viruses Succeed in the Southern Ocean

Jennifer R. Brum[1], B. L. Hurwitz[1], H. W. Ducklow[2], M. B. Sullivan[1]; [1]Univ. of Arizona, Tucson, AZ, [2]Marine Biological Lab., Woods Hole, MA.

5:00 pm

Lessons Learned from Viruses Isolated from Yellowstone's' High Temperature Environments

Mark Young; Montana State Univ., Bozeman, MT.

The complexity and robustness of the modern biosphere is a result of the dynamic interplay between genetic flexibility, metabolic capability and environmental challenges. Life survives and sometimes thrives under what seem to be harsh conditions on Earth. The study of the so called "extremophiles" challenges our concept of the limits of life, informs our quest for the comprehensive tree of life, and helps us to understand how evolution has taken place. This symposium will provide perspectives on the molecular, genetic, and biochemical mechanisms that control and limit evolution, metabolic diversity, and acclimatization of life here on Earth and will provide insights for the search for life beyond Earth.

Upon completion of this session, participants should be able to:

- Investigate the molecular adaptations that define the physical and chemical limits for life.
- Examine the reciprocal interactions between biosphere and geosphere that can shape genes, genomes, organisms, and species interactions.
- Provide a baseline for developing predictions and hypotheses about life on other worlds.

SYMPOSIUM

225 Microbial Glycobiology and Glycobiotechnology

3:00 pm – 5:30 pm
Location: Room 102

Convener:

Rajendar Deora; Wake Forest Univ. Hlth. Sci.,Winston-Salem, NC.

Presentations:

3:00 pm

Exploring the Limits of Biomass Degradation: From Sampling Pools to Pooling Genes

Douglas S. Clark; Univ. of California, Berkeley, Berkeley, CA.

Division O Lecturer

3:30 pm

Cellular Levels and Binding of c-di-GMP Control Subcellular Localization and Activity of the *Vibrio cholerae* Transcriptional Regulator VpsT

Nicholas J. Shikuma; Univ. of California, Santa Cruz, Santa Cruz, CA.

3:45 pm

A Receptor for Biofilm Formation is a Degenerate Diguanylate Cyclase

John C. Whitney[1,2], K. M. Colvin[3], L. S. Marmont[1], H. Robinson[4], M. R. Parsek[3], P. L. Howell[1,2]; [1]The Hosp. for Sick Children, Toronto, ON, Canada, [2]Univ. of Toronto, Toronto, ON, Canada, [3]Univ. of Washington, Seattle, WA, [4]Brookhaven Natl. Lab., Upton, NY.

4:00 pm

Bacteria Can Do it Too: Exploiting the Campylobacter *N*-glycosylation Machinery

Christine M. Szymanski; Natl. Res. Council, Ottawa, Canada.

4:30 pm

Poly-N-Acetyl Glucosamine is Involved in the Pathogenesis of Urinary Tract Infections Caused by *Escherichia coli*

Sargurunathan Subashchandrabose, H. L. T. Mobley; Univ. of Michigan, Ann Arbor, MI.

4:45 pm

Broad-Spectrum Immunoprophylaxis and Therapy for Bacterial Meningitis in Neonates

David Skurnik, D. Roux, C. Cywes-Bentely, G. B. Pier; Channing Lab., Harvard Med. Sch., Boston, MA.

5:00 pm

Determinants of *Bordetella pertussis* and *Bordetella bronchiseptica* Biofilm Development in the Mouse Respiratory Tract

Rajendar Deora; Wake Forest Univ. Hlth. Sci., Winston-Salem, NC.

Glycans serve varied and important roles in the biology of microbes. As polysaccharide capsules and exopolysaccharides, they contribute to the pathogenicity and biofilm development in some species. They can be substrates for protein glycosylation — an activity once thought not to occur in bacteria — the prevalence and consequences of which are only just becoming understood. And, as cellulose and lignocellulose, glycans may serve as substrates for microbial conversion of plant biomass to fuel. This session will introduce attendees to the broad field of microbial glycobiology and its many biological and biotechnological implications.

Upon completion of this session, participants should be able to:

- Investigate the multi-disciplinary role of microbial glycans.
- Describe the importance of the biofilm mode of growth in contributing to infectious diseases.
- Examine the role of a highly conserved bacterial polysaccharide moiety in biofilm development and virulence of multiple bacterial pathogens.

SYMPOSIUM

226 New Paradigms in Bacterial Second Messenger Signaling

3:00 pm – 5:30 pm
Location: Room 254

Convener:

Chris Waters; Michigan State Univ., East Lansing, MI.

Presentations:

3:00 pm

Cyclic di-GMP Signaling in *Caulobacter crescentus*

Urs Jenal; Biozentrum, Basel, Switzerland.

3:30 pm

Control of Bacterial Cell Differentiation by ppGpp and Inorganic Polyphosphate

Sean Crosson; Biochemistry and Molecular Biology, Univ. of Chicago, Chicago, IL.

3:45 pm

Role of Cyclic di-GMP-Specific Phosphodiesterase in *Escherichia coli* O157:H7 Gut Colonization

J. Hu[1], B. L. Wang[1], W. F. Yue[1], X. Fang[2], W. J. Means[1], K. W. Christensen[1], R. J. McCormick[1], M. Gomelsky[2], **Meijun J. Zhu**[1]; [1]Dept of Animal Sci., Univ. of Wyoming, Laramie, WY, [2]Dept of Molecular Biology, Univ. of Wyoming, Laramie, WY.

4:00 pm

The Role of Cyclic di-GMP in Controlling Cyst Formation in α-1 Proteobacteria

Carl Bauer; Indiana Univ., Bloomington, IN.

4:30 pm

Defining the Critical Role of Cyclic di-AMP in *Listeria monocytogenes* Physiology and Pathogenesis

Joshua Woodward; Univ. of Washington, Seattle, WA.

4:45 pm

The Role of the Second Messenger Cyclicdi-GMP in the Regulation of Motility and Aggregation of *Clostridium difficile*

E. B. Purcell, R. W. McKee, **Rita Tamayo**; Univ. of North Carolina Chapel Hill, Chapel Hill, NC.

5:00 pm

Lipid Metabolism: Target and Sensor for the Stringent Response

Emmanuelle Bouveret; Ctr. Natl. de la Recherche Scientifique (CNRS), Marseille, France.

The last decade has seen the importance of second messenger signaling in bacteria grow tremendously, from the meteoric rise of cyclic di-GMP to the recently discovered cyclic di-AMP and even cyclic GMP. In addition to these newly appreciated signals, new insights regarding the mechanism and function of traditional second messengers have also been uncovered. It is now clear that second messenger signaling is integral to the control of many fundamental behaviors of bacteria including biofilm formation, stress adaptation, virulence, quorum sensing, and cell division. This symposium will highlight recent research regarding second messenger signaling in bacteria. Attendees will obtain a greater understanding of the family of bacterial second messengers, their integral role in the lives of bacteria, and the molecular mechanisms by which they modulate phenotypic responses.

Upon completion of this session, participants should be able to:

- Identify the fundamental second messenger signals of bacteria.
- Describe key biological processes regulated by second messenger signals.
- Identify key research questions in the field of second messenger signaling.

SYMPOSIUM

227 Novel Cell Surface and Cell-Cell Interaction Targets for Antimicrobial Therapeutics

3:00 pm – 5:30 pm
Location: Room 103

Convener:

Jennifer Lodge; Washington Univ. Sch. of Med., St. Louis, MO.

Presentations:

3:00 pm

Quorum Sensing and its Control in Pathogenic Bacteria

Bonnie Bassler; Department of Molecular Biology, Howard Hughes Med. Inst.-Princeton Univ., Princeton, NJ.

Division A Lecturer

3:30 pm

UPEC Regulation of Chaperone Usher Pathway Pili

Sarah E. Greene, S. J. Hultgren; Washington Univ. in St. Louis, Saint Louis, MO.

3:45 pm

Enzymatic and Antibiotic Effects On Cell Wall Architecture by Tracking Cell Wall Growth

Tristan Ursell, K. C. Huang; Stanford University, Stanford, CA.

4:00 pm

Phosphosignaling Coordinates Growth and Cell Wall Synthesis in Mycobacteria

Christopher M. Sassetti; Molecular Genetics and Microbiology, HHMI, Univ. of Massachusetts Med. Sch., Worcester, MA.

4:30 pm

Essential Role and Regulation of a Collagen-Like Adhesin during Biofilm Formation of the Water Borne Respiratory Pathogen *Legionella pneumophila*

Julia C. Mallegol[1], C. Duncan[1], A. Prashar[2], J. So[1], M. Terebeznik[2], C. Guyard[1], D. E. Low[1]; [1]OAHPP, Toronto, ON, Canada, [2]Cells and System Biology and Dept. of Biological Sci. Univ. of Toronto, Scarborough, Toronto, ON, Canada.

4:45 pm

The Involvement of BBA64 in Vector Transmission of *Borrelia burgdorferi*

Toni G. Patton, K. Brandt, R. D. Gilmore; Centers for Disease Control and Prevention, Fort Collins, CO.

5:00 pm

Chitosan Biosynthesis as a Target for Antifungal Therapy

Jennifer Lodge; Washington Univ. Sch. of Med.. St. Louis, MO.

The microbial surface is a key component in pathogenesis and intercellular communication. As such it is an attractive target for antimicrobial compounds. This session will focus on biosynthesis and regulation of microbial cell surface structures and intercellular communication mechanisms that are potential targets for anti-virulence strategies. The goal of the session is to highlight novel approaches and concepts for development of much needed anti-microbial therapeutics.

Upon completion of this session, participants should be able to:

- Describe the role of microbial surface structures during interactions between the host and bacteria, parasites or fungi.
- Explain the rationale of why certain microbial signaling pathways, cell-cell interactions or microbial surface structures might be good targets for novel antimicrobial compounds.

SYMPOSIUM

PACE CA FL

228 On Top of Outbreaks: New Rapid Next Generation Sequencing Deployed for Public Health and Clinical Microbiology

3:00 pm – 5:30 pm

Location: Esplanade Ballroom 306

When Claiming ASCLS P.A.C.E. credits, please refer to the numbers listed after each presentation title.

Convener:

Peter Gerner-Smidt; Centers for Disease Control and Prevention, Atlanta, GA.

Dag Harmsen; Univ. of Muenster, Muenster, Germany.

Presentations:

3:00 pm

The Sunset of Culture Techniques and the Dawning of Genomics for the Diagnosis and Investigation of Outbreaks of Enteric Infections (273-135a-12)

Peter Gerner-Smidt; Centers for Disease Control and Prevention, Atlanta, GA.

3:30 pm

Genomics for Diagnostics: German EHEC and Dutch Klebsiella Oxa-48 2011 Outbreak NGS Experiences (273-135b-12)

Dag Harmsen; Periodontology, Univ. Münster, Münster, Germany.

4:00 pm

Next Generation Sequencing Technologies: Past, Present and Future (273-135c-12)

Michael L. Metzker; Baylor Coll. of Med., Houston, TX.

4:30 pm

Microbe Hunting: Discovery of Pathogen Candidates and their Implication in Disease (273-135d-12)

Thomas Briese; Columbia Univ., New York, NY.

5:00 pm

Disease Weather-map: Real-time Genomic Surveillance of Infectious Disease (273-135e-12)

Eric Schadt; Mount Sinai Sch. of Med., New York, NY.

During the Haiti Cholera 2010 and the German EHEC 2011 epidemics, NGS technologies were used for the first time nearly in real-time to elucidate bacterial outbreaks. For detection of new or unknown viral infections NGS is already in use since 1–2 years. It is therefore expected that rapid NGS platforms— especially the affordable desktop NGS machines — will soon find widespread use first in public health for prospective genomic surveillance. Furthermore, the technology will find most probably rapidly its way into clinical microbiology for individual patient diagnostics. First, how genomics shows promise for clinical diagnostics and public health surveillance and the recent European experience using NGS for outbreak investigations will be discussed. Then the presence and future of NGS platforms with a focus on rapid NGS machines will be presented. Next an overview of NGS usage for unbiased viral detection in human tissue will be delivered. Finally, innovative approaches to monitor infectious disease activity will be discussed.

Upon completion of this session, participants should be able to:

- Discuss advantages and disadvantages of different NGS platforms.
- Review different applications for NGS in public health and clinical microbiology.
- Describe future NGS technical advances and clinical deployment strategies.

Course Level: Intermediate

SYMPOSIUM

229 Patterns and Maintenance of Microbial Diversity

3:00 pm – 5:30 pm

Location: Esplanade Ballroom 303

Convener:

Martin Polz; Massachusetts Inst. of Technology, Cambridge, MA.

Presentations:

3:00 pm

Time Series of Diversity Patterns: What Do They Tell Us?

Jed Fuhrman; Univ. of Southern California, Los Angeles, CA.

3:30 pm

Evolutionary Divergence and Biogeography of Niche-Differentiated Streptomyces Populations in Soil

Cheryl Marie P. Andam, J. Doroghazi, A. Campbell, P. Kelly, M. Choudoir, D. H. Buckley; Cornell Univ., Ithaca, NY.

3:45 pm

Deforestation Alters the Arbuscular Mycorrhizal Community in the Brazilian Amazon

Rebecca Mueller[1], V. Pellizari[2], J. Rodrigues[3], K. Nusslein[4], J. Tiedje[5], B. J. M. Bohannan[1]; [1]Univ. of Oregon, Eugene, OR, [2]Univ. de Sao Paulo, Sao Paulo, BRAZIL, [3]Univ. of Texas Arlington, Arlington, TX, [4]Univ. of Massachusetts Amherst, Amherst, MA, [5]Michigan State Univ., East Lansing, MI.

4:00 pm

Ecology and Evolution of Bacterial Populations in the Wild

Martin F. Polz; Civil and Environmental Engineering, Massachusetts Inst. of Technology, Cambridge, MA.

Division N Lecturer

4:30 pm

Phages are a Selective Force Driving Cyanobacterial Genome Diversification

Debbie Lindell[1], S. Avrani[1], E. Greengrass[1], O. Wurtzel[2], D. A. Schwartz[1], I. Sharon[1], R. Sorek[2]; [1]Technion - Israel Inst. of Technology, Haifa, ISRAEL, [2]Weizmann Inst. of Sci., Rehovot, ISRAEL.

4:45 pm

Time Series Metagenomic Analyses Reveal an Oscillating and Non-Random CRISPR Immune Complement when Sensitive Bacteria are Challenged by Phage

David Paez-Espino[1], W. Morovic[2], C. L. Sun[1], B. C. Thomas[1], B. Stahl[2], R. Barrangou[2], J. F. Banfield[1]; [1]UC Berkeley, Berkeley, CA, [2]DuPont - Nutrition and Hlth., Madison, WI.

5:00 pm

Pathogen Populations from Genes to Genomes

William Hanage; Harvard Univ., Cambridge, MA.

Microbes are extraordinarily diverse, not only in terms of their genetics and metabolism, but even in the fundamental evolutionary processes that give rise to their diversity. Understanding how these processes interact with ecology to produce the patterns we see in nature is one of the grand challenges of microbiology. We will explore recent advances in microbial community analysis and population genomics that move toward an integrated picture of the mechanisms that create and maintain diversity from complex communities of many species, to individual genomic lineages. Questions to be explored are: how finely tuned are microbial populations to their environment, and what is the role of abiotic and biotic interactions in creating community structure? What is the extent of genomic diversity within populations and how do mutation, recombination and horizontal gene transfer combine with selection to create it? Finally, what types of environmental and organismal interactions are responsible for selection of the high level of genomic diversity among closely related isolates within microbial populations? The session will also pay particular attention to novel technological advances both in sequencing and data analysis that have catapulted microbial community and population analysis to a new level.

Upon completion of this session, participants should be able to:

- Choose appropriate methodologies appropriate for addressing structure-function relationships in bacterial communities and populations.
- Identify ecologically differentiated bacterial populations.
- Define evolutionary and ecological forces structuring genomic diversity.

SYMPOSIUM

230 Real-Time Analysis of Host-Pathogen Interactions

3:00 pm – 5:30 pm
Location: Room 132

Convener:

Ian J. Glomski; Univ. of Virginia, Sch. of Med., Charlottesville, VA.

Presentations:

3:00 pm

Seeing is Believing: PET/CT Imaging Reveals the Dynamics of Tuberculosis

Joanne L. Flynn; Univ. of Pittsburgh Sch. of Med., Pittsburgh, PA.

Division U Lecturer

3:30 pm

Dynamic Imaging of Host Endomembrane Targeting by Intracellular Bacterial Pathogens

Jost Enninga; Inst. Pasteur, Paris, FRANCE.

3:45 pm

Multimodal, Live Animal Imaging of Listeriosis in Mice

Jonathan W. Hardy, Ph.D., Z. Levashova, A. Switzer, F. Blankenberg, C. H. Contag; Stanford Univ., Stanford, CA.

4:00 pm

Neutrophil Accumulation and Bactericidal Activity are Inhibited by *Bacillus anthracis* Exotoxins

Ian J. Glomski; Univ. of Virginia Sch. of Med., Charlottesville, VA.

4:30 pm

Mason-Pfizer Monkey Virus Gag/Env Utilization of the Recycling and Late Endosomal Pathways

Jasmine M. Clark[1], L. Pereira[1], P. Grznarova[2], X. Wen[1], P. Spearman[1], T. Ruml[2], E. Hunter[1]; [1]Emory Univ., Atlanta, GA, [2]Inst. of Chemical Technology, Prague, Czech Republic.

4:45 pm

Listeria monocytogenes Crossing Of The Intestinal Barrier: In Vivo Imaging Of A Silent Invasion

Mark Lecuit; Inst. Pasteur, Paris, France.

5:00 pm

Spirochetal Motility and the Development of Lyme Disease: Lessons Learned from Intravital Microscopy of *Borrelia burgadorferi* Dissemination and Persistence within Intact Murine Skin Tissues

R. Mark Wooten; Univ. of Toledo Sch. of Med., Toledo, OH.

Classical methodologies for studying the interactions of pathogens with their hosts typically lack the ability to capture data at the cellular level in real time. Instead, they provide snap shots of events in asynchronously infected hosts or simplified tissue culture models of infection. This session will focus on the application of emergent technologies to study the interaction of pathogens with their respective hosts in real-time. The goal of the session is to highlight for attendees the unprecedented, and often unexpected, insights into the infectious process that these technologies provide.

Upon completion of this session, participants should be able to:

- Recognize and evaluate modalities that are being developed for real-time analysis of host-pathogen interactions.
- Compare and contrast data derived from real-time analysis of host-pathogen interactions to data derived from more classical analyses.
- Evaluate the extent of influence spatio-temporal factors play in host-pathogen interactions.

SYMPOSIUM

231 The Role of Lipids in Bacterial Pathogenesis: Offensive and Defensive Strategies

3:00 pm – 5:30 pm
Location: Room 133

Conveners:

Beth McCormick; Univ. of Massachusetts Med. Sch., Worcester, MA.
Jason Huntley; Univ. of Toledo Coll. of Med., Toledo, OH.

Presentations:

3:00 pm

The Insoluble Bacterial Secretion Pathway: Outer Membrane Vesicle-mediated Processes

Meta Kuehn; Duke Univ., Durham, NC.

3:30 pm

The Interaction of the Cholesterol-Dependent Cytolysin, Vaginolysin, with Lipid Rafts: Implications for Raft Aggregation and Pore-Independent Functions

Timothy J. Larocca, A. J. Ratner; Columbia Univ., New York, NY.

3:45 pm

Hepoxilin A3 Facilitates Neutrophilic Breach of Lipoxygenase-expressing Airway Epithelial Barriers

D. L. Tamang[1], W. Pirzai[1], G. P. Priebe[2], G. B. Pier[2], J. R. Falck[3], C. Morisseau[4], B. A. McCormick[5], K. Gronert[6], Bryan P. Hurley[1]; [1]MassGen. Hosp. / Harvard Med. Sch., Charlestown, MA, [2]Channing Lab., Brigham and Women's Hosp., Boston, MA, [3]Univ. of Texas Southwestern Med. Ctr., Dallas, TX, [4]Univ. of California at Davis, Davis, CA, [5]Univ. of Massachusetts Med. Sch., Worcester, MA, [6]Univ. of California at Berkeley, Berkeley, CA.

4:00 pm

Hepoxilin A3, an Eicosanoid Neutrophil Chemoattractant, is Required for *Streptococcus pneumoniae*-induced Pulmonary Inflammation and Systemic Disease

Beth McCormick; Univ. of Massachusetts Med. Sch., Worcester, MA.

4:30 pm

Early Cyclooxygenase-Dependent Prostanoid Production in Response to Uropathogenic *E. coli* Predisposes to Chronic and Recurrent Urinary Tract Infection

Thomas J. Hannan, S. J. Hultgren, M. Colonna; Washington Univ. in St. Louis, Saint Louis, MO.

4:45 pm

The Dynamic Outer Membrane of *Francisella tularensis: In vivo* Expression Analyses Reveal Ideal Vaccine Targets

Jason F. Huntley; Univ. of Toledo Coll. of Med., Toledo, OH.

5:00 pm

Lipids, Apoptosis and Host Immunity against *Mycobacterium tuberculosis*

Sam Behar; Brigham and Women's Hosp., Boston, MA.

This session integrates an emerging area of investigation exploring the role of lipids during bacterial infections. Speakers will highlight the diversity and broad applicability of host and pathogen lipids during bacterial infections. Topic areas will range from the role of host lipids that control and/or promote disease, to bacterial lipids (membrane vesicles) that deliver virulence factors or toxins to host cells, to innovative vaccine development strategies using bacterial membrane vesicles. By including lipids in typically protein-dominated virulence factor paradigms, this session will provide attendees with new information to better understand host-pathogen interactions. The session is designed to appeal to microbiologists, cell biologists, and immunologists.

Upon completion of this session, participants should be able to:

- Recognize the diverse array of lipids that serve as host immune effectors against bacterial infections.
- Describe how bacteria use membrane vesicles to deliver virulence factors or toxins to host cells, resulting in disease.
- Discuss how host and bacterial lipids influence infectious disease pathogenesis and propose future directions for research.

SYMPOSIUM

232 Your Topics, Your Voice, Your Choice: An Experiment in Collaborative Filtering

3:00 pm – 5:30 pm
Location: Esplanade Ballroom 305

Convener:

Hazel Barton; Univ. of Akron, Akron, OH.

Presentations:

3:00 pm

When Communicating Bacteria Doesn't Refer to Quorum Sensing: Public Engagement in the 21st Century

Emma Trantham; School of Veterinary Sciences, Univ. of Bristol, Bristol, United Kingdom.

3:30 pm

Antimicrobial Resistance and What We Should Do

M.A.G. Rabbani; Univ. of Dhaka, Dhaka, Bangladesh.

4:00 pm

Putting Freshman Biology Under the Microscope: Five Heresies about Microbiology Every Freshman Biology Student Should Know

Mark O. Martin; Biology Department, Univ. of Puget Sound, Tacoma, WA.

4:30 pm

Paleo Systems Biology: Investigating Modern-Day Disease by Using Metabolic Models of Bacteria from the Past

David J. Baumler; Genome Center of Wisconsin, UW-Madison, Madison, WI.

5:00 pm

Examining the Root of Plant Disease Using Metabolic Models of Plant Pathogens

Bryan Biehl; UW-Madison, Madison, WI.

Collaborative filtering is a process where a community of individuals work together to identify useful or interesting content based on its impact, validity and/or relevance to the community. This year, the ASM Communications Committee carried out an experiment to see what effect collaborative filtering would have on the content of our asm2012 session. Any presenter was able to submit a topic of interest to the greater microbiology community to a collaborative filtering website. Other microbiologists, ASM members or other interested individuals then voted on the topics they would like to see at asm2012. The authors of the top five topics chosen by the online registered community, each amassing thousands of votes, were invited and will present their topics in this session. While this approach has been used at a number of conferences, primarily in the computer programming, internet development and information technology community, this represents a new way to choose topics of interest to ASM attendees.

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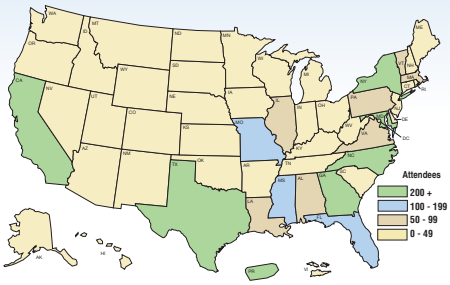

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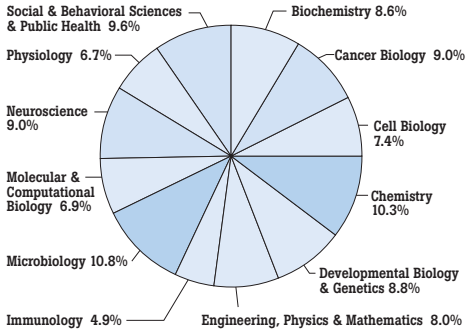

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AMERICAN SOCIETY FOR MICROBIOLOGY

Presentation times in the poster hall:

Sessions 012 – 042. Sunday, June 17 at 10:45 a.m. – 12:30 p.m.

Sessions 049 – 069. Sunday, June 17 at 1:00 p.m. – 2:45 p.m.

Sessions 097 – 119. Monday, June 18 at 10:45 a.m. – 12:30 p.m.

Sessions 122 – 144. Monday, June 18 at 1:00 p.m. – 2:45 p.m.

Sessions 169 – 191. Tuesday, June 19 at 10:45 a.m. – 12:30 p.m.

Sessions 195 – 216. Tuesday, June 19 at 1:00 p.m. – 2:45 p.m.

Late Breaker Diagnostic Microbiology and Epidemiology Posters will be showcased in a specially designated area in the poster hall and available for viewing throughout all Poster Sessions. The Late Breaker DM&E presentation time in the poster hall:

Session 233. Monday, June 18 at 10:45 a.m. – 12:30 p.m.

This year, Outstanding Student Posters will be showcased in a specially designated area in the poster hall. The recipients of the asm2012 Outstanding Student Posters are:

Nancy ALLARD
Stable Genetic Manipulation of the Nitrogen-Fixing Actinobacterium *Frankia* sp
J. Beaudin, **N. Allard,** M. G. Ghinet, R. Brzezinski, S. Roy; Ctr. d'étude et de valorisation de la diversité microbienne, Univ Sherbrooke, Sherbrooke, QC, CANADA.

Aaron AU
Characterization of an Adenosylhomocysteine Hydrolase Enzyme in the Protozoal Parasite *Trichomonas* vaginalis
A. Au[1], A. Shokar[1], S. An[1], J. Zayas[2], S. Wnuk[2], K. M. Land[1]; [1]Univ. of the Pacific, Stockton, CA, [2]Florida Intl. Univ., Miami, FL.

Dongryeoul BAE
A Novel Gene of Listeria monocytogenes, Af1, Associated with Attachment to Vegetables and Fruits
D. Bae, K. Seo, T. Zhang, C. Wang; Dept. of Basic Sci., Coll. of Vet. Med., Mississippi State Univ., Mississippi State, MS.

Aleigh BEAHM
Longitudinal study of Veterinary Students for Acquisition of Methicillin-Resistant *Staphylococcus aureus* Associated with Exposure to Pork Production Facilities
A. Beahm[1], B. Hanson[2], J. Kinyon[1], L. Layman[1], L. Karriker[1], A. Ramirez[1], T. Smith[2], T. Frana[1];
[1]Iowa State Univ., Ames, IA, [2]Univ. of Iowa, IA.

Stephanie BOULEY
Dissecting the Role of Autophagy in BK Virus Infection of Host Cells
S. J. Bouley; Assumption Coll., Worcester, MA.

Todd CAMERON
Quantitative Analysis and Modeling of the *Agrobacterium tumefaciens* Type IV Secretion System Reveals a Periodic Localization Mechanism
T. A. Cameron[1], M. Roper[2], P. C. Zambryski[1]; [1]Univ. of California, Berkeley, CA, [2]Univ. of California, Los Angeles, CA.

Holly CARDOSO
Mutagenesis of IptD Reveals Regions of the Protein Involved in its Assembly, its Interaction with LPS, and its Interaction with LptA
H. A. Cardoso, T. J. Silhavy; Princeton Univ., Princeton, NJ.

Adam CAULFIELD
Disruption of the Fas-Fas Ligand Signaling Pathway by the Plasminogen Activator Protease of *Yersinia pests*
A. J. Caulfield, W. W. Lathem; Northwestern Univ., Chicago, IL.

Chi CHAN
Structural Investigation of Phenol and p-cresol Activation in the Heterodimeric ArsAB Protein Involved in Phenolic-cobamide Biosynthesis in *Sporomusa ovate*
C. H. Chan, S. A. Newmister, I. Rayment, J. C. Escalante-Semerena; Univ. of Wisconsin, Madison, WI.

Alison CONRAD
The Role of ArxA in Photosynthesis-Linked Arsenite Oxidation
A. T. Conrad[1], S. E. Hoeft[2], L. G. Miller[2], R. S. Oremland[2], M. R. Rosen[3], C. W. Saltikov[1]; [1]Univ. of California, Santa Cruz, Santa Cruz, CA, [2]United States Geological Survey, Menlo Park, CA, CA, [3]United States Geological Survey, Carson City, NV.

Søren DAMKIÆR
Mutations in Regulatory Genes Facilitate Adaptation of *Pseudomonas aeruginosa* to the Airways of Cystic Fibrosis Patients
S. Damkiær, L. Jelsbak, S. Molin; Ctr. for Systems Microbiol., DTU-Systems Biology, Technical Univ. of Denmark, Lyngby, DENMARK.

Livia DA-SILVA
Incidence of *Klebsiella* Infections and Dissemination of CTXM-15 Encoding Gene in Intensive Care Neonates in Rio de Janeiro, Brazil
L. H. J. Da-Silva[1], A. N. De-Azeredo[1], V. B. C. Girão[1], M. S. Alves[2], R. R. Santos[3], M. B. G. P. Leobons[3], A. C. Bueno[3], P. Inhaquite[3], F. L. P. C. Pellegrino[1], G. Santoro-Lopes[1], C. B. Hofer[1], A. L. L. Cunha[1], C. L. Pessoa-Silva[1], L. W. Riley[4], B. M. Moreira[1]; [1]Univ.e Federal do Rio de Janeiro, Rio de Janeiro, BRAZIL, [2]Univ.e Federal de Juiz de Fora, Juiz de Fora, BRAZIL, [3]Secretaria Municipal de Saúde e Defesa Civil do Rio de Janeiro, Rio de Janeiro, BRAZIL, [4]Univ. of California, Berkeley, CA.

Raluca DATCU
Characterisation of the Vaginal Flora in Women from Greenland
R. Datcu[1], D. Gesink[2], G. Mulvad[3], R. Montgomery-Andersen[4], E. Rink[5], A. Koch[1], P. Ahrens[1], J. Skov Jensen[1]; [1]Statens Serum Inst., Copenhagen, DENMARK, [2]Univ. of Toronto, Dalla Lana Sch. of Publ. Hlth., ON, CANADA, [3]Ctr. for Primary Care, Nuuk, GREENLAND, [4]Univ. of Greenland, Nuuk, GREENLAND, [5]Montana State Univ., Bozeman, MT.

Greetchen DIAZ
A Possible Role of the Yeast Spindle Pole Body in Protein Targeting to the Inner Nuclear Membrane
G. Díaz[1], T. Harchar[2], C. Boone[3], A. K. Hopper[4]; [1]The Ohio State Univ., Molecular Cellular and Dev.al Biology Program, Columbus, OH, [2]Pennsylvania State Univ., Coll. of Med., Hershey, PA, [3]Banting & Best Dept. of Med. Res. Univ. of Toronto, Toronto, ON, CANADA, [4]The Ohio State Univ., Molecular Genetics Dept., Columbus, OH.

Alex EMCH
Alphavirus RNAs Bind the Cellular HuR Protein and Alter the Regulation of Cellular mRNA Stability
A. W. Emch, A. M. Dickson, S. L. Moon, J. R. Anderson, J. Wilusz; Colorado State Univ., Fort Collins, CO.

Devon FITZAGERALD
Characterization of a σ^{32}-dependent antisense RNA in *Escherichia coli*
D. M. Fitzgerald[1], R. P. Bonocora[2], J. T. Wade[1,2]; [1]Dept. of BioMed. Sci., Univ. at Albany, SUNY, Albany, NY, [2]Wadsworth Ctr., New York State Dept. of Hlth., Albany, NY.

Mahobod HAJIGHASEMI
Screening of Environmental Metagenomes and Purified Proteins for Polylactate Depolymerase Activity
M. Hajighasemi[1], A. Tchigvintsev[1], W. Wu[2], C. S. Criddle[2], E. A. Edwards[1], A. F. Yakunin[1]; [1]Univ. of Toronto, Toronto, ON, CANADA, [2]Stanford Univ., Stanford, CA.

Outstanding Student Posters *Continued*

Yosuke HARADA

Efficacy of Daptomycin against meticillin-resistant *Staphylococcus aureus* (MRSA) in a murine model of haematogenous pulmonary infection

Y. Harada[1,2], K. Yanagihara[1,2], N. Araki[1], Y. Migiyama[1,2], K. Nagaoka[1,2], K. Yamada[1,2], Y. Morinaga[1,2], K. Izumikawa[2], H. Kakeya[2], Y. Yamamoto[2], S. Kamihira[1], S. Kohno[2]; [1]Dept. of Lab. Med., Nagasaki Univ. Graduate Sch. of BioMed. Sci., Nagasaki, JAPAN, [2]Second Dept. of Internal Med., Nagasaki Univ. of Graduate Sch. of BioMed. Sci., Nagasaki, JAPAN.

Laura HUG

Single Cell Amplified Genomes of Three Dechlorinating Organisms Reveal Mechanisms of Co-Operative Reductive Dechlorination of Chlorinated Solvents

L. A. Hug[1], P. J. McMurdie[2], P. C. Blainey[2], A. Sczyrba[3], T. Woyke[4], S. R. Quake[2], A. M. Spormann[2], E. A. Edwards[1]; [1]Univ. of Toronto, Toronto, ON, CANADA, [2]Stanford Univ., Stanford, CA, [3]Bielefeld Univ., Bielefeld, GERMANY, [4]Joint Genomes Inst., Walnut Creek, CA.

Brandon IKER

Increased Detection of Enteroviruses and Adenoviruses from Archived Samples of a US Groundwater Survey, Using Integrated Cell Culture Real-time PCR Assays

B. C. Iker[1], M. Kitajima[1], A. Alum[2], C. P. Gerba[1], I. L. Pepper[1], M. Abbaszadegan[2]; [1]Univ. of Arizona, Tucson, AZ, [2]Arizona State Univ., Tempe, AZ.

Dazhi JIN

Detection of Vibrio cholera Enterotoxin-Mediated Cytotoxicity using a Real-Time Cell Analysis

D. Jin[1,2], M. Zheng[3], H. Li[2], Y. Luo[1], J. Zhang[3], M. Stampfl[3], X. Xu[3], G. Ding[1], Y. Tang[2]; [1]Zhejiang Provincial Ctr. for Disease Control and Prevention, Hangzhou, CHINA, [2]Vanderbilt Univ. Med. Ctr., Nashville, TN, [3]ACEA BioSci.s, San Diego, CA.

Nhi KHUONG

Bacteriophage N4 Gp6 is an Inhibitor of *Escherichia coli* Cell Division

N. Khuong, S. Yano, L. Rothman-Denes; The Univ. of Chicago, Chicago, IL.

JuHee KIM

Genome-wide Analysis Of HNS-mediated Regulatory Architecture In The *Escherichia Coli* Genome At Single-nucleotide Resolution

J. Kim, J. Kim, B. Cho; KAIST, Daejoen, KOREA, REPUBLIC OF.

Aaron LOUIE

Abstract—Modulation of Hypoxia-inducible Factor-1 Expression by a Leading Gram-positive Bacterial Pathogen

A. Louie, T. Bhandari, V. Nizet; Univ. of California, San Diego, La Jolla, CA.

Aimee MARCEAU

The Essential Genome Maintenance Protein SSB Provides a Unique Target for Antimicrobial Compounds

A. Marceau[1], B. Walsh[2], L. Simmons[2], J. Keck[1]; [1]Univ. of Wisconsin-Madison, WI, [2]Univ. of Michigan, MI.

Natacha MARTINS

Diversity of Multidrug Resistant *Acinetobacter baumannii* Clonal Complexes in a Cohort of Intensive Care Patients in Rio de Janeiro, Brazil and their Association with Class 1 and 2 Integrons

N. Martins[1], R. Picão[1], V. Girão[1], T. Coelho-Souza[1], L. Riley[2], B. Meurer[1]; [1]Univ.e Federal do Rio de Janeiro, Rio de Janeiro, BRAZIL, [2]Sch. of Publ. Hlth., Univ. of California, Berkeley, CA.

Mary MOORE

Host Factors Affect *Helicobacter pylori* Outer Membrane Protein Expression During Experimental Infection

M. E. Moore, C. M. Styer, C. L. Cooke, L. M. Hansen, J. V. Solnick; Univ. of California, Davis, Davis, CA.

Donald PAN

Production of Viral Like Particles Following the Stimulation of Heterotrophic Nitrate Reduction in Continental, Shallow Subsurface Sediment

D. Pan, Z. Tan, O. Healy, D. D. Snow, K. A. Weber; Univ. of Nebraska Lincoln, Lincoln, NE.

Blair PAUL

Aerobic Methanotrophs Detected In Microbial Mats Growing at a Hydrocarbon Seep

B. G. Paul, D. L. Valentine; Univ. of California Santa Barbara, CA.

Srisombat PUTTIKAMONKUL

The Trehalose Pathway Intermediate, T6P, Regulates Cell Wall Composition and Virulence in *Aspergillus fumigatus*

S. Puttikamonkul[1], S. D. Willger[1], N. Grahl[1], J. R. Perfect[2], J. Hilmer[1], B. Bothner[1], V. Amanianda[3], J-P. Latge[3], R. A. Cramer Jr.[1]; [1]Montana State Univ., Bozeman, MT, [2]Duke Univ. Med. Ctr., Durham, NC, [3]Inst. Pasteur, Unité des Aspergillus, Paris cedex, FRANCE.

Chao RAN

Selection and Characterization of *Bacillus* Strains for Biological Control of Disease in Channel Catfish Aquaculture

C. Ran, A. Carrias, M. Williams, N. Capps, P. Cobine, J. Kloepper, J. Terhune, M. Liles; Auburn Univ., Auburn, AL.

Rebecca RENBERG

Leishmania LHR1 Mediates Heme Acquisition

R. L. Renberg, C. Huynh, A. R. Flannery, N. W. Andrews; Univ. of Maryland, Coll. Park, College Park, MD.

Alexandra SALVADOR

Development of a biphasic medium for detection of Shiga toxin- producing *E. coli* using *Tetrahymena thermophile*

A. Salvador[1], L. M. Clotilde[2], C. Bernard IV[1], C. Crowe[3], D. Berger[3], A. Lin[2], G. Hartman[2], D. Lau[2], C. Lauzon[4], J. M. Carter[1]; [1]USDA, Albany, CA, [2]FDA, Alameada, CA, [3]Hardy Diagnostics, Santa Maria, CA, [4]CSUEB, Hayward, CA.

Gregoire SEYRIG

Rapid Detection of Isoniazid Resistance in *Mycobacterium tuberculosis* by Loop-Mediated Isothermal Amplification in the Presence of DNA Mismatch Repair Protein mutS

G. Seyrig, R. D. Stedtfeld, M. Kronlein, S. A. Hashsham; Michigan State Univ., EAST LANSING, MI.

Adam SPAULDING

Immunity to *Staphylococcus aureus* Secreted Proteins Protects Rabbits from Serious Illnesses

A. R. Spaulding[1,2], Y-C. Lin[3,2], J. A. Merriman[1,2], A. J. Brosnahan[2], M. L. Peterson[2], P. M. Schlievert[1,2]; [1]Univ. of Iowa, Iowa City, IA, [2]Univ. of Minnesota, Minneapolis, MN, [3]Kaohsiung Med. Univ., Kaohsiung, TAIWAN.

Alexander SPEER

Copper Resistance as a Novel Drug Target of *Mycobacterium tuberculosis*

A. Speer, J. L. Rowland, M. Niederweis, O. Kutsch, F. Wolschendorf; Univ. of Alabama at Birmingham, Birmingham, AL.

Ebot TABE

***Cryptosporidium* parvum Thrombospondin-like Proteins are Multistage Adhesins that Contribute to Sporozoite Motility and Invasion of Host Cells**

E. S. Tabe; North Dakota State Univ., FargoFargo, ND, ND.

Parameth THIENNIMITR

Inflammation Makes New Nutrients Accessible To *Salmonella:* Ethanolamine And 1,2-propanediol Utilization Foster Outgrowth Over The Microbiota

P. Thiennimitr[1,2], S. E. Winter[1], M. G. Winter[1], M. N. Xavier[1], D. L. Huseby[1], V. Tolstikov[1], T. Sterzenbach[1], R. M. Tsolis[1], J. R. Roth[1], A. J. Baumler[1]; [1]UC Davis, Davis, CA, [2]Faculty of Med., Chiang Mai Univ., THAILAND.

Seiji YAMASAKI

Peristaltic Drug Export Mechanism of the AcrB Multidrug Efflux Pump

S. Yamasaki[1,2], K. Nishino[1], R. Nakashima[1], K. Sakurai[1], A. Yamaguchi[1,2]; [1]ISIR, Osaka Univ., Osaka, JAPAN, [2]Grad. Sch. of Pharm. Sci., Osaka Univ., Osaka, JAPAN.

Xiaomin YU

Purification and Characterization of Phosphonoglycans from *Glycomyces* sp. NRRL B-16210 and Stackebrandtia nassauensis NRRL B-16338

X. Yu[1,2], N. P. Price[3], W. W. Metcalf[1,2]; [1]Dept. of Microbiol., Univ. of Illinois at Urbana-Champaign, Urbana, IL, [2]Inst. for Genomic Biology, Univ. of Illinois at Urbana-Champaign, Urbana, IL, [3]Natl. Ctr. for Agricultural Utilization Res. (NCAUR), USDA-ARS, Peoria, IL.

Sunday, June 17

10:45 a.m. – 12:30 p.m.

012 Resistance: Prevalence, Patterns and Surveillance I (Division A)

10:45 a.m. – 12:30 p.m.; Poster Hall

1 Distribution of Bacteria Isolated from Blood Cultures In a Neonatal Intensive Care Unit; 10 Years' Results In a University Hospital, Eskisehir, Turkey
Y. Oz[1], F. Aksit[1], M. Aslan[1], **M. A. Aksit**[2], G. Durmaz[1], A. Kiremitci[1]; [1]Eskisehir Osmangazi Univ. Faculty of Med., Dept. of Microbiol., Eskisehir, TURKEY, [2]Eskisehir Osmangazi Univ. Faculty of Med., Dept. of Pediatrics, Div. of Neonatology, Eskisehir, TURKEY.

2 A Critical Need: Methicillin Susceptible *Staphylococcus aureus* (MSSA) MICs to Ceftriaxone
A. J. Greco, R. S. Hariri, K. Woods, H. Freedy, M. Czarnecki, **M. H. Yassin**; Univ. of Pittsburgh Med. Ctr., Pittsburgh, PA.

3 Antibiotic Susceptibility Pattern of Bacteria Isolated From the Ears of Students in South Eastern Nigeria
E. E. Ursula-Mary; Madonna Univ., Rivers State, NIGERIA.

4 Antimicrobial activity of ceftaroline and comparator agents against contemporary (2010) *Streptococcus pneumoniae* isolates from Latin America
D. J. Farrell, H. S. Sader, G. Moet, R. N. Jones; JMI Lab., Inc., North Liberty, IA.

5 Antimicrobial activity of ceftaroline and comparator agents tested against contemporary (2010) *Staphylococcus aureus*, including MRSA isolates, from Latin America
D. J. Farrell, H. S. Sader, **G. J. Moet**, R. N. Jones; JMI Lab., Inc., North Liberty, IA.

6 Antibiotic Resistance Genes in *Listeria* spp. and *Listeria monocytogenes* Isolates from Switzerland: Prevalence and Horizontal Gene Transfer
D. Bertsch, M. Muelli, M. Weller, A. Uruty, C. Lacroix, L. Meile; ETH Zurich, Zurich, SWITZERLAND.

7 Epidemiology and Antimicrobial Resistance of *Streptococcus pneumoniae* at a Tertiary Care Medical Center in Central Illinois
K. Mongkolrattanothai, **C. Nunez**, S. Tun, H. Wang, Pediatric Antimicrobial Stewardship team at Children's Hospital of Illinois; Univ. of IL Coll. of Med. at Peoria, Peoria, IL.

8 Comparing *Staphylococcus aureus* staphyloxanthin pigment production among Bloodstream Isolates with Vancomycin MICs and Clone type from a Community Hospital
M. D. Virata[1,2], J. A. Otter[3], N. L. Havill[1], G. Sakoulas[4]; [1]Hosp. of Saint Raphael, New Haven, CT, [2]Yale Univ Sch. of Med., New Haven, CT, [3]King's Coll., London, UNITED KINGDOM, [4]Univ. of California, San Diego, CA.

9 Comparison of MLSB Antibiotic Resistance among Gram-positive and Gram-negative Bacteria in Urban Environments
X. Yi, C. Lin, E. Ong, **Z. Zhou**; Natl. Univ. of Singapore, Singapore, SINGAPORE.

10 Quantification of Minimum Inhibition Concentration and Resistance Levels of Antimicrobials Among *Streptomyces* in Environmental Samples
X. Kong, C. Lin, X. Yi, C. Chew, Z. Zhou; Natl. Univ. of Singapore, Singapore, SINGAPORE.

11 Current Pattern of Antibiotic Resistance in Clinical Isolates from Conjuctival Swabs
S. Waheed[1], F. E. Abdullah[1], M. I. Khan[1], S. E. Abdulla[2]; [1]Sindh Med. Coll., Dow Univ. of Hlth.Sci., Karachi, PAKISTAN, [2]Dr. Essa's Labarotary and Diagnostic Ctr., Karachi, PAKISTAN.

12 Emerging Trends of Antibiotic Resistance in *Staphylococcus haemolyticus* Clinical Isolates from Karachi Hospital Settings
M. Kaukab[1], F. E. Abdullah[2], W. Marium[1], F. Kanwal[1], S. U. Kazmi[3]; [1]Sindh Med. Coll., Karachi, PAKISTAN, [2]Dr. Essa's Lab. and Diagnostic Ctr., Karachi, PAKISTAN, [3]Karachi Univ., Karachi, PAKISTAN.

13 Correlation of Anthropogenic Pressure and Antimicrobial Resistance in Urban Environments
C. Lin, X. Kong, X. Yi, E. Ong, C. Chew, T. Wang, Z. Zhou; Natl. Univ. of Singapore, Singapore, SINGAPORE.

14 Isolation, Identification and Drug Susceptibility Profile of *Candida Sp.* from Gastroduodenal Pathology Patients in Islamabad-pakistan
S. Sherwani[1], M. Muhammad Umar[2], F. Rasheed[3], S. Bokhari[4], S. U. Kazmi[5]; [1]Federal Urdu Univ. of Arts, Sci. and Technology-Karachi Pakistan, Karachi, PAKISTAN, [2]Holy Family Hosp., Rawalpindi Med. Coll.-Rawalpindi-Pakistan, Karachi, PAKISTAN, [3]BreathMAT Lab-NORI Hosp.-Islamabad-Pakistan, Karachi, PAKISTAN, [4]Dept. of BioSci.s-COMSATS Inst. of Information Technology-Islamabad-Pakistan, Karachi, PAKISTAN, [5]Immunology and Infectious Disease Res. Lab. (IIDRL)-Dept. of Microbiol.-Univ. of Karachi-Pakistan, Karachi, PAKISTAN.

15 Ten-Year Trends in Antimicrobial Susceptibility Among Bacterial Isolates at an Urban Public Hospital: 2002-2011
M. L. Wilson, T. Jenkins, D. Weed, C. Price; Denver Hlth. Med. Ctr., Denver, CO.

16 Isolation of Triclosan-Resistant Bacteria from Waste Water-Contaminated Environmental Sources
R. V. Miller[1], G. A. Koehler[1], J. Lemmon[2], S. Assefa[1], G. Benson[1], F. **R. CHAMPLIN**[1]; [1]Oklahoma State Univ. Ctr. for Hlth.Sci., Tulsa, OK, [2]Oklahoma Conservation Commission, Bristow, OK.

17 *In vitro* Fluconazole Susceptibility of Bloodstream Isolates of Five Common *Candida* Species in Korea: Use of Epidemiological Cutoff Values according to CLSI and EUCAST
M. Jang[1], J. Shin[1], W. Lee[2], M-N. Kim[3], K. Lee[4], H. Lee[5], M-K. Lee[6], C. L. Chang[7], S-H. Kim[1], M. Shin[1], S. Suh[1], D. Ryang[1]; [1]Dept. of Lab. Med., Chonnam Natl. Univ. Med. Sch., Gwangju, KOREA, REPUBLIC OF, [2]Ajou Univ., Suwon, KOREA, REPUBLIC OF, [3]Univ. of Ulsan Coll. of Med. and Asan Med. Ctr., Seoul, KOREA, REPUBLIC OF, [4]Yonsei Univ. Coll. of Med., Seoul, KOREA, REPUBLIC OF, [5]Chonbuk Natl. Univ. Med. Sch., Jeonju, KOREA, REPUBLIC OF, [6]Chung-Ang Univ. Coll. of Med., Seoul, KOREA, REPUBLIC OF, [7]Pusan Natl. Univ. Coll. of Med., Busan, KOREA, REPUBLIC OF.

18 Detection of ESBL Producing Bacterial Pathogens from Patients with Burn Wound Infections
F. Samad[1], R. Erum[1], S. Ali[2], S. **U. Kazmi**[1]; [1]Dept. of Microbiol. Univ. of Karachi, Karachi, PAKISTAN, [2]Burn Ctr. Civil Hosp., Karachi, PAKISTAN.

19 Increasing resistance of Ciprofloxacin in urine isolates in Karachi, Pakistan
F. E. Abdullah[1], A. A. Memon[2], **S. E. R. Adil**[2]; [1]Sindh Med. Coll., Dow Univ. of Hlth.Sci., Karachi, PAKISTAN, [2]Dow Med. Coll., Dow Univ. of Hlth.Sci., Karachi, PAKISTAN.

013 Pathogen Physiology and Metabolism I (Division B)

10:45 a.m. – 12:30 p.m.; Poster Hall

20 Impact of Choline and Glycine Betaine Pools on Osmoprotection and Phospholipase Production in *Pseudomonas aeruginosa*
L. F. Fitzsimmons, K. J. Hampel, **M. J. Wargo**; Univ. of Vermont, Burlington, VT.

21 Molecular Interactions of High-affinity Ferric Enterobactin Acquisition Systems in *Campylobacter*
X. Zeng[1], F. Xu[2], J. Lin[1]; [1]Univ. of Tennessee, Knoxville, TN,[2] Inst. of Animal Sci. and Vet. Med., Beijing Academy of Agriculture and Forestry Sci., Beijing, CHINA.

22 **Identification and Characterization of *Cronobacter* spp. Iron Acquisition Systems**
A. A. Franco, C. J. Grim, M. H. Kothary, G. Gopinath, K. G. Jarvis, B. D. Tall; Food and Drug Admin., Laurel, MD.

23 **Nitrate Assimilation Contributes Specifically to Virulence Factor Production During Plant Pathogenesis by *Ralstonia solanacearum***
B. L. Dalsing, J. M. Jacobs, C. Allen; Univ. of Wisconsin, Madison, WI.

24 **Metabolic Adaptation of *Acinetobacter* to Changing Environmental Conditions**
B. J. Averhoff, M. Sand; Molecular Microbiol. and Bioenergetics, Inst. of Molecular BioSci.s, Goethe Univ., Frankfurt, GERMANY.

25 **Identification and Characterization of a D-glucosaminate PTS Permease in *Salmonella enterica* serovar Typhimurium**
K. A. Miller, T. R. Hoover; Univ. of Georgia, Athens, GA.

26 **Shr Mediates a Unique Mechanism for the Regulation of Heme Scavenging and Transfer**
M. Ouattara, Z. Eichenbaum; Georgia State Univ., Atlanta, GA.

27 ***Proteus mirabilis* Swarming Motility: Influence of Amino Acids, Polyamine Synthesis, and Metabolism**
C. E. Armbruster, C. J. Alteri, H. L. T. Mobley; Univ. of Michigan, Ann Arbor, MI.

28 **Nature of Aerobic Glycerol Metabolism Deficiency in *Yersinia pestis***
S. P. Willias[1], S. Chauhan[2], V. L. Motin[1,2]; [1]Dept. of Pathology, Univ. of Texas Med. Branch, Galveston, TX, [2]Dept. of Microbiol., Univ. of Texas Med. Branch, Galveston, TX.

29 **The Role of the Two-Component System RacR/RacS in *Campylobacter jejuni***
A. van Mourik[1], L. van Dijk[1], M. R. Guilhabert[2], B. Zomer[3], D. Kelly[4], C. T. Parker[2], J. P. M. van Putten[1], **M. M. S. M. Wosten**[1]; [1]Univ. Utrecht, Utrecht, NETHERLANDS, [2]USDA, Albany, CA, [3]RIVM, Bilthoven, NETHERLANDS, [4]Univ. of Sheffield, Sheffield, UNITED KINGDOM.

30 **Role of Iron Storage in Iron Homeostasis, Physiology and Virulence of *Mycobacterium tuberculosis***
WITHDRAWN

31 ***In vitro* Characterization of Cee, a Novel Periplasmic Ferric Enterobactin Esterase in *Campylobacter***
Y. Mo, X. Zeng, J. Lin; Dept. of Animal Sci., Univ. of Tennessee, Knoxville, TN.

32 **Characterization of Signal Transduction in the *Staphylococcus aureus* LytSR Two-Component Regulatory System: Response to Changes in Basic Metabolism**
M. R. Sadykov[1], B. K. Sharma-Kuinkel[1], C. J. Wenstrom[1], J. K. Jha[2], I. Biswas[2], K. W. Bayles[1]; [1]The Univ. of Nebraska Med. Ctr., Omaha, NE, [2]Univ. of Kansas Med. Ctr., Kansas City, KS.

33 **Identification of Critical Residues of the *Helicobacter pylori* Ferric Uptake Regulator (Fur)**
J. J. Gilbreath, O. Q. Pich, D. Merrell; USUHS, Bethesda, MD.

34 ***In Vivo* Examination of the Iron/Heme Modulon of *Haemophilus influenzae***
P. W. Whitby, T. M. VanWagoner, D. J. Morton, T. W. Seale, T. L. Stull; Univ. of Oklahoma Hlth.Sci. Ctr., Oklahoma City, OK.

35 **A Functional tonB Gene is Required for Both Virulence and Fitness in a Chinchilla Model of *Haemophilus influenzae* Otitis Media**
D. J. Morton, R. J. Hempel, T. W. Seale, P. W. Whitby, T. L. Stull; Univ. of Oklahoma Hlth.Sci. Ctr., Oklahoma City, OK.

36 **Inhibition of the Urease Activity from the Urinary Tract Pathogen *Staphylococcus saprophyticus***
A. N. Loes, L. Ruyle, M. Arvizu, K. Gresko, A. Wilson, **C. E. Deutch**; Arizona State Univ. at the West Campus, Phoenix, AZ.

37 **Effects of Tricarboxylic Acid Cycle Mutations on Hemolysin Gene Expression in *Vibrio anguillarum***
X. Mou, D. Nelson; Univ. of Rhode Island, Kingston, RI.

38 **Importance of Vitamin B12 Metabolism in *Salmonella* Typhimurium for the Outgrowth of the Pathogen over the Commensal Microbiota during Intestinal Inflammation**
F. Faber, A. J. Bäumler; UC Davis, Sch. of Med., Davis, CA.

39 **Role of Histone-like Protein HU in *Porphyromonas gingivalis***
R. Priyadarshini[1], C. Cugini[1], N. Tjokro[2], S. D. Goodman[2], M-E. Davey[1]; [1]The Forsyth Inst., Cambridge, MA, [2]Univ. of Southern California, Los Angeles, CA.

40 **Identification of *Bacteroides fragilis* Pirin Associated Proteins and its Regulation by Oxidative Stress and Iron**
A. M. Gough, C. J. Smith, **E. R. Rocha**; Dept. of Microbiol. and Immunology, East Carolina Univ. Brody Sch. of Med., Greenville, NC.

41 **Role and Expression of *Bacteroides fragilis* Hemolysin HlyBA in an Experimental Intra-Abdominal Infection Model**
L. A. Lobo[1], A. L. Jenkins[2], **E. R. Rocha**[3]; [1]Inst. de Microbiologia Paulo de Gois, Federal Univ. of Rio de Janeiro, Rio de Janeiro, BRAZIL, [2]Dept. of Comparative Med., East Carolina Univ. Brody Sch. of Med., Greenville, NC, [3]Dept. of Microbiol. and Immunology, East Carolina Univ. Brody Sch. of Med., Greenville, NC.

42 **Analysis of Predicted ECF- and ABC-Transporter of *Mycobacterium avium* subsp. *paratuberculosis***
E. Eckelt, T. Meißner, R. Goethe, J. Meens; Inst. for Microbiol., Dept. of Infectious Diseases, Univ. of Vet. Med. Hannover, Hannover, GERMANY.

014 Regulation of Virulence I (Division B)

10:45 a.m. – 12:30 p.m.; Poster Hall

43 **Use of RNA-Seq to Monitor Infection-related changes in *Pseudomonas aeruginosa* (PA) Gene Expression in a Murine Model of Gastrointestinal (GI) Colonization and Neutropenic-induced Dissemination**
E. Lopez-Medina, A. Y. Koh; Univ. of Texas Southwestern Med. Ctr. at Dallas, Dallas, TX.

44 **Regulation of the Type VI secretion System in *Burkholderia pseudomallei***
J. Wong[1,2,3], Y. Chen[1,3], Y-H. Gan[1,3,2]; [1]Natl. Univ. of Singapore, Singapore, SINGAPORE, [2]NUS Graduate Sch. for Integrative Sci. & Engineering, SINGAPORE, [3]Yong Loo Lin Sch. of Med., SINGAPORE.

45 **Involvement of sRNA and Hfq in Regulation of the Fermentation Respiration Switch (FrsA) Expression in *Vibrio vulnificus***
K-J. Lee, J-H. Park, K-H. Lee; Sogang Univ., Seoul, KOREA, REPUBLIC OF.

46 **Magnesium Affects Expression of *Pseudomonas aeruginosa* Virulence Factors**
B. M. Coffey, G. G. Anderson; Indiana Univ. Purdue Univ. Indianapolis, Indianapolis, IN.

47 **Transcriptional Regulators Rsp and CrgA Repress Ist Expression in *Neisseria gonorrhoeae***
K. A. Matthias[1], W. M. Shafer[2], R. F. Rest[1]; [1]Drexel Univ. Coll. of Med., Philadelphia, PA, [2]Emory Univ., Atlanta, GA.

48 **Role of Ferric Enterobactin Receptors in Norepinephrine-mediated Growth Promotion in *Campylobacter***
F. Xu[1], X. Zeng[2], B. Yang[1], A. Shi[1], J. Lin[2]; [1]Inst. of Animal Sci. and Vet. Med., Beijing Academy of Agriculture and Forestry Sci., Beijing, CHINA, [2]Dept. of Animal Sci., The Univ. of Tennessee, Knoxville, TN.

49 **Intestinal short-chained fatty acids modulate *Listeria monocytogenes* virulence regulation**
Y. Sun, K. Esquilin-Lebron, M. O'Riordan; Univ. of Michigan, Ann Arbor, MI.

50 Characterization of *Borrelia burgdorferi* BB0236, a Possible Tissue-specific Colonization Factor
S. Banik, R. Iyer, I. Schwartz; New York Med. Coll., Valhalla, NY.

51 Pathogenicity of *Yersinia pestis* synthesizing 1-dephosphorylated lipid A
W. Sun; The Biodesign Inst., Tempe, AZ.

52 Diguanylate Cyclases and Phosphodiesterases Regulate Motility and Sessility in Uropathogenic *E. coli*
R. R. Spurbeck, R. Tarrien, H. L. T. Mobley; Univ. of Michigan, Ann Arbor, MI.

53 Identification and Characterization of Factors Promoting Serum Resistance in *Cronobacter sakazakii*
S. Schwizer, R. Stephan, **A. Lehner**; Inst. for Food Safety and Hygiene, Univ. Zurich, Zurich, SWITZERLAND.

54 Host Signal Induced Intermolecular Disulfide Bond Formation Promotes *V. cholerae* Virulence
M. Yang[1], Z. Liu[1], C. Hughes[2], R. Yee[1], W. Fenical[2], **J. Zhu**[1]; [1]Univ. of Pennsylvania, Philadelphia, PA, [2]Univ. of California, San Diego, CA.

55 *In Vivo* Screen for Hypervirulent *Salmonella* Strains
D. M. Heithoff[1], W. R. Shimp[1], J. K. House[2], Y. Xie[3], B. C. Weimer[3], R. L. Sinsheimer[1], M. J. Mahan[1]; [1]Univ. of California, Santa Barbara, CA, [2]Univ. of Sydney, Sydney, AUSTRALIA, [3]Univ. of California, Davis, CA.

56 Identifying Quorum Sensing Pheromones that Regulate Virulence and Biofilm Formation in Streptoccocus Pyogenes
C. Aggarwal, M. J. Federle; Univ. of Illinois, Chicago, IL.

57 Expression of *Hila* in Response to Acid Stress in *Salmonella enterica* Is Serovar and Strain Dependent
F. J. Gonzalez-Gil, A. Le Bolloch, S. Pendleton, A. Wallis, N. Zhang, I. Hanning; Univ. of Tennessee, Knoxville, TN.

58 An Inhibitory Role of the Auxiliary Protein, VieB, in the VieSAB Three-component Signal Transduction System in *V. cholerae*
S. Mitchell, A. Ismail, A. Camilli; Tufts Univ. Sch. of Med. Dept of Molecular Biology and Microbiol. and Howard Hughes Med. Inst., Boston, MA.

59 Identification of Regulators of Butyrate-dependent Control of Virulence in *Listeria monocytogenes*
K. Esquilin-Lebron, Y. Sun, M. O'Riordan; Univ. of Michigan, Ann Arbor, MI.

60 Transcriptional Regulation of the Acetone Carboxylase Operon *Via* Two-Component Signal Transduction in *Helicobacter pylori*
S. E. Harvey, V. Quinlivan-Repasi, A. Canakis, M. Gillespie, M. H. Forsyth; The Coll. of William and Mary, Williamsburg, VA.

61 Comparative Genomics of *Streptococcus mutans* Strains Using a Novel *in Silico* Subtraction Method
S. Argimon[1], K. Konganti[2], S. M. Brown[2], P. W. Caufield[1]; [1]New York Univ. Coll. of Dentistry, New York, NY, [2]Ctr. for Hlth.Informatics and Bioinformatics, New York Univ. Sch. of Med., New York, NY.

62 Molecular Analysis of Promoter and Intergenic Region Attenuator of the *Vibrio vulnificus ahpC1F* Operon
H-S. Lee[1], T. Kim[2], S. Choi[1]; [1]Seoul Natl. Univ., Seoul, KOREA, REPUBLIC OF, [2]Korea Univ., Seoul, KOREA, REPUBLIC OF.

63 Capsule Production and Regulation by *Bacillus cereus* G9241
J. M. Scarff, J. M. Vergis, F. Alem, C. L. Ventura, A. D. O'Brien; Uniformed Services Univ. of the Hlth.Sci., Bethesda, MD.

64 Mutations in Previously Uncharacterized *Salmonella enterica* Serovar Typhimurium Transcriptional Regulators Cause Altered Cell Adhesion and Oxidative Stress Resistance
J. Serfecz, K. Crosby, J. W. Wilson; Villanova Univ., Villanova, PA.

65 Effect of Iron on the Expression of Quorum-Sensing Regulator *SmcR* in the Human Pathogen *Vibrio vulnificus*
I. Kim, Y. Wen, S-M. Jeong, N-Y. Park, S. Van, K-S. Kim; Dept. of Life Sci. and Interdisciplinary Program of Integrated Biotechnology, Sogang Univ., Seoul, KOREA, REPUBLIC OF.

66 Involvement of TCA Cycle in Virulence Gene Expression in *Vibrio cholerae*
Y. Minato, S. R. Fassio, C. C. Hase; Oregon State Univ., corvallis, OR.

67 Outer surface protein C (ospC) is not the sole determinant of *Borrelia burgdorferi* dissemination
P. Mukherjee, D. Liveris, R. Iyer, K. Hanincova, I. Schwartz; New York Med. Coll., Valhalla, NY.

015 Surface Structures of Microbial Pathogens I (Division B)

10:45 a.m. – 12:30 p.m.; Poster Hall

68 Pspk Is Essential for Nontypeable Pneumococci to Colonize the Nasopharynx of Mice
I. Park[1], K-H. Kim[2], A. L. Andrade[3], D. E. Briles[1], L. S. McDaniel[4], M. H. Nahm[1]; [1]Univ. of Alabama at Birmingham, Birmingham, AL, [2]Ewha Womans Univ., Seoul, KOREA, REPUBLIC OF, [3]Federal Univ. of Goias, BRAZIL, [4]Univ. of Mississippi Med. Ctr., Jackson, MS.

69 Identification and Characterization of O-antigen deficient mutants in *Francisella tularensis*
J. A. Rasmussen, M. L. Faron, J. R. Fletcher, B. D. Jones; Univ. of Iowa, Iowa City, IA.

70 A New Insight into the Function of Stn Produced by *Salmonella*
M. Nakano[1], E. Yamasaki[2], T. Shimohata[3], A. Takahashi[3], J. Moss[4], H. Kurazono[2], T. Hirayama[1]; [1]Nagasaki Univ., Nagasaki, JAPAN, [2]Obihiro Univ. of Agriculture and Vet. Med., JAPAN, [3]Univ. of Tokushima, JAPAN, [4]NHLBI, NIH, MD.

71 The Influence of the *Pseudomonas aeruginosa* Group I Glycan on Clinical Strain Distribution
T. Kennedy, R. Leehacharoenkul, G. Rajani, P. Castric; Duquesne Univ., Pittsburgh, PA.

72 Pathogenic Consequences of Wall Teichoic Acid Glycosylation in Serogroup 4 *Listeria monocytogenes*
P. A. Spears[1], J. R. Horton[1], R. L. Wolf[1], **T. S. Hamrick**[2], E. A. Havell[1], P. E. Orndorff[1]; [1]North Carolina State Univ., Raleigh, NC, [2]Campbell Univ., Buies Creek, NC.

73 Characterization of *macA* and *macB*, Two Novel Genes in Invasive *Streptococcus mutans* Strains
A. Avilés-Reyes, J. Miller, J. Abranches, J. Lemos; Univ. of Rochester, Rochester, NY.

74 The *Legionella pneumophila* DGR: Bacterial Surface Display of a Highly Variable Outer Membrane Protein
D. Arambula, W. Wong, B. Medhekar, H. Guo, M. Gingery, J. F. Miller; Univ. of California Los Angeles, Los Angeles, CA.

75 Flagella Overexpression Attenuates *Salmonella's* Motility and Virulence
X. Yang, L. Cao, T. Lim, Z. Suo, R. Avci, D. Pascual; Montana State Univ., Bozeman, MT.

76 Virulence of *Porphyromonas gingivalis* is Altered by fimA Genotype Exchange
J. E. Kerr, J. R. Abramian, D-h. Dao, T. Rigney, T. Pham, J. Fritz, G. D. Tribble; Univ. of Texas HSC- Sch. of Dentistry, Houston, TX.

77 *Campylobacter jejuni*: Discovery of Capsular Polysaccharide Structures and Synthesis of Conjugate Vaccines Thereof
L. S. Bertolo[1], C. DePass[1], Z. Ma[1], A. Maue[2], C. Ewing[2], P. Guerry[2], M. A. Monteiro[1]; [1]Dept. of Chemistry, Univ. of Guelph, Guelph, ON, CANADA, [2]Dept. of Enteric Diseases, Naval Med. Res. Ctr., Silver Spring, MD.

78 Investigating the Role of PilC in the Type IV Pilus System of *Pseudomonas aeruginosa*
H. K. Takhar[1], K. Kemp[1], L. L. Burrows[1], P. L. Howell[2]; [1]McMaster Univ., ON, CANADA, [2]Univ. of Toronto, ON, CANADA.

79 **Detection of Putative Collagen-Binding Protein and Collagenase Activity in Oral *Streptococci***
J. W. Cohen[1], T. Kitten[2], M. L. Dao[1]; [1]Univ. of South Florida, Tampa, FL, [2]Virginia Commonwealth Univ., Richmond, VA.

80 **Role of *psrP-secY2A2* Accessory Genes in the Glycosylation and Transport of *Streptococcus pneumoniae* psrP**
A. Lizcano, C. Orihuela; UTHSCSA, San Antonio, TX.

81 **Evaluation of the Prevalence and Production of *E. coli* Common Pilus among APEC Strains and its Potential Role in Biofilm Formation and Invasion of Epithelial Cells**
A. K. Stacy[1], J. T. Maddux[1], J. A. Girón[2], R. Curtiss, III[1], M. Mellata[1]; [1]Arizona State Univ., Tempe, AZ, [2]Univ. of Florida, Gainesville, FL.

82 **The Pathways for Anchoring M Protein and SfbI to *Streptococcus pyogenes* Cell Wall Display Distinct Cellular Features**
A. Raz[1], S. R. Talay[2], V. A. Fischetti[1]; [1]The Rockefeller Univ., New York, NY, [1]Helmholtz Ctr. for Infection Res., Braunschweig, GERMANY.

016 Diagnostic Bacteriology: Non-Molecular Identification of Gram Positive Organisms (Division C)

10:45 a.m. – 12:30 p.m.; Poster Hall

83 **Evaluation of Granada Broths (StrepB Carrot and Granada Biphasic) for Detection of Group B *Streptococci***
J. Rodriguez-Granger, J. Cabrera-Alvar-Gonzalez, C. Liebana, M. Rosa-Fraile; Virgen Nieves Hosp. Microbiol., Granada, SPAIN.

84 **Evaluation of Optimal Storage and Transport Medium for the Detection of Group B *Streptococcus* in StrepB Carrot Broth**
A. Trotman-Grant[1], T. Raney[2], J. Dien Bard[3]; [1]Queen's Univ., Kingston, ON, CANADA, [2]Kingston Gen. Hosp., ON, CANADA, [3]Queen's Univ., ON, CANADA.

85 **Can Methicillin-resistant *Staphylococcus aureus* be a hidden enemy in cystic fibrosis patients?**
L. R. R. Perez[1], A. L. S. Antunes[1], J. W. Bonfanti[1], J. B. Pinto[1], E. W. Roesch[2], D. Rodrigues[2], **C. A. G. Dias**[3]; [1]Univ.e Federal do Rio Grande do Sul, Porto Alegre Rs, BRAZIL, [2]Hosp. de Clinicas da Univ.e Federal do Rio Grande do Sul, Porto Alegre Rs, BRAZIL, [3]Univ.e Federal de Ciencias da Saude de Porto Alegre, Porto Alegre Rs, BRAZIL.

86 **Prolonged Bacterial Culture to Identify *Propionibacterium acnes***
J. K. January, R. Liao; PeaceHlth.Lab., Springfield, OR.

87 **Evaluation of BinaxNOW® *S. aureus* Test for Rapid Identification of Gram-positive Cocci from VersaTREK® Blood Cultures**
N. Dhiman, T. L. Trienski, J. R. DiPersio; Summa Hlth.System, Akron, OH.

88 **Validation of a Rapid Molecular Test for Off Label Use for Methicillin Resistant *Staphylococcus aureus* Inguinal Colonization in Emergency Department Patients with Cutaneous Abscesses**
L. May[1], A. Dugas[2], E. Dissen[1], T. Saavedra[2], C. McCann[1], K. Carroll[2], R. Rothman[2], J. Jordan[1]; [1]The George Washington Univ., Washington, DC, [2]Johns Hopkins Univ., Baltimore, MD.

89 **Identification of *Corynebacterium* species by Bruker Biotyper Matrix Assisted Laser Desorption Ionization-Time of Flight Mass Spectrometry Using an On-Plate Extraction Method**
B. Schmitt, S. Cunningham, A. Alatoom, C. Cazanave, R. Patel; Mayo Clinic, Rochester, MN.

90 **Comparsion of Five Chromogenic Media for the Recovery of Vancomycin Resistant *Enterococci* (VRE) from Fecal Samples**
J. C. Prestridge, A. A. Roberts, R. Seeley, S. Speser, C. Harmon, C. Zhang, S. Henciak, P. Stamper, T. Ross, K. C. Carroll; Johns Hopkins Hosp., Baltimore, MD.

91 **Detection of All Group B *Streptococci* According to Revised CDC Guidelines Using Selective Broth in Combination with Chromogenic Agar**
F. Villeval[1], M. Boi[1], M. Cabezas[2], **F. Montigon**[1]; [1]bioMérieux sa, Craponne, FRANCE, [2]bioMerieux España sa, Madrid, SPAIN.

92 **A Multi-center Evaluation of *Enterococcus* QuickFISH for the Identification of *Enterococcus* Species Directly from Positive Blood Culture Bottles**
M. J. Fiandaca[1], M. K. Deck[1], J. M. Coull[1], L. L. Klimas[1], M. Fuchs[1], P. Della Latta[2], F. Wu[2], G. Colasante[3], D. Lindao[3], K. Hazen[4], D. Fuller[5], R. J. Buckner[5], M. Morgan[6]; [1]AdvanDx, Inc., Woburn, MA, [2]Columbia Univ. Med. Ctr., NewYork-Presbyterian Med. Ctr., New York, NY, [3]Hlth. Network Lab., Allentown, PA, [4]Univ. of Virginia, Charlottesville, VA, [5]Indiana Univ. Sch. of Med., Indianapolis, IN, [6]Cedars-Sinai Med. Ctr., Los Angeles, CA.

93 **A Multi-center Evaluation of *Staphylococcus* QuickFISH for the Identification of *Staphylococcus* Species Directly from Positive Blood Culture Bottles**
M. K. Deck[1], M. J. Fiandaca[1], J. M. Coull[1], M. C. Meltzer[1], B. Crystal[1], M. Morgan[2], D. Fuller[3], R. J. Buckner[3], K. Hazen[4], G. Colasante[5], D. Lindao[5], P. Della Latta[6], F. Wu[6]; [1]AdvanDx, Inc., Woburn, MA, [2]Cedars-Sinai Med. Ctr., Los Angeles, CA, [3]Indiana Univ. Sch. of Med., Indianapolis, IN, [4]Univ. of Virginia, Charlottesville, VA, [5]Hlth.Network Lab., Allentown, PA, [6]Columbia Univ. Med. Ctr., NewYork-Presbyterian Med. Ctr., New York, NY.

94 **Evaluation of Two Chromogenic Media for MRSA Screening from Nasal Swabs**
L. Druen, P. Sturm, J. Rodgers, L. Weiler, C. Essmyer; Saint Luke's Hosp., Kansas City, MO.

95 **Controlled Clinical Comparison of BacT/ALERT Aerobic and Anaerobic FAN Plus Blood Culture Media with BacT/ALERT FA and FN Blood Culture Media**
T. J. Kirn[1], S. Mirrett[2], L. B. Reller[2], P. P. Bourbeau[3], M. P. Weinstein[1]; [1]Robert Wood Johnson Med. Sch., New Brunswick, NJ, [2]Duke Univ. Med. Ctr., Durham, NC, [3]Geisinger Med. Ctr., Danville, PA.

96 **Comparison of the BBL™ CHROMagar™ *Staph aureus* Medium versus SaSelect™ Agar for the Isolation and Direct Identification of S.aureus and other *Staphylococcus* species**
P. P. Patel, L. R. Newton, K. A. Fletcher, F. O. Wegerhoff; Covance Central Lab Services, Indianapolis, IN.

97 **Evaluation of the Utility of Using CHROMagar MRSA Plates for Detection of MRSA from Blood Culture Bottles**
K. Alby[1], P. H. Gilligan[2], **M. B. Miller**[2]; [1]Univ. of North Carolina Hlth.care, Chapel Hill, NC, [2]Univ. of North Carolina Sch. of Med., Chapel Hill, NC.

98 **Non-Hemolytic/Non-Pigmented Group B *Streptococci* (GBS) Strains as a Cause of Early Onset Neonatal Disease**
M. Rosa-Fraile[1], J. Cabrera-Alvar-Gonzalez[1], L. Baldasarri[2], M. Hufnagel[3], C. Liebana[1]; [1]Univ. Hosp. Virgen de las Nieves. Microbiol. Granada. Spain., Granada, SPAIN, [2]Istituto Superiore di Sanità, Roma, ITALY, [3]Univ.sklinikum . Germany, Freiburg, GERMANY.

99 **Utility of a Chromogenic Medium to Detect MRSA in Extra-Nasal Specimens**
K. E. Irmen, Ph.D.; Medcenter One, Bismarck, ND.

100 **Evaluation of Two New Enhanced Streptococcal Latex Agglutination Grouping Kits**
P. Kornherr, M. Bueno de Mesquita, J. Chartrand, V. Wong; Gamma-Dynacare Lab., Ottawa, ON, CANADA.

101 **Evaluation of Hardy and GBS Chrom agars for the detection of Group B *Streptococcus* from Carrot Broth**
Z. Shah[1], J. Dolloff[1], S. Tarleton[1], **R. L. Sautter**[2]; [1]Carolinas Lab. Network, Charlotte, NC, [2]Carolinas Pathology Group, Charlotte, NC.

102 **Accurate identification of *Staphylococcus aureus* in Blood Cultures after 12 Hours of incubation on MRSA*Select* and SA*Select* Agar**
E. C. Tuttle[1], W. G. Petty[1], N. N. Whitfield[1], K. R. Matthias[2], **D. M. Wolk**[2]; [1]Univ. of Arizona Med. Ctr., Tucson, AZ, [2]Univ. of Arizona, Tucson, AZ.

103 **Evaluation of a Commercially Available Chromogenic Agar Medium for the Detection of Methicillin-Resistant *Staphylococcus aureus* in Throat Specimens**
A. Basner, A. N. Abbott, **S. M. Butler-Wu**; Univ. of Washington, Seattle, WA.

104 Evaluation of Sequential PCR/Quellung Reaction Pneumococcal Serotyping Algorithm
S. S. Richter[1], C. L. Dohrn[2], K. P. Heilmann[2], F. Riahi[2], **D. J. Diekema**[2], G. V. Doern[2]; [1]Cleveland Clinic, Cleveland, OH, [2]Univ. of Iowa Coll. of Med., Iowa City, IA.

017 Diagnostic Bacteriology: Non-Molecular Identification of Gram Negative Organisms (Division C)

10:45 a.m. – 12:30 p.m.; Poster Hall

105 Detection of Vibrio cholera Enterotoxin-Mediated Cytotoxicity using a Real-Time Cell Analysis
D. Jin[1,2], M. Zheng[3], H. Li[2], Y. Luo[1], J. Zhang[3], M. Stampfl[3], X. Xu[3], G. Ding[1], Y. Tang[2]; [1]Zhejiang Provincial Ctr. for Disease Control and Prevention, Hangzhou, CHINA, [2]Vanderbilt Univ. Med. Ctr., Nashville, TN, [3]ACEA BioSci.s, San Diego, CA.

106 Evaluation of a new Chromogenic Agar Medium for Detection of Shiga Toxin-producing *Escherichia coli*
S. Giercke[1], J. L. Wylie[1], P. Van Caeseele[1], M. Gilmour[2], D. Sitter[1], C. Guttek[1]; [1]Cadham Provincial Lab., Winnipeg, MB, CANADA, [2]Natl. Microbiol. Lab., Winnipeg, MB, CANADA.

107 Identification of Microorganisms in the Bronchoalveolar Lavage Fluid of Lung Transplant Recipients by Combination of Microscopic Examination and Culture
C. Zhang, R. F. Relich, M. McCoy, T. E. Davis, S. D. Allen; Indiana Univ., Indianapolis, IN.

108 Comparison of CHROMagar Yersinia and CIN Agar Media for Isolation of Potentially Virulent *Yersinia enterocolitica* in Stools
N. Renaud, L. Lecci, R. J. Courcol, M. Simonet, **O. Gaillot**; Microbiol. Lab., Lille Univ. Hosp., LILLE, FRANCE.

109 Evaluation of Time to Detection and Growth Recovery Properties Between Bd Bactec Triple Resin Blend Vs. Bactec Plus Aerobic/f Vs Biomeriux Bact/alert Fa in a Laboratory-Based Setting Using Simulated Cefepime and Meropenem Peak and Mid Level Concentrations
G. T. HANSEN[1,2], K. Hanson[1] , V. Nordberg[1], R. Zadroga[2], R. Gottschall[1], G.T. Hansen[1]; [1]Hennepin County Med. Ctr., Minneapolis, MN, [2]Univ. of Minnesota, Minneapolis, MN.

110 Comparison of EIA with Culture for Laboratory Diagnosis of *Campylobacter* Enteritis
C. L. Giltner, A. M. Bobenchik, M. A. Lewinski, R. M. Humphries; Univ. of California Los Angeles, Los Angeles, CA.

111 Evaluation of a Novel Chromogenic Medium as a Replacement for MacConkey Agar and Hektoen Enteric Agar
G. Hinde[1], M. Hasan[1], J. Brensan[1], D. Berger[2]; [1]Central Lab., Intermountain Hlth.care, Murray, UT, [2]Hardy Diagnostics, Santa Maria, CA.

112 Evaluation of Four Media for Isolation of Gram Negative Resistant Organisms from Surveillance Rectal Swabs
N. Joshi-Caesar, D. Richardson, G. Ricci; William Osler Hlth.System, Brampton, ON, CANADA.

113 Characterization of Presumptive *Campylobacter* Strains Submitted to the CDC Reveals a Diverse Array of Species Associated with Human Disease in the United States
J. Pruckler, M. Santovenia, P. I. Fields, C. Fitzgerald; CDC, Atlanta, GA.

114 Evaluation of *SHIGA TOXIN CHEK*: an ELISA for the Detection of Stx1 and Stx2 in Human Fecal Specimens and Broth Cultures
D. E. Campbell, J. T. Boone, A. S. Dandro, J. P. Vance, M. Goodykoontz, J. F. Herbein; TechLab, Blacksburg, VA.

115 A Novel Rapid Immunoassay for the Detection of Shiga Toxin Producing *E. coli* in Feces—Evaluation of the *SHIGA TOXIN QUIK CHEK*
M. V. Goodykoontz, J. T. Boone, J. P. Vance, A. S. Dandro, D. E. Campbell, J. F. Herbein; TechLab, Inc., Blacksburg, VA.

116 Evaluation of HardyCHROM™ SS Agar Compared to Hektoen Enteric Agar for Detection of *Salmonella* and *Shigella* in Stool Cultures
K. Machcinski, C. Young, B. Ott, **D. Newton**; Univ. of MI Hlth.System, Ann Arbor, MI.

018 Gram Positive Susceptibility Testing (Division C)

10:45 a.m. – 12:30 p.m.; Poster Hall

117 Interim Susceptibility Testing for Ceftaroline (CPT), a Novel MRSA-Active Cephalosporin: Selecting Potent Surrogate β-Lactam Markers to Predict CPT Activity against Clinically Indicated Species
R. N. Jones, D. J. Farrell, **R. K. Flamm**, H. S. Sader, M. G. Stilwell; JMI Lab., North Liberty, IA.

118 Development of a Microtitre-Plate Colorimetric Antimicrobial Assay Using Bromthymol Blue, Bromophenol Red and Methyl Red as Indices of Bacterial Growth
E. E. Guevarra[1,2], D. de Castro-Ontengco[1]; [1]Univ. of Santo Tomas Graduate Sch., Manila, PHILIPPINES, [2]Clark Dev. Corp., Clark Freeport Zone, PHILIPPINES.

119 Evaluation of an Automated Method for Inducible Clindamycin Resistance
J. Krifka, C. Herdt, B. Neff, T. Karre; Nebraska Methodist Hosp., Omaha, NE.

120 Discrepancies in Daptomycin Non-Susceptible *Enterococci*-Based on Testing Methodology
K. A. Bryant, A. L. Roberts, B. J. Cabrera, J. R. Anderson, E. R. Lyden, P. D. Fey, T. Van Schooneveld; Univ. of Nebraska Med. Ctr., Omaha, NE.

121 Kirby-Bauer Method is Not Reliable to Detect Teicoplanin Resistance in Coagulase-Negative Staphylococci
E. T. Sakagami, A. G. Alvares, C. C. Santos, G. Von Konell, **J. Sampaio**; Fleury Hlth.and Med., Sao Paulo, BRAZIL.

122 Impact of New Penicillin Susceptibility Breakpoints on Resistance Rates of *Streptococcus pneumoniae* Isolates in Central Illinois from 1998–2011
S. Tun[1], C. Nunez[1], K. Mongkolrattanothai[2], H. Wang[3]; [1]Univ. of Illinois Coll. of Med. Peoria, Peoria, IL, [2]Pediatric Antimicrobial Stewardship Program, Children's Hosp. of Illinois, Peoria, IL, [3]Univ. of Illinois Coll. of Med. Peoria, Dept. of Internal Med., Peoria, IL.

123 *In vitro* Synergy of Televancin and Rifampin Against *Enterococcus faecium* Resistant to Both Linezolid and Vancomycin
G. A. Pankey, D. S. Ashcraft; Ochsner Clinic Fndn., New Orleans, LA.

124 Comparison Between Automated and Manual Sucesptibility Testing for Vancomycin, Linezolid and Daptomycin in Patients with MRSA Bacteremia
L. Zaffiri[1], R. Abdulmassih[1], R. Bickel[1], D. H. Batts[1], W. Nichols[2]; [1]KCMS-MSU, Kalamazoo, MI, [2]Borgess Methodist Hosp., Kalamazoo, MI.

125 Laboratory Use of a Rapid PBP2a Immunochromatographic Assay: Efficacy and Clinical Impact
H. L. Barrett, T. L. Trienski, **J. R. DiPersio**; Summa Hlth.System, Akron, OH.

126 Importance of the Frequency of Susceptibility Testing for the Identification of Daptomycin Non-Susceptible Methicillin Resistant *Staphylococcus aureus* in Blood Cultures
R. M. Humphries, T. Kelesidis, J. A. Hindler; UCLA, Los Angeles, CA.

127 Comparison of Ceftaroline (CT) and Vancomycin (V) MICs against Methicillin (M) Resistant (R) *Staphylococcus* aureus (SA)
H. Salimnia[1,2], P. Lephart[2], R. Mitchell[2], N. Arnous[2], T. Painter[2], K. Kaye[1], M. Rybak[3], M. Fairfax[1,2]; [1]Wayne State Univ. Sch. of Med., Detroit, MI, [2]Detroit Med. Ctr. Univ. Lab., Detroit, MI, [3]Eugene Applebaum Coll. of Pharmacy and Hlth.Sci., Wayne State Univ., Detroit, MI.

128 A Comparison of Two Methods of *in vitro* Susceptibility Testing of Ceftaroline Against Clinical Isolates of *Staphylococcus aureus*
S. W. Eisinger, L. M. Dam, **S. Riedel**; Johns Hopkins Univ., Baltimore, MD.

129 VITEK® 2 Performs Reliably for Antimicrobial Susceptibility Testing of *Staphylococcus spp.* and *Enterococcus spp.*
A. M. Bobenchik, C. L. Giltner, J. A. Hindler, F. Sooudipour, S. Saeki, M. A. Lewinski, R. M. Humphries; David Geffen Sch. of Med. at UCLA, Los Angeles, CA.

130 Comparison of Various Commercially Available Antimicrobial Susceptibility Test Methods for Assessment of MIC Values for Vancomycin, Daptomycin, Linezolid, and Quinupristin/Dalfopristin Against *Staphylococcus aureus* and *Enterococci*
S. Riedel, **S. W. Eisinger**, M. Schwartz, L. M. Dam, T. Tekle, K. C. Carroll; Johns Hopkins Univ., Baltimore, MD.

131 Contemporary Potencies of Minocycline (MIN) and Tetracycline (TET) Tested Against Gram-positive Pathogens: SENTRY Program Results using CLSI and EUCAST Breakpoint Criteria
R. N. Jones[1], M. Wilson[2], M. Weinstein[3], **M. Stilwell**[1]; [1]JMI Lab., North Liberty, IA, [2]Denver Hlth.Med. Ctr., Denver, CO, [3]Robert Wood Johnson Univ. Hosp., New Brunswick, NJ.

132 Comparison of Broth Microdilution and Agar Dilution Dalbavancin and Vancomycin MIC Results for 42 Aerobic Gram-positive Bacteria
L. M. Koeth[1], A. R. Windau[2], B. P. Goldstein[3]; [1]Lab. Specialists, Inc., Westlake, OH, [2]MicroTech Lab., Sheffield, OH, [3]Beth Goldstein Consultant, Wayne, PA.

133 Evaluation of an Automated Susceptibility Testing System for the Detection of mecA-Mediated Resistance in *Staphylococcus aureus* Expressing Low Level Oxacillin Minimum Inhibitory Concentration
L. P. Samuel, R. J. Tibbetts; Henry Ford Hlth.System, Detroit, MI.

134 Clinical evaluation of the Vitek 2 SS03 panel for antimicrobial susceptibility testing of *Streptococcus* species
B. W. Buchan[1,2], **K. M. Riebe**[2], S. Gnacinski[2], N. A. Ledeboer[1,2]; [1]Med. Coll. of Wisconsin, Milwaukee, WI, [2]Dynacare Lab., Milwaukee, WI.

135 Determination of Clindamycin Resistance in GBS Isolates by Rapid Culture-Based Test
J. Faro, K. Bishop, G. Riddle, A. Katz, S. Faro; UTHSC, Houston, TX.

136 Evaluation of a Fast Susceptibility Testing Medium and a New Preparation and Standardization Device for Agar Diffusion Susceptibility Testing for *Staphylococcus aureus*
J-C. Ghnassia[1], D. Leyssene[2], S. Diaz[3], P. Carretero[3], C. Curel[3]; [1]Ctr. Hosp.ier de Versailles, Le Chesnay, FRANCE, [2]Ctr. Hosp.ier de la Côte Basque, Bayonne, FRANCE,[3], [2]a, Montpellier, FRANCE.

137 Evaluation of the Analytical Reactivity (Inclusivity) and Analytical Specificity (Cross-Reactivity) of the BD MAX MRSA Assay, a new Automated Molecular Assay*
M. Tremblay, N. Dionne, M. Grenier, S. Lapointe, C. Roger-Dalbert; BD Diagnostics, Québec, QC, CANADA.

138 Rapid Real-Time PCR Detection of mecA Gene in Biofilm-Associated Methicillin-Resistant Staphylococci (MRS) and Sonicated Implant Clinical Samples
K. E. Greenwood-Quaintance, A. L. Piper, C. Cazanave, J. R. Uhl, A. D. Hanssen, J. M. Steckelberg, R. Patel; Mayo, Rochester, MN.

139 Investigation of cefoxitin-oxacillin discrepancies in clinical isolates of *Staphylococcus aureus* using Next Gen sequencing
C. S. Kraft, R. A. Petit, M. R. Rossi, T. D. Read, E. M. Burd; Emory Univ., Atlanta, GA.

019 Gram Negative Susceptibility Testing (Division C)

10:45 a.m. – 12:30 p.m.; Poster Hall

140 Influence of Surfactant (Polysorbate-80) on Susceptibility Testing Results for the Polymyxins Using Broth Microdilution Methods
H. S. Sader, **P. R. Rhomberg**, R. K. Flamm, R. N. Jones; JMI Lab., Inc., North Liberty, IA.

141 Current Antibiotic Susceptibility of *Salmonella* Isolates
M. S. Iqbal; Dow Univ. of Hlth.Sci., Karachi, PAKISTAN.

142 Colistin Susceptibility Testing: an Ongoing Challenge
H. S. Fraimow[1,2], C. R. Knob[1]; [1]Cooper Univ. Hosp., Camden, NJ, [2]Cooper Med. Sch. of Rowan Univ., Camden, NJ.

143 Carbapenem Resistance among Clinical Isolates of *Enterobacteriaceae* in a University Hospital
J. Burnell, **E. L. Palavecino**; Wake Forest Sch. of Med., Winston Salem, NC.

144 Rapid Identification of Antibiotic Hydrolysis using MALDI-TOF MS
N. W. Anderson[1], **D. Kasper**[1], B. W. Buchan[1,2], N. A. Ledeboer[1,2]; [1]Med. Coll. of Wisconsin, Milwaukee, WI, [2]Dynacare Lab., Milwaukee, WI.

145 Evaluation of Broth Enhancement and Direct Plating of Rectal Swabs for the Detection of Fluoroquinolone Resistant *E. coli* from Patients Prior to a Transrectal Prostate Biopsy
M. A. Liss, **K. Nakamura**, A. N. Peeples, E. M. Peterson; Univ. of California, Irvine Med. Ctr., Orange, CA.

146 Multi-center Evaluation of the Ast- Piperacillin /tazobactam Card for Use on the Vitek®2 and Vitek®2 Compact Systems
M. J. Tuohy[1], D. A. Wilson[1], M. Traczewski[2], S. Brown[2], R. Buckner[3], T. Davis[3], G. S. Hall[1]; [1]Cleveland Clinic, Cleveland, OH, [2]CMI (Clinical Microbiol. Inst.), Wilsonville, OR, [3]Wishard Hlth.Services, Indiana Univ. Sch. of Med., Indianapolis, IN.

147 Evaluation of an Automated Susceptibility Testing compared to Broth Microdilution in Determining Imipenem and Meropenem MICs against ertapenem-resistant *Klebsiella pneumoniae*
R. S. Setubal, K. Lorenzete, C. G. Carvalhaes, **A. M. Doi**, R. Giardello, A. M. O. Machado, A. C. Gales, A. C. Pignatari; UNIFESP, Sao Paulo, BRAZIL.

148 Detection of Extended-Spectrum Beta-Lactamases and Carbapenemases Producers by Matrix-Assisted Laser Desorption/Ionization-Time of Flight Mass Spectrometry
C. S. Vismara, M. C. Sironi, A. Bielli, G. Lombardi, G. Ortisi, G. P. Gesu; Microbiol. and Virology Lab. - Niguarda Ca' Granda Hosp., Milano, ITALY.

149 3 Kits for ESBL, AmpC and Carbapenemase Detection
G. K. Munier[1], J. Kum[2], J. Kum[2], J. Crawford[2], K. S. Thomson[2]; [1]Univ. of Louisville Sch. of Med., Univ. of Louisville Hosp., Louisville, KY, [2]Creighton Univ. Sch. of Med., Omaha, NE.

150 Species Distribution and Colistin Susceptibility of Bloodstream Isolates of *Acinetobacter* Species from a University Hospital in Korea
S. Y. Lee[1], J. H. Shin[1], K. Lee[2], M. Y. Joo[1], K. H. Park[3], S. H. Kim[1], S. P. Suh[1], D. W. Ryang[1]; [1]Dept. of Lab. Med., Chonnam Natl. Univ. Hosp., Gwangju, KOREA, REPUBLIC OF, [2]Dept. of Lab. Med. and Res. Inst. of Bacterial Resistance, Yonsei Univ. Coll. of Med., Seoul, KOREA, REPUBLIC OF, [3]Dept. of Internal Med., Chonnam Natl. Univ. Hosp., Gwangju, KOREA, REPUBLIC OF.

151 Can MicroScan Colistin Well Predict for Colistin Resistance?
V. Rekasius, P. C. Schreckenberger; Loyola Univ. Med. Ctr., Maywood, IL.

152 *In Vivo* Bactericidal Properties of Bambusa truldoides Leaf Steep Liquor Extract on Some *Salmonella* species
R. A. O. Gabriel-Ajobiewe, Ph.D; Adekunle Ajasin Univ., Ondo State, NIGERIA.

153 The Rate of ESBL Positive *Enterobacteriaceae* Reported Susceptible to Cephalosporins Implementing the Updated CLSI Breakpoints
Y. Keness[1], D. M. Livermore[2]; [1]Ha'Emek Med. Ctr., Afula, ISRAEL, [2]Norwich Med. Sch., Univ. of East Anglia, Norwich, Antibiotic Resistance Monitoring & Reference Lab., Hlth.Protection Agency – Colindale, London, London, UNITED KINGDOM.

154 Multi-Laboratory Comparison of Three Reference Methods for Determination of Piperacillin and Piperacillin/Tazobactam Susceptibility of Gram-Negative Organisms
M. M. Traczewski[1], J. H. Jorgensen[2], A. Wanger[3]; [1]The Clinical Microbiol. Inst., Wilsonville, OR, [2]Univ. of Texas Hlth.Sci. Ctr., San Antonio, TX, [3]Univ. of Texas Heath Sci. Ctr., Houston, TX.

155 Modifications to Tris/EDTA Disk Testing for AmpC and Carbapenemase Detection
K. S. Thomson, J. Kum, J. Kum; Creighton Univ. Sch. of Med., Omaha, NE.

156 Boronic Acid-enhanced ESBL Confirmatory Tests Can Reduce the Need for Patient Isolation and Costs
J. W. Snyder[1], G. K. Munier[1], C. L. Johnson[1], K. S. Thomson[2]; [1]Univ. of Louisville Sch. of Med. and Hosp., Louisville, KY, [2]Creighton Univ. Sch. of Med., Omaha, NE.

157 3-Hour ESBL Detection from Positive Blood Cultures Using Multiplexed Automated Digital Microscopy (MADM)
S. Metzger[1], C. S. Price[2], **D. Howson**[1]; [1]Accelr[8] Technology Corp., Denver, CO, [2]Denver Hlth. Med. Ctr., Denver, CO.

158 Use of an Alternate Meropenem Disk Diffusion Screen (DDS) Breakpoint for Detecting Carbapenemase-Producing *Enterobacteriaceae* (CRE)
B. M. Willey[1,2], T. Prochnow[1], D. A. Boyd[3], L. Mataseje[3], T. Fung[1,4], M. Larocque[1], M. Mulvey[3], A. J. McGeer[1,4], D. E. Low[1,2,4], **S. M. Poutanen**[1,2,4]; [1]Mount Sinai Hosp., Toronto, ON, CANADA, [2]Univ. Hlth. Network, Toronto, ON, CANADA, [3]Natl. Microbiol. Lab., Winnipeg, MB, CANADA, [4]Univ. of Toronto, Toronto, ON, CANADA.

159 Extrapolating Ceftaroline Susceptibilities of Gram-Negative Isolates from Cefazolin, Ceftriaxone, Ceftazidime and Cefepime Minimum Inhibitory Concentrations
M. A. Yu, **J. Nagel**, C. Young; Univ. of Michigan Hlth.System, Ann Arbor, MI.

160 Discrepant ESBL Confirmation Disc Results and Phenotypic Detection of Plasmid AmpC-lactamases
M. C. Robinson, D. Rendell, M. Addidle; Pathlab Bay of Plenty, Tauranga, NEW ZEALAND.

161 Genotyping of KPC carbapenemases using a novel label-free Real Time PCR assay
C. L. A. Hamula[1], N. Baker[2], M. A. Fisher[1,2]; [1]Dept. of Pathology, Univ. of Utah, Salt Lake City, UT, [2]ARUP laboratories, Salt Lake City, UT.

162 Direct Detection of blaOXA-23 Gene in Clinical Samples by Real Time PCR as a Surrogate Marker for the Presence of Carbapenem-Resistant *Acinetobacter baumannii*
V. V. Cantarelli[1,2], F. Brust[3], A. P. Zavascki[3], P. D'Azevedo[4]; [1]Laboratorio Qualitá, Novo Hamburgo-RS, BRAZIL, [2]Univ Feevale, Novo Hamburgo-RS, BRAZIL, [3]Hosp. de Clinicas de Porto Alegre, Porto Alegre-RS, BRAZIL, [4]Univ Federal de Ciencias Medicas de Porto Alegre, Porto Alegre-RS, BRAZIL.

163 Antioxidant and Antimicrobial Properties of Some Plant Leaves
B. O. T. Ifesan[1], B. T. Ifesan[1], R. Ajobiewe-Gabriel[2]; [1]Federal Univ. of Technology, Akure. Nigeria, Akure, NIGERIA, [23]Dept. of Microbiol., Adekunle Ajasin Univ. Akungba-Akoko, Ondo State Nigeria., Akungba, NIGERIA.

020 Laboratory Management and Quality Assurance (Division C)

10:45 a.m. – 12:30 p.m.; Poster Hall

164 A Comparison of Microscopy and the Sysmex Uf-1000i in the Diagnostic Efficiency of Predicting Bacteriuria and Candiduria in Urine Cultures
K. Lee, D. Bernal, A. Omar, P. J. Chan, M. S. Wong; Khoo Teck Puat Hosp., SINGAPORE.

165 Comparison of VersaTrek and BacT/ALERT 3D Continuous Monitoring Blood Culture Systems to Detect Bacteria in Human Platelet Units
B. W. Buchan[1,2], K. M. Riebe[2], R. Dora[3], S. J. Graminski[3], M. deArruda Indig[3], S. Brooks[3], S. Heldke[3], N. A. Ledeboer[1,2]; [1]Med. Coll. of Wisconsin, Milwaukee, WI, [2]Dynacare Lab., Milwaukee, WI, [3]Blood Ctr. of Wisconsin, Milwaukee, WI.

166 Evaluation of Blood Volume Monitoring Software to Track Blood Culture Specimen Adequacy for Clinical Quality Improvement
D. L. Jungkind, Ph.D.[1], C. M. Lam[1], A. Luchowski[1], J. R. Paul[1], M. Mangano[1], D. J. Turner[2], T. Wiles[2]; [1]Thomas Jefferson Univ. Hosp., Philadelphia, PA, [2]BD Diagnostic Systems, Sparks, MD.

167 Evaluation of the Performance of BD BACTECTM Blood Culture Media in Plastic Bottles
P. S. Beaty; Becton Dickinson Diagnostic Systems, Sparks, MD.

168 Comparison of BacT/ALERT® FA and FN Blood Culture Bottles to BacT/ALERT® FA Plus and FN Plus Bottles for Effectiveness of Antibiotic Neutralization and Time to Positivity
C. M. Hill[1], V. Hadwell[2], E. M. Blondel-Hill[2,3]; [1]UBC- Okanagan, Kelowna, BC, CANADA, [2]Kelowna Gen. Hosp., Kelowna, BC, CANADA, [3]UBC, Vancouver, BC, CANADA.

169 A Retrospective Clinical and Laboratory Evaluation of Blood Cultures at a University Hospital in an Urban Setting: Is 3-Day Incubation Sufficient?
V. Dadhania, R. Potula, A. L. Truant; Temple Univ. Hosp., Philadelphia, PA.

170 Clinical and Microbial Characteristics of *Aeromonas* Infections in a Japanese Hospital
Y. Morinaga[1], K. Yanagihara[1], N. Araki[1], Y. Migiyama[1,2], Y. Harada[1,2], K. Nagaoka[1,2], K. Yamada[1,2], N. Akamatsu[1], J. Matsuda[1], H. Hasegawa[1], K. Izumikawa[2], H. Kakeya[2], Y. Yamamoto[2], A. Yasuoka[3], S. Kohno[2,4], S. Kamihira[1]; [1]Dept. of Lab. Med., Nagasaki Univ. Graduate Sch. of BioMed. Sci., Nagasaki, JAPAN, [2]Second Dept. of Internal Med., Nagasaki Univ. Graduate Sch. of BioMed. Sci., Nagasaki, JAPAN, [3]Nagasaki Univ. Infection Control and Ed. Ctr., Nagasaki Univ. Hosp., Nagasaki, JAPAN, [4]Global COE Program, Nagasaki Univ., Nagasaki, JAPAN.

171 False Positive *Bordetella Pertussis* PCR Results Due to Contamination of Patient Samples with Vaccine at a Pediatric Clinic
S. Juretschko[1,2], K. H. Hintz[1], M. J. Haller[1], R. Maciejewski[1], J. Wasiura[1], S. M. Michalec[1]; [1]Women and Children's Hosp. of Buffalo, Kaleida Hlth., Buffalo, NY, [2]Univ. of Buffalo, Buffalo, NY.

172 RipSeq Single—A Bacterial Reference Database Through Social Curation
M. J. BANKOWSKI[1,2], C. Ying[1], K. E. Simmon[3], O. Kommedal[3], T. Koyamatsu[1]; [1]DLS and The Queen's Med. Ctr., Aiea, HI, [2]John A. Burns Sch. of Med., Dept. of Pathology, Honolulu, HI, [3]Isentio, LLC, Bergen, NORWAY.

173 Efficient Use of Laboratory Resources: Pre-screening for Urine Cultures by Automated Urinalysis and Microscopy
D. Gülmez, **G. Hasçelik**; Hacettepe Univ. Faculty of Med., Ankara, TURKEY.

174 Implementation of an Electronic Quality Management System for Clinical Microbiology Services
M. F. Gendron, Clinical Microbiology Service, A. Sharma, H. Yong, K. W. Hwang, Enterprise Content Management, K. Gilhuley, L. A. Gomez, J. Stiles, T. Edmonds, Clinical Microbiology Service, M. Gladstone, Q. Miller, K. Rivera, Laboratory Information Systems, S. Shuptar, Y. W. Tang, N. E. Babady, Clinical Microbiology Service; Mem. Sloan-Kettering Cancer Ctr., New York, NY.

175 Educational Susceptibility (S) Testing as a Critical Component of Laboratory Proficiency Programs: American Proficiency Institute (API) Results for 2007-2010
R. Jones[1], T. Glick[2], D. Edson[2]; [1]JMI Lab., North Liberty, IA, [2]American Proficiency Inst., Traverse City, MI.

176 Automated Determination of Blood Culture Volume as a Measure of Laboratory Quality Improvement
G. A. Capraro, Jr.[1], T. Davis[2], E. D. Rambin[3], J. Matthews-Greer[1,3]; [1]Dept. of Pathology, LSUHSC-S, Shreveport, LA, [2]Clinical Microbiol. Lab., LSUHSC-S, Shreveport, LA, [3]Dept. of Pediatrics, LSUHSC-S, Shreveport, LA.

177 Eswab for the Collection of Clinical Specimens for the Detection of Bacterial Vaginosis with the *Affirm*™ VpIII Microbial Identification Assay
S. Castriciano[1], M. Favaro[2], A. Mauti[2], J. Dinetti[2], C. Fontana[2], C. Russo[3]; [1]Copan Italia, Brescia, ITALY, [2]Tor Vergata Univ., Rome, ITALY, [3]Bambin Jesu', Rome, ITALY.

178 Evaluation of Urine Collection Tubes for the Growth of Anaerobic Bacteria
K. M. McKinley, P. C. Schreckenberger; Loyola Univ. Med. Ctr., Maywood, IL.

179 Do Prior Antibiotics Affect Bacterial Recovery from Blood Culture Bottles?
R. Zadroga[1], R. Gottschall[2], D. N. Williams[2,1], V. Nordberg[2], G. Hansen[2,1]; [1]Univ. of Minnesota, Minneapolis, MN, [2]Hennepin County Med. Ctr., Minneapolis, MN.

180 Activating Effect of Metal Ions from Fluorinated Salts or Seawater Extract Associated with Antimicrobials Against Microbial Strains
J. Ramambason[1], C. Buisson[2], R. Morisset[3], M. Ravaoarinoro[4]; [1]St Geoges'Univ. Sch. of Med., Great River, NY, [2]Aromapharm Ireland Ltd, Dublin [2], IRELAND, [3]Univ. of Montreal, Montreal, QC, CANADA, [4]Univ. of Montreal, CRCHUM, Montreal, QC, CANADA.

021 Microbial Entry (Invasion or Internalization) and Survival within Host Cells I (Division D)

10:45 a.m. – 12:30 p.m.; Poster Hall

181 Caprylic Acid Decreases *Staphylococcus aureus* Internalization into Bovine Mammary Epithelial Cells and Modulates Innate Response Elements
N. Alva-Murillo, A. Ochoa-Zarzosa, J. E. López-Meza; Univ. Michoacana de San Nicolás de Hidalgo, Morelia, MEXICO.

182 Identification and Characterization of a Truncated and More Potent Zinc Metalloprotease, ZmpC, from *Streptococcus pneumoniae* that Cleaves MUC16 from Ocular Surface and Tracheal-Bronchial Epithelial Cells
B. B. Menon, B. Govindarajan, S. Spurr-Michaud, I. K. Gipson; Schepens Eye Res. Inst., Massachusetts Eye and Ear, Harvard Med. Sch., Boston, MA.

183 Cholecalciferol (Vitamin D) Inhibits *Staphylococcus aureus* Internalization into Bovine Mammary Epithelial Cells and Regulates Antimicrobial Peptide Expression
A. Ochoa-Zarzosa, A. D. Téllez-Pérez, N. Alva-Murillo, J. E. López-Meza; Univ. Michoacana de San Nicolás de Hidalgo, Morelia, MEXICO.

184 Inactivation of Rab5 During Interaction of Live *Pseudomonas aeruginosa* with Macrophages
S. mustafi, M-L. Veisaga, M. Barbieri; FIU, Miami, FL.

185 *Pseudomonas aeruginosa* Type 3 Secretion Promotes Bacterial Intracellular Survival within Epithelial Cells by Avoiding Acidified Compartments
S. R. Heimer[1,2], D. J. Evans[1,2], S. M. Fleiszig[1]; [1]Univ. of California, Berkeley, Sch. of Optometry, Berkeley, CA, [2]Touro Univ. California, Coll. of Pharmacy, Vallejo, CA.

186 Lipoxin A4 increases airway surface liquid height and delays the Invasion of Human Bronchial Epithelial and Human Cystic Fibrosis Bronchial Epithelial Cells by the pathogen *Pseudomonas aeruginosa*
G. J. Higgins[1,2], B. J. Harvey[2], P. McNally[1], V. Urbach[1]; [1]Natl. Children's Res. Ctr., Dublin, IRELAND, [2]Royal Coll. of Surgeons in Ireland, Dublin, IRELAND.

187 Long Chain Fatty Acids Modulate Expression of the *Salmonella* Pathogenicity Island 1 (SPI1) Type III Secretion System by Two Distinct Mechanisms
Y. A. Golubeva, J. R. Ellermeier, J. E. Cott Chubiz, J. M. Slauch; Univ. of Illinois at Urbana-Champaign, Urbana, IL.

188 *Mycobacterium avium* subspecies *paratuberculosis* Impairs Phagosome Trafficking in Human Monocytes
D. A. Keown[1], D. A. Collings[2], J. I. Keenan[1]; [1]Univ. of Otago Christchurch, Christchurch, NEW ZEALAND, [2]Univ. of Canterbury, Christchurch, NEW ZEALAND.

189 A Phospholipase C of *Listeria monocytogenes* Modulates the Innate Immune Response to Infection
B. S. Blank, A. Pavinski Bitar, L. A. Griggs, K. J. Maurer, H. Marquis; Cornell Univ., Ithaca, NY.

190 *Porphyromonas gingivalis* SerB Dephophorylates Cofilin and Modulates Invasion
C. Jauregui[1], H. Inaba[2], T. Hirano[1], R. Lamont[1]; [1]Univ. of Louisville, Louisville, KY, [2]Osaka Univ., Osaka, JAPAN.

191 Molecular Basis of the Neutrophil-Macrophage Cooperation During *Listeria monocytogenes* Infection
E. Arnett, S. Seveau; Ohio State Univ., Columbus, OH.

192 Gene Expression Changes of Human Coronary Artery Endothelial Cells in Response to *S. mutans* OMZ175 Invasion
E. M. Sampson, P. L. Phillips, M. C. Lopez, H. V. Baker, A. Progulske-Fox; Univ. of Florida, Gainesville, FL.

193 The Pore-Forming Toxin Listeriolysin O Stimulates the Internalization of L. monocytogenes into Non-Phagocytic Cells
S. Vadia, E. Arnett, S. Seveau; The Ohio State Univ., Columbus, OH.

194 Proteomic Analysis of Avian Pathogenic *Escherichia coli* Strain MT78 Isolated from Avian Fibroblasts CEC-32
R. S. Reis, F. Horn; Univ.e Federal do Rio Grande do Sul, Porto Alegre, BRAZIL.

195 Functional Genomics and Proteomics Reveal Novel Effector Proteins in *Chlamydia trachomatis* Elementary Bodies
J. D. Dunn, A. Saka, R. H. Valdivia; Duke Univ. Med. Ctr., Durham, NC.

196 *Clostridium difficile* Spore-Macrophage Interactions: Spore Survival
D. Paredes-Sabja[1], G. Cofre-Araneda[1], M. Pizarro-Guajardo[1], M. R. Sarker[2]; [1]Univ. Andres Bello, Santiago, CHILE, [2]Oregon State Univ., Corvallis, OR.

197 Involvement of T4SS Encoding Plasmids in the Virulence of S. enterica serovar Heidelberg
K. Gokulan, S. Khare, A. W. Rooney, J. Han, S. L. Foley; Food and Drug Adminstration, Jefferson, AR.

198 Dimer Interaction of SPI1 Regulators HilC, HilD, and RtsA
K. Narm, J. M. Slauch; Univ. of Illinois, Urbana-Champaign, Urbana, IL.

199 Intrinsic Defenses of Placental Trophoblasts Preventing Vertical Transmission of Intracellular Pathogens
H. A. Morrison, A. I. Bakardjiev; Univ. of California, San Francisco, San Francisco, CA.

200 Germination dependent egress of *Bacillus anthracis* from non-apoptotic host cells
B. Tamilselvam[1], A. T. Mariano[1], I. M. Gut[2], B. M. Cerk[1], S. R. Blanke[1]; [1]Univ. of Illinois, Urbana, IL, [2]USAMRICD, Aberdeen Proving Ground, MD.

201 DNA Supercoiling in *Campylobacter jejuni*: A Potential Trigger for Invasion
E. Scanlan[1], C. Shortt[1,2], B. Bourke[3,2], T. Ó Cróinín[1,2]; [1]Sch. of Biomolecular and BioMed. Sci., Univ. Coll. Dublin, Dublin, IRELAND, [2]The Childrens Res. Ctr., Our Lady's Hosp. for Sick Children Crumlin, IRELAND, [3]Sch. of Med. and Med. Sci., Univ. Coll. Dublin, Dublin, IRELAND.

202 *Brucella melitensis* Replicates Inside Human Monocytes in a MAP Kinase Dependent Manner
O. Dimitrakopoulos, K. Liopeta, G. Dimitracopoulos, F. Paliogianni; Univ. of Patras Med. Sch., Dept. of Microbiol., Patras, GREECE.

203 Early Transcriptional Responses of Human Intestinal Epithelial (Caco-2) Cells to the Spores of Avirulent Strain of *Bacillus anthracis*
S. A. Khan[1], K. Sung[1], T. Han[1], J. C. Fuscoe[1], M. S. Nawaz[1], S. R. Khan[2], M. A. Khan[2]; [1]Natl. Ctr. for Toxicological Res., Jefferson, AR, [2]Ctr. for Drug Evaluation and Res., Silver Springs, MD.

204 Genes Encoding a Predicted Modification System for Membrane Lipids Contribute to Pathogenesis of *Brucella melitensis*
T. Kerrinnes, C. M. Roux, V. Atluri, R. M. Tsolis; UC Davis, Sch. of Med., Dept. of Med. Microbiol. and Immunology, Davis, CA.

205 Characterization of FipB, an Essential *Francisella tularensis* Virulence Protein
B. J. Mann, M. M. Rabideau, E. A. Moore, A. Qin; Univ. of Virginia, Charlottesville, VA.

206 *Campylobacter fetus* Interactions with Human Placental Trophoblast Cells
L. L. Graham; St. Francis Xavier Univ., Antigonish, NS, CANADA.

207 Hek Promotes *E. coli* K1 Invasion Of HBMEC Through Interaction With Annexin A2
S-M. Kim, J-H. Song, C. Wong, **K. J. Kim**; Univ. of Kansas Med. Ctr., Kansas City, KS.

208 Pregnancy Outcome in a Stress Mouse Model during *Chlamydia trachomatis* Genital Infection
T. Belay; Bluefield State Coll., Bluefield, WV.

209 Humanized Mouse Model of Tick-transmitted *Rickettsia rickettsii* Infection
B. Teixeira, Y. Goez-Revillas, M. Gazi, E. C. Gomez, C. Sanchez, M. A. Cespedes, T. Saito, S. Thangamani, G. Valbuena; Univ. of Texas Med. Branch, Galveston, TX.

022 Gene Expression I (Division H)

10:45 a.m. – 12:30 p.m.; Poster Hall

210 *In Vivo* Analysis of the RNA Chaperone, Hfq, Reveals Flexibility in Pathways of Riboregulation in *Escherichia coli*
D. J. Schu, S. Gottesman; NIH/NCI, Bethesda, MD.

211 Overexpression of an Antisense RNA ArrS Enhances Processing of a g*adE* mRNA and Acid Resistance in *Escherichia coli*
T. Aiso, S. Gamou; Dept. of Molecular Biology, Faculty of Hlth.Sci., Kyorin Univ., Tokyo, JAPAN.

212 A cis-encoded Antisense Small RNA Encoded by the 5'-ureB Noncoding Strand, 5'ureB-sRNA, Negatively Regulates ureAB Expression in *Helicobacter pylori* by Transcription Termination
Y. Wen[1,2], J. Feng[1,2], G. Sachs[1,2]; [1]David Geffen Sch. of Med. at UCLA, Los Angeles, CA, [2]VA Greater Los Angeles Hlth.care System, CA.

213 Using High-Throughput Technologies to Decipher Translation Efficiency Determinants in *E. coli*
G. Cambray, J. Guimaraes, A. P. Arkin; UC Berkeley, Berkeley, CA.

214 The 3' Regions of Protein-Coding Genes Constitute a Source of *Trans*-acting Small RNAs
Y. Chao[1], C. M. Sharma[2], K. Papenfort[1], R. Reinhardt[3], J. Vogel[1]; [1]Inst. of Molecular Infection Biology (IMIB), Univ. of Würzburg, Würzburg, GERMANY, [2]Res. Ctr. for Infection Diseases (ZINF), Univ. of Würzburg, Würzburg, GERMANY, [3]Max Planck Genome Ctr. Cologne, Max Planck Inst. for Plant Breeding Res., Cologne, GERMANY.

215 ElaA is a DNA Gyrase Inhibitor and Forms a Toxin-Antitoxin Pair with ElaB in *Escherichia coli*
X. Wang[1], T. K. Wood[2]; [1]The South China Sea Inst. of Oceanology, CAS, Guangzhou, CHINA, [2]Pennsylvania State Univ., University Park, PA.

216 Enantioselective Synthesis of (S)-phenylephrine by Recombinant *Escherichia coli* Cells Expressing the Short-chain Dehydrogenase/reductase Gene from *Serratia quinivorans* BCRC14811
G-J. Peng, Y-C. Cho, T-K. Fu, W-H. Hsu; Natl. Chung Hsing Univ., Taichung, TAIWAN.

217 Dual Regulation of Mannitol Transporter Synthesis in *Vibrio cholerae*
R. Scheffler, R. Mistry, J. M. Liu; Drew Univ., Madison, NJ.

218 YqjH from *E. coli*—A Novel Role in Intracellular Iron Recycling?
H. A. Goodluck, M. Armour, V. A. Bamford, S. A. Mitchell, K. A. Watson, S. C. Andrews; Univ. of Reading, Reading, Berkshire UK, UNITED KINGDOM.

219 Development of Polycistronic Heterologous Gene Expression System by 2A Peptide-mediated Cleavage in Enoki Mushroom *Flammulina Velupties*
Y-J. Lin, C-T. Huang; Natl. Taiwan Univ., Taipei, TAIWAN.

220 Levels of Germination Proteins in Dormant and Superdormant Spores of *Bacillus subtilis*
S. Ghosh, M. Scotland, P. Setlow; Univ. of Connecticut Hlth.Ctr., Farmington, CT.

221 Upregulation of RpoH Expression Due to Oxidative Stress in *RhodoPseudomonas palustris*
S. N. Martinez, M. S. Allen; Univ. or North Texas, Denton, TX.

222 Activation of Sigma G During Formation of Spores by *Bacillus subtilis* Depends on Completion of Engulfment, Which Follows Translocation of the Chromosome into the Prespore
G. V. Regan, P. J. Piggot; Temple Univ., Sch. of Med., Philadelphia, PA.

223 Expanding the Direct HetR Regulon in *Anabaena sp.* strain PCC 7120
P. Videau[1], E. A. Feldmann[2], M. A. Kennedy[2], S. M. Callahan[1]; [1]Univ. of Hawaii at Manoa, Honolulu, HI, [2]Miami Univ., Oxford, OH.

224 Codon Optimization for the Expression of Influenza A Virus Nucleocapsid and Ectodomain Matrix2 Gene, and Hepatitis B Virus Core Gene in *LactoBacillus* casei EM116
M. Panya[1], M. A. Alvarez[2], N. Suebwongsa[1], P. Yotpanya[1], W. Namwat[1], V. Lulitanond[1]; [1]Khon Kaen Univ., Khon Kaen, THAILAND, [2]Inst. de Productos Lacteos de Austurias, Villaviciosa, SPAIN.

225 The Mechanism by Which the F-P Motif Regulates ATPase activity of the Yeast DExD-box Protein Prp5
R. C. Brooks, S. W. Ruby, R. L. Otero; The Univ. of New Mexico, Albuquerque, NM.

226 Effects of Overexpression of Germinant Receptors on *Bacillus subtilis* Spore Germination Rates and Germination Protein Levels
K-A. V. Stewart, X. Yi, S. Ghosh, P. Setlow; Univ. of Connecticut Hlth. Ctr., Farmington, CT.

227 Expression of the *Vibrio vulnificus ptsH-I-crr* Operon Is Independent of Mlc But Negatively Regulated by CRP and Fur
J-A. Kim[1], S-J. Chun[2], K-J. Lee[1], M-A. Lee[2], K-H. Lee[1]; [1]Sogang Univ., Seoul, KOREA, REPUBLIC OF, [2]Hankuk Univ. Foreign Studies, Yongin-si, KOREA, REPUBLIC OF.

228 Controlled Induction of Protein Expression Improves Internalization of *Escherichia coli* Into Mammalian Cells During Bactofection
Q. Chen[1], S. C. Chow[1], K. Narayanan[1,2]; [1]Monash Univ., Bandar Sunway, MALAYSIA, [2]Mount Sinai Sch. of Med., NY.

229 Rapid, Simultaneous, and Quantitative Detection of 35 Pathogens and Host Response Markers *Via* Transcriptional Profiling
M. Rosa[1], S. Mohammadi[1], A. Rosa[1], K. Schreiber[1], M. Elsheikh[1], A. C. Carrillo[1], S. Gardner[1], C. Chiu[2], D. Beasley[3], A. Freiberg[3], P. Naraghi-Arani[1]; [1]Lawrence Livermore Natl. Lab., Livermore, CA, [2]Univ. of California San Francisco, San Francisco, CA, [3]Galveston Natl. Lab. Core, Galveston, TX.

230 Global Transcriptional Regulation by Nitric Oxide Sensing Regulator, NsrR under Anaerobic Conditions in *Bacillus subtilis*
S. Kommineni, M. M. Nakano; Oregon Hlth.and Sci. Univ., Beaverton, OR.

231 Crystal Protein Gene cry5ba Silencing Is Determined by a sRNA Coding Sequence in *Bacillus thuringiensis* Strain YBT-1518
X. Luo, D. Peng, S. Guo, J. Zheng, L. Ruan, M. Sun; Huazhong Agricultural Univ., Wuhan, CHINA.

232 Identification and Characterization of Genes Regulated by Quorum Sensing in *Acinetobacter oleivorans* DR1
J. Kim, W. Park; Korea Univ., KOREA, REPUBLIC OF.

233 Expression of MtlS sRNA Negatively Affects MtlA Protein Synthesis in *Vibrio cholerae*
S. Aksit[1], R. Scheffler[1], L. Mustachio[2], J. M. Liu[1]; [1]Drew Univ., Madison, NJ, [2]Dartmouth Med. Sch., Hanover, NH.

234 Impact of Chromosomal Inversions on Co-expressed Gene Clusters
S. Naseeb, D. Delneri; Univ. of Manchester, Manchester, UNITED KINGDOM.

235 A Role for the Signal Recognition Particle in Controlling the Heat Shock Response in "*E. coli*"
B. Lim, T. Yura, C. A. Gross; Univ. of California San Francisco, San Francisco, CA.

023 Microbial Development, Behavior, Chemotaxis and Motility (Division I)

10:45 a.m. – 12:30 p.m.; Poster Hall

236 Increased Respiration During Aminoglycoside Exposure as a Predictor of Biofilm Recovery
L. M. Jackson, O. Kroukamp, G. Wolfaardt; Ryerson Univ., Toronto, ON, CANADA.

237 Cross-species LuxR Activation of Lux Genes in an Arabinose-inducible *E. coli* Expression System
A. Wannamaker, C. F. Wimpee; Univ. of Wisconsin-Milwaukee, Milwaukee, WI.

238 Measuring *E. coli* Chemotactic Behavior at the Single-Cell Level to Evaluate the Consequences of Phenotypic Diversity on Population Performance
Y. S. Dufour, N. W. Frankel, M. W. Sneddon, W. Pontius, T. Emonet; Yale Univ., New Haven, CT.

239 Creating Synchronized Multicellular Patterns with a Pacemaker
D. Kaiser; Stanford Univ., Stanford, CA.

240 *Salmonella enterica* Serovar Typhimurium Energy Taxis During Growth in the Inflamed Intestine
F. Rivera-Chavez, S. E. Winter, C. A. Lopez, M. N. Xavier, M. G. Winter, R. M. Tsolis, A. J. Bäumler; Univ. of California, Davis, Davis, CA.

241 Effects of Flagellum Structural Genes on Transcription of Flagellar Genes in *Helicobacter pylori*
J. Tsang, T. Hoover; Univ. of Georgia, Athens, GA.

242 Analysis of the Effects of the Major Components of Bovine Milk on Induction of Sliding Motility in *Bacillus cereus*
K. E. Zeigler, L. E. Avery, L. R. Aaronson; Utica Coll., Utica, NY.

243 Genetic Characterization of a Novel Type of Bacterial Cluster Formation
R. Tecon[1,2], J. H. J. Leveau[2,1]; [1]Netherlands Inst. of Ecology (NIOO-KNAW), Wageningen, NETHERLANDS, [2]Univ. of California, Davis, CA.

244 A Transcriptional Analysis of Predatory Gene Expression in *Bdellovibrio bacteriovorus*
L. N. Lupey, L. J. Bentson, J. J. Tudor; Saint Joseph's Univ., Philadelphia, PA.

245 Characterization of SNPs in the Frz Chemosensory System Affecting Predation by *Myxococcus xanthus*
K. R. Hummels, J. R. Kirby; Univ. of Iowa, Iowa City, IA.

246 Extracellular ATP Acts as a Signal Molecule to Regulate Bacterial Biofilm Formation
J. Wu, D. Dai, C. Xi; Univ. of Michigan Sch. of Publ. Hlth., Ann Arbor, MI.

247 Modeling Emergent Behaviors due to the Phototactic Response in Synechocystis Sp. PCC6803
R. Chau[1], T. Ursell[1], S. Wisen[2], D. Bhaya[2], K. Huang[1]; [1]Stanford Univ., Stanford, CA, [2]Dept. of Plant Biology, Carnegie Inst. of Sci., Stanford, CA.

248 Streptomyces Phosphodiesterases Regulate Colony Development and Biofilm Formation
R. M. Geiger[1], N. Klena[2], J. A. Bennett[1]; [1]Otterbein Univ., Westerville, OH, [2]Juniata Coll., Huntingdon, PA.

249 Milk-Induced Sliding of *Bacillus cereus* is not Due to Nutrient Starvation
L. E. Avery, J. McCorry, K. E. Zeigler, V. Bruns, L. R. Aaronson; Utica Coll., Utica, NY.

250 The McpS Chemoreceptor Contains Two Distinct Chemoattractant Binding Sites Present on Two Sensor Modules:Ligand Binding to Each Site Causes Chemotaxis
J. A. Reyes-Darias[1], E. Pineda-Molina[2], J. Lacal[1], J. Ramos[1], J. Garcia-Ruiz[2], J. A. Gavira[2], T. Krell[1]; [1]Estación Experimental del Zaidín-CSIC, Granada, SPAIN, [2]Laboratorio de Estudios Cristalográficos-CSIC, Granada, SPAIN.

251 Antibiotics Can Influence Biofilm Formation by Otitis Media Pathogens
K. R. Maguire, S. Wu, P. Webster; House Res. Inst., Los Angeles, CA.

252 Chain Length Control During Competence Development in *Streptococcus* Mitis
H. Rukke; Dept. of Oral Biology, Univ. of Oslo, Oslo, NORWAY.

253 Binding Affinities of PilZ Domain Proteins for c-di-GMP Affect their Biological Phenotype, and May Play a Role in c-di-GMP Signaling Specificity, in *Salmonella* Typhimurium
I. S. Pultz, M. Christen, H. D. Kulasekara, A. Kennard, S. I. Miller; Univ. of Washington, Seattle, WA.

254 Reprogramming *Salmonella* Chemotaxis System by Rhamnose-Regulating and/or Constitutive Up-regulating Synthesis of Their Chemoreceptors for Therapeutic Use
W. Kong, M. Brovold, J. Tully, L. Benson, R. Curtiss III; CIDV, the Biodesign Inst., ASU, Tempe, AZ.

255 Transient Characteristics in Photophobic Reactions of *Euglena gracilis*
K. Ozasa[1], J. Lee[2], S. Song[2], M. Hara[1], M. Maeda[1]; [1]RIKEN Advanced Res. Inst., Saitama, JAPAN, [2]Hanyang Univ., Seoul, KOREA, REPUBLIC OF.

256 The Contributions of Motility to *Pseudomonas syringae* Behavior on Plants
J. K. Cho, S. Lindow; Univ. of California-Berkeley, Berkeley, CA.

257 High-throughput Screening to Identify Compounds that Inhibit *Bacillus subtilis* Sporulation
D. W. Hilbert[1], I. L. Stroke[2], T. E. Miller[1], J. J. Letourneau[2], E. Mordechai[1], M. E. Adelson[1], S. E. Gygax[1]; [1]Med. Diagnostic Lab., Hamilton, NJ, [2]Venenum Biodesign, Hamilton, NJ.

258 Characterizing Phototaxis of Thermophilic *Synechococcus* sp
E. Sedivy[1], R. Chau[2], A. Grote[1], D. Bhaya[1]; [1]Carnegie Insitution, Stanford, CA, [2]Stanford Univ., Stanford, CA.

259 The *Helicobacter pylori* CheV Chemotaxis Signaling Proteins do not have a Chemoreceptor Preference for Polar Localization
J. Castellon, P. Lertsethtakarn, K. M. Ottemann; Univ. of California Santa Cruz, Santa Cruz, CA.

260 Development of a High Throughput Microfluidics Chemotaxis Assay
E. G. Sweeney[1], S. F. Sweeney[2], C. Wreden[1], R. Parthasarathy[3], K. Guillemin[1]; [1]Univ. of Oregon, Inst. of Molecular Biology, Eugene, OR, [2]Life Technologies, Eugene, OR, [3]Univ. of Oregon, Dept. of Physics, Eugene, OR.

024 Unusual Microorganisms /Unusual Environments (Division I)

10:45 a.m. – 12:30 p.m.; Poster Hall

261 Survival of Cryptoendolithic Fungi Following Long-Term Exposure to Simulated Martian Conditions in Space
G. Scalzi[1], L. Selbmann[1], L. Zucconi[1], E. Rabbow[2], G. Horneck[2], M. T. La Duc[3], S. Onofri[1]; [1]Univ. of Tuscia, Dept. of Ecological and Biological Sci., Viterbo, ITALY, [2]German Aerospace Ctr., Inst. of Aerospace Med., Cologne, GERMANY, [3]Jet Propulsion Lab., California Inst. of Technology, Pasadena, CA.

262 Characterization of a Novel *Marinobacter* and a Related Phage Isolated from the Great Salt Lake, Utah
T. B. Simon, C. J. Oberg, M. D. Culumber, M. J. Domek; Weber State Univ., Ogden, UT.

263 Isolating and Identifying Thermophilic Bacteria and Their Products from Soil Samples Collected in Centralia, Pennsylvania
C. Dubie; Susquehanna Univ., Selinsgrove, PA.

264 Low Pressure Induction of the General Stress Response (GSR) in *Bacillus subtilis*
WITHDRAWN

265 Searching for *crp*: Investigating Candidate Genes for the cAMP Receptor Protein in *Bdellovibrio bacteriovorus*
K. Schmidt, M. O. Martin; Univ. of Puget Sound, Tacoma, WA.

266 Genomic Analysis of Two Novel *Idiomarina* Bacteriophage Isolated from the Great Salt Lake, Utah
M. Culumber, M. J. Domek, C. M. Benson, C. J. Oberg; Weber State Univ., Ogden, UT.

267 Isolation and Characterization of a Dominant Primary Producer from a Hot Acidic Lake in Lassen Volcanic National Park (California, USA)
F. Arroyo[1], J. Schultz[1], J. Hampton[2], M. S. Wilson[1], P. L. Siering[1]; [1]Humboldt State Univ., Arcata, CA, [2]Univ. of Oregon, Eugene, OR.

268 Isolation and Identification of a Novel *Bacillus* Species from an Oligotrophic Cave Environment
G. M. Namba[1], J. Cisneros[1], T. Salmassi[1], K. Venkateswaran[2], H. Barton[3], P. Vaishampayan[2]; [1]Cal State Univ. Los Angeles, Los Angeles, CA, [2]Jet Propulsion Lab., Pasadena, CA, [3]Northern Kentucky Univ., Highland Heights, KY.

269 *PaeniBacillus xerothermodurans* ATCC27380T, a Novel Extreme Dry Heat Resistant Strain Isolated from Soil Samples from Kennedy Space Center, Florida
J. E. Cisneros[1], G. Namba[1], T. Salmassi[1], W. Schubert[2], K. Venkateswaran[2], P. Vaishampayan[2]; [1]California State Univ. Los Angeles, Los Angeles, CA, [2]Jet Propulsion Lab., Pasadena, CA.

270 The Effect of Sample Depth on Nutrient and Microbial Profiles in Swine Manure Pits
J. Rehberger[1], T. Parrott[2], A. Veldkamp[2], E. Davis[1], D. Petri[1]; [1]Animal & Environmental Applications, DuPont Nutrition & Hlth., Waukesha, WI, [2]Danisco Animal Nutrition, DuPont Industrial BioSci.s, St. Louis, MO.

271 Methane Production by Methanogens in the Presence of Mars Regolith Analogs
B. K. Chastain[1], T. A. KRAL[2]; [1]West Kentucky Community & Technical Coll., Paducah, KY, [2]Univ. of Arkansas, FAYETTEVILLE, AR.

272 Assessment of *Bacillus* horneckiae Spore Survival under Simulated Space ISS Conditions
J. E. Krebs[1], M. Schrader[1], E. Rabbow[2], P. Rettberg[3], P. Vaishampayan[1], K. Venkateswaran[1]; [1]Jet Propulstion Lab., Pasadena, CA, [2]DLR-Inst. for Aerospace Med., Linder Höhe, GERMANY, [3]DLR- Inst. for Aerospace Med., Linder Höhe, GERMANY.

025 Cell-Cell Communication (Division K)

10:45 a.m. – 12:30 p.m.; Poster Hall

273 The RND-Type Multidrug Efflux System MexAB-OprM of *Pseudomonas aeruginosa* Selects Bacterial Languages, [3]-Oxo-Acyl-Homoserine Lactones, for Cell-to-Cell Communication
S. Minagawa[1], H. Inami[1], T. Kato[1], S. Sawada[1], T. Yasuki[1], S. Miyairi[2], M. Horikawa[3], J. Okuda[1], N. Gotoh[1]; [1]Dept. of Microbiol. and Infection Control Sci., Kyoto Pharmaceutical Univ., Kyoto, JAPAN, [2]Lab. of Organic Chemistry, Sch. of Pharmacy, Nihon Univ., JAPAN, [3]Suntory Fndn. for Life Sci., Bioorganic Res. Inst., JAPAN.

274 Cranberry-Derived Materials Modulate Quorum Sensing in *Pseudomonas aeruginosa*
H. Lam, C. O'May, N. Tufenkji; McGill Univ., Montreal, QC, CANADA.

275 A Small-Molecule Inhibitor Binding to *SmcR*, a Quorum Sensing Master Regulator of *Vibrio vulnificus*
B. Kim[1], J. Hwang[2], W-B. Kim[3], Y. Koo[4], M. Kim[2], D. Lim[4], S. Choi[1]; [1]Seoul Natl. Univ., Seoul, KOREA, REPUBLIC OF, [2]Korea Res. Inst. of BioSci. and Biotechnology, Daejeon, KOREA, REPUBLIC OF, [3]Univ. of Illinois, Urbana-Champaign, IL, [4]Sejong Univ., Seoul, KOREA, REPUBLIC OF.

276 Degradation of the Pneumococcal Competence-Stimulating Peptide by the HtrA Protease
M. Cassone[1], M. E. Sebert[1,2]; [1]Children's Hosp. of Philadelphia, Philadelphia, PA, [2]Univ. of Pennsylvania, Philadelphia, PA.

277 Synthesis of the *Burkholderia cenocepacia* BDSF Quorum Sensing Molecule by an Enoyl-CoA Hydratase (Crotonase) Homologue Having Both Dehydratase and Thioesterase Activities
H. Bi, J. E. Cronan; Univ. of Illinois, Urbana, IL.

278 Identification of a Mutant of *Sphingomonas* sp. EPA 505 Strain Altered in Quorum-Sensing Signal Production at Different Growth Phases
N. Abd Aziz, A. O. Hudson, M. A. Savka; Rochester Inst. of Technology, Rochester, NY.

279 The Lsr Mechanism for Quenching AI-2-mediated Interspecies Communication
J. C. Marques[1,2], P. Lamosa[3], D. Ly[4], R. Alfaro-Aco[4], R. Ventura[3], S. T. Miller[4], K. B. Xavier[1,3]; [1]Inst. Gulbenkian de Ciencia, Oeiras, PORTUGAL, [2]Champalimaud Ctr. for the Unknown, Lisboa, PORTUGAL, [3]Inst. de Tecnologia Química e Biológica, Oeiras, PORTUGAL, [4]Swarthmore Coll., Swarthmore, PA.

280 The Hot Spring Phototrophic Mat: A Model for Studying Microbial Community Interactions
M. Bergkessel, D. Bhaya; Carnegie Inst. for Sci., Stanford, CA.

281 Complete Transcriptome Profile: Analysis of the CSP and XIP Signaling Pathways in *Streptococcus mutans* UA159
F. C. Petersen[1], H. V. Rukke[1], H. Høvik[1], T. Chen[2]; [1]Univ. of Oslo, Oslo, NORWAY, [2]The Forsyth Inst., MA.

282 Quorum Sensing Regulates Oxalate Biosynthesis in *Burkholderia glumae*
E. Goo, J. An, H. Ham, I. Hwang; Seoul Natl. Univ., Seoul, KOREA, REPUBLIC OF.

283 LuxR Transcriptional Control of Quorum Sensing in *Vibrio harveyi*
J. C. van Kessel, B. L. Bassler; Princeton Univ., Princeton, NJ.

284 Characterizing the CqsAS Quorum-Sensing Specificity in Photobacterium angustum
X. Ke, B. Bassler; Princeton Univ., Princeton, NJ.

285 AHL Mediated Quorum Sensing in *Phaeobacter gallaeciensis*
P. G. Beyersmann[1], M. Berger[1], J. Tomasch[2], I. Wagner-Döbler[2], M. Simon[1], T. Brinkhoff[1]; [1]Inst. for Chemistry and Biology of the Marine Environment (ICBM), Univ. of Oldenburg, GERMANY, [2]Helmholtz Ctr. for Infection Res. Braunschweig, GERMANY.

286 Inhibition of Quorum Sensing in *Acinetobacter baumannii* by Streptomcyin
S. D. Saroj[1], P. N. Rather[1,2]; [1]Dept. of Microbiol. and Immunology, Emory Univ. Sch. of Med., Atlanta, GA, [2]VA Med. Ctr., Decatur, GA.

287 Modulation of the Activity of the LasR Quorum-Sensing Regulator *Via* Small Molecule Inhibitors
C. T. O'Loughlin[1], L. C. Miller[1], M. F. Semmelhack[1], B. L. Bassler[2]; [1]Princeton Univ., Princeton, NJ, [2]HHMI/Princeton Univ., Princeton, NJ.

288 *Pseudomonas aeruginosa* Strains PAO1 and PA14 Show Unique Swarming Patterns and Ability to Stimulate Biofilm Growth
J. D. Gruber, S. Abdel-Samie, Y-M. Zhang; Med. Univ. of South Carolina, Charleston, SC.

289 Cyclic-Phenylalanine-Proline Effect on Growth and Bioluminescence of *Vibrio harveyi*
B. Milburn, J. C. Makemson; Florida Intl. Univ., Miami, FL.

290 Competence Regulation by the XIP Pheromone in *Streptococcus mutans*
Q. Guo, S-J. Ahn, R. A. Burne; Univ. of Florida Coll. of Dentistry, Gainesville, FL.

291 Role and Regulation of AphA in *Vibrio harveyi* Quorum Sensing
S. T. Rutherford[1], J. C. van Kessel[1], Y. Shao[1], A. F. Utria[1], B. L. Bassler[2]; [1]Princeton Univ., Princeton, NJ, [2]HHMI/Princeton Univ., Princeton, NJ.

292 Quorum Sensing-Induced Cell Death in *Streptococcus* mutans Occurs *Via* a Conserved Streptococcal Autolysin
D. Dufour, C. M. Levesque; Univ. of Toronto, Toronto, ON, CANADA.

293 Proteomics Approach: Characterization of Membrane Binding Proteins to Signal Molecules related Quorum Sensing of E.coil SE15 Isolated from Indwelling CA-UTI Patients
S-R. Kang[1], E-M. Park[1], Y-H. Cho[2], J-Y. Lee[2], K-R. Peck[3], S-J. Lee[2], S-S. Lee[1]; [1]Kyonggi Univ., Suwon, KOREA, REPUBLIC OF, [2]Catholic Univ., KOREA, REPUBLIC OF, [3]Sungkyunkwan Univ., KOREA, REPUBLIC OF.

294 Quorum-Sensing Small RNAs Regulate Multiple Targets in *Vibrio harveyi*
Y. Shao, L. Feng, B. L. Bassler; Princeton Univ., Princeton, NJ.

295 Function and Specificity of Small Regulatory RNAs in Quorum Sensing
L. Feng, N. Wingreen, B. Bassler; Princeton Univ., Princeton, NJ.

026 Phage-Phage, Phage-host Interactions, and Pathogenesis (Division M)

10:45 a.m. – 12:30 p.m.; Poster Hall

296 Poison Provided by the Enemies: Identification of Mycobacteriphage-encoded Cytotoxins for *Mycobacterium*
C-C. Ko[1], R. M. Dedrick[1], K. F. Mitchell[2], G. F. Hatfull[1]; [1]Univ. of Pittsburgh, Pittsburgh, PA, [2]Univ. of Wisconsin, Madison, WI.

297 Identification of Cytotoxic Mycobacteriophage Genes
J. Stukey, D. Goodman, E. Cox, M. Mihreteab, D. Silletti, V. M. McDonough; Hope Coll., Holland, MI.

298 A Novel Mobile CRISPR-Cas in *Lactococcus lactis*
A. M. Millen[1], P. Horvath[2], M. Charron[2], P. Boyaval[2], D. A. Romero[1]; [1]DuPont Danisco, Madison, WI, [2]DuPont Danisco, Dangé-Saint-Romain, FRANCE.

299 Analysis of Bacteriophages, Prophages and CRISPRs in Hot Spring Microbial Mat Communities
M. Davison[1,2], T. Treangen[3], S. Gosrani[4], M. Pop[5], D. Bhaya[1,2]; [1]Stanford Univ., Stanford, CA, [2]Carnegie Inst. for Sci., Dept. of Plant Biology, Stanford, CA, [3]Johns Hopkins Sch. of Med., Baltimore, MD, [4]San Jose State Univ., San Jose, CA, [5]Univ. of Maryland, Maryland, MD.

300 Bacteriophage N4 Gp6 is an Inhibitor of *Escherichia coli* Cell Division
N. Khuong, S. Yano, L. Rothman-Denes; The Univ. of Chicago, Chicago, IL.

301 Regulation of SaPI1 Helper Phage Exploitation Genes
K. D. Lane, M. D. Harwich, G. E. Christie; Virginia Commonwealth Univ. Sch. of Med., Richmond, VA.

302 SaPI-mediated Helper Phage Interference Results in the Enhancement of Host Cell Survival
G. Ram, R. P. Novick; Skirball Inst. of Biomolecular Med., NYU Med. Ctr., New York, NY.

303 Host Metabolic Interaction During Viral Infection: A Model of Bacteriophage T7 in *E. coli*
E. W. Birch, N. Ruggero, M. W. Covert; Stanford Univ., Stanford, CA.

304 The Temperate Phage MM1 Affects Pneumococcal Colonization
H. DeBardeleben, E. Lysenko, J. Weiser; Univ. of Pennsylvania, Philadelphia, PA.

305 Characterization and Genomic Analysis of a Bacteriophage Specific for *Bacillus cereus*
M. Kong, S. Ryu; Seoul Natl. Univ., Seoul, KOREA, REPUBLIC OF.

306 Responses of Bacteriophages and Bacteriovorax to a Common Prey Bacterium, *Vibrio vulnificus*
H. CHEN[1], J. Martin[2], P. A. Gulig[2], H. N. Williams[1]; [1]Florida A&M Univ., Tallahassee, FL, [2]Univ. of Florida, Gainesville, FL.

307 Phase-variable Glucosylation of LPS Confer Transient Phage-Resistance to *Salmonella enterica* serovar Typhimurium
M. Kim, H. Yoon, S. Ryu; Seoul Natl. Univ., Seoul, KOREA, REPUBLIC OF.

308 Tectivirus Preying on the *Bacillus cereus* Group: Diversity, Phage-Host Interactions and Beyond
A. Gillis, J. Mahillon; Université catholique de Louvain, Louvain-la-Neuve, BELGIUM.

309 Prophages Impart a Variety of Profound Alterations in the Behavior of *Pseudomonas aeruginosa*
J. Bondy-Denomy[1,2], A. Pawluk[1], V. Cattoir[2], K. Maxwell[1], L. Burrows[3], S. Lory[2], A. Davidson[1]; [1]Univ. of Toronto, Toronto, ON, CANADA, [2]Harvard Med. Sch., Boston, MA, [3]McMaster Univ., Hamilton, ON, CANADA.

310 Hitchhiker Phage of *Salinivibrio costicola* Isolated from the Great Salt Lake
T. J. Mclean, M. J. Domek; Weber State Univ., Ogden, UT.

311 Effect of Nanoparticles on Viral/Host Cell Interactions
M. Pedulla[1], J. Voyich[2], A. Nickel[1], S. Riley[1], O. Zurek[2], M. McAlpine[2], R. Kasinath[1]; [1]Montana Tech of the Univ. of Montana, Butte, MT, [2]Montana State Univ., Bozeman, MT.

027 Soil, Sediment and Subsurface Microbiology I (Division N)

10:45 a.m. – 12:30 p.m.; Poster Hall

312 Production of Viral Like Particles Following the Stimulation of Heterotrophic Nitrate Reduction in Continental, Shallow Subsurface Sediment
D. Pan, Z. Tan, O. Healy, D. D. Snow, K. A. Weber; Univ. of Nebraska Lincoln, Lincoln, NE.

313 Impacts of Phage Predation on Microbial Dynamics within Temperate Soil Ecosystems
K. R. Helsley, K. E. Williamson; Coll. of William and Mary, Williamsburg, VA.

314 Microbial Content of Manufactured Soils: 9 years of Study
M. V. Kalevitch[1], V. I. Kefeli[2]; [1]Robert Morris Univ., Moon Township, PA, [2]Biomost, Inc, Cranberry Township, PA.

315 Pyrosequencing Analysis of Nitrite Reductase Genes (nirK) for Soil Nitrifying Microbial Communities in Response to Elevated CO2
X. Lu[1,2], F. Liu[1], L. Wu[1], Z. He[1], J. D. Van Nostrand[1], J. Zhou[1]; [1]Inst. for Environmental Genomics and Dept. of Botany and Microbiol., Univ. of Oklahoma, Norman, OK, [2]Inst. of Plant Protection, Chinese Academy of Agricultural Sci., Beijing, CHINA.

316 Geochemistry and Diversity of Bacterial Populations in Uranium-Contaminated Groundwater
M. T. Flood, D. Frabutt, D. Floyd, S. M. Tiquia; Univ. of Michigan-Dearborn, Dearborn, MI.

317 Perturbation of Microbial Genes by Livestock Grazing
Y. Yang[1], L. Wu[1], Q. Lin[2,3], D. Xu[4,1], M. Yuan[4,1], H. Yu[4,5,6], Y. Hu[2], J. Duan[2], X. Li[7], Z. He[4], J. Van Nostrand[4], K. Xue[4], T. Yuan[4], S. Wang[2,3], J. Zhou[4,1,8]; [1]Tsinghua Univ., Beijing, CHINA, [2]Northwest Inst. of Plateau Biology, Chinese Academy of Sci., Xining, CHINA, [3]Inst. of Tibetan Plateau Res., Chinese Academy of Sci., Beijing, CHINA, [4]Univ. of Oklahoma, Norman, OK, [5]Liaoning Technical Univ., Shenyang, CHINA, [6]Harbin Inst. of Technology, Harbin, CHINA, [7]Chengdu Inst. of Biology, Chinese Academy of Sci., Chengdu, CHINA, [8]Earth Sci. Div., Lawrence Berkeley Natl. Lab., Berkley, CA.

318 Utilization of a Model Soil Bacterium, *Arthrobacter chlorophenolicus*, to Develop an "Omics" Approach for Assessing Microbial Cycling of Carbon in a Prairie Ecosystem
M. M. David[1], L. Zeglin[2], E. Prestat[1], R. Koutsouri[3], P. Bottomley[2], R. Hettich[4], K. Corrier[4], A. Jumponen[5], K. Mavromatis[6], C. Rice[5], M. Shah[4], S. Tringe[6], S. Lindow[3], N. VerBerkmoes[4], D. Myrold[2], J. K. Jansson[1,6]; [1]Lawrence Berkeley Natl. Lab., Berkeley, CA, [2]Oregon State Univ., Corvallis, OR, [3]Univ. of California, Berkeley, CA, [4]Oak Ridge Natl. Lab, Oak Ridge, TN, [5]Kansas State Univ., Manhattan, KS, [6]Joint Genome Inst., Walnut Creek, CA.

319 Not Just a Dormant Spore: *Bacillus anthracis* in the Environment
H. H. Ganz[1,2], M. Kusters[3], T. Torok[4], E. L. Brodie[4], W. M. Getz[2,5]; [1]Univ. of California, Davis, CA, [2]Univ. of California, Berkeley, CA, [3]Etosha Ecological Inst., Okaukeujo, NAMIBIA, [4]Lawrence Berkeley Natl. Lab., Berkeley, CA, [5]Univ. of KwaZulu-Natal, Durban, SOUTH AFRICA.

320 The NEON Soil Microbial Ecology Prototype
J. Parnell[1], R. Gallery[2], G. Caporaso[3], K. Docherty[4]; [1]NEON, Inc., Boulder, CO, [2]Univ. of Arizona, AZ, [3]Northern Arizona Univ., AZ, [4]Western Michigan Univ., MI.

321 Microbial Community Dynamics in the Hanford Aquifer
A. E. Konopka[1], X. Lin[2], C. Lauber[3], R. Knight[3], J. McKinley[1]; [1]Pacific Northwest Natl. Lab., Richland, WA, [2]Georgia Tech, Atlanta, GA, [3]Univ. of Colorado, Boulder, CO.

322 Metagenome Sequencing Analysis of Grassland Soil Microbial Communities in Response to Long Term Elevated CO2
Q. Tu[1], Z. He[1], L. Wu[1], P. Chain[2], K. Xue[1], J. D. Van Nostrand[1], H. Yu[1], G. Xie[2], P. Reich[3], S. Hobbie[3], J. Zhou[1]; [1]Univ. of Oklahoma, Norman, OK, [2]Los Alamos Natl. Lab., Los Alamos, NM, [3]Univ. of Minnesota, MN.

323 Comparison of the Effects of Flooding on the Microbial Community of the Rio Grande Floodplain
M. O. Mendez, B. A. Wilson; Texas A&M Intl. Univ., Laredo, TX.

324 Molecular Level Response of Microbial Community to Winter Grazing on a Tibetan Alpine Meadow
D. Xu[1,2], Y. Yang[2], Q. Lin[3,4], H. Yu[1,5,6], Y. Hu[3], J. Duan[3], X. Li[7], K. Xue[1], Y. Deng[1], T. Yuan[1], J. D. Van Nostrand[1], Z. He[1], S. Wang[3,4], J. Zhou[1,2,8]; [1]Univ. of Oklahoma, Norman, OK, [2]Tsinghua Univ., Beijing, CHINA, [3]Northwest Inst. of Plateau Biology, Chinese Academy of Sci., Xining, CHINA, [4]Inst. of Tibetan Plateau Res., Chinese Academy of Sci., Beijing, CHINA, [5]Harbin Inst. of Technology, Harbin, CHINA, [6]Liaoning Technical Univ., Shenyang, CHINA, [7]Chengdu Inst. of Biology, Chinese Academy of Sci., Chengdu, CHINA, [8]Earth Sci. Div., Lawrence Berkeley Natl. Lab., Berkley, CA.

325 Carbon Catabolite Repression in Cave Bacterial Isolates
C. Arango, B. Hennessy; Saint Joseph's Univ., Philadelphia, PA.

326 Multi-domain Community Composition Linked to Contrasting Biogeochemical Conditions in Bog and Fen Environments of the Glacial Lake Agassiz Peatland
X. Lin[1], S. Green[2], M. M. Tfaily[3], O. Prakash[1], K. Konstantinidis[1], J. E. Corbett[3], J. Chanton[3], W. Cooper[3], J. Kostka[1]; [1]Georgia Inst. of Technology, Atlanta, GA, [2]Univ. of Illinois at Chicago, Chicago, IL, [3]Florida State Univ., Tallahassee, FL.

327 Stabilization Potential of Pyrolized Organic Material in Soils
N. Tas, C. Castanha, K. Reichl, M. Fischer, E. Brodie, M. S. Torn, J. K. Jansson; Lawrence Berkeley Natl. Lab., Berkeley, CA.

328 Prevalence and Diversity of Antibiotic Resistant Bacteria in Soil Samples in and Around a Poultry Farm
Y. Shao[1,2], H. Wang[1,3]; [1]Dept. of Food Sci. and Technology, The Ohio State Univ., Columbus, OH, [2]Inst. for Agri-food Standards and Testing Technology, Shanghai Academy of Agricultural Sci., Shanghai, CHINA, [3]Dept. of Microbiol., The Ohio State Univ., Columbus, OH.

329 Qualitative and Quantitative Analysis of Soil Microorganisms from a Biochar Farm in Bladen County, North Carolina over Three Crop Seasons
S. Edwards, M. E. Santos; Univ. of North Carolina at Pembroke, Pembroke, NC.

330 Toolbox for Soil Metagenomes
A. Howe[1], E. Cardenas[1], J. Fish[1], J. Guo[1], A. Garoutte[1], J. Pell[1], A. Hintze[1], J. Cole[1], P. Chain[2,3], S. Tringe[2], J. Jannson[2,4], C. Brown[1], J. Tiedje[1]; [1]Michigan State Univ., East Lansing, MI, [2]Joint Genome Inst., Walnut Creek, CA, [3]Los Alamos Natl. Lab., Los Alamos, NM, [4]Lawrence Berkeley Natl. Lab., CA.

331 Changes in Eco-functional Gene Community Composition as a Response to Artificial Warming and Permafrost Thawing
C. R. Penton[1], E. A. G. Schuur[2], L. Wu[3], J. Zhou[3], J. Cole[1], B. Chai[1], A. Pham[1], D. St. Louis[1], J. Tiedje[1]; [1]Michigan State Univ., East Lansing, MI, [2]Univ. of Florida, Gainesville, FL, [3]Univ. of Oklahoma, Norman, OK.

332 Genome Annotation and Molecular Evidence of Cold Shock Response in *Pseudomonas fluorescens* HK44
A. Smartt[1,2], A. Layton[1,2], E. Fozo[2], S. Ripp[1,2], A. Chauhan[1], W. Burton[1], G. Sayler[1,3,2]; [1]Ctr. for Environmental Biotechnology, Univ. of Tennessee, Knoxville, TN, [2]Dept. of Microbiol., Univ. of Tennessee, Knoxville, TN, [3]Joint Institue for Biological Sci., Oak Ridge Natl. Lab., Oak Ridge, TN.

333 Assessing the Correlation between the Abundance of Nitrogen Cycling Genes and Observed Nitrogen Process Rates in Yukon River Sediments at Pilot Station
J. Underwood, D. A. Repert, R. L. Smith, R. W. Harvey; United States Geological Survey, Boulder, CO.

334 Intermediary Ecosystem Metabolism of Methane-Emitting Fen and Peat Bog Soils
S. Hunger, M. Eppendorfer, C. Bruß, A. S. Gößner, H. L. Drake; Dept. of Ecological Microbiol., Bayreuth, GERMANY.

335 Change in a Soil Microbial Community Due to Reduced Diurnal Temperature Range in the Chihuahuan Desert
N. Dhungana, J. C. Zak; Texas Tech Univ., Lubbock, TX.

336 Temporal and Spatial Characterization of Ammonia Oxidizers in the Microbial Mats of the Great Sippewissett Salt Marsh
N. Youngblut[1,2], D. Buckley[3], S. Zinder[3]; [1]Univ. of Illinois, Urbana, IL, [2]Marine Biological Lab., Woods Hole, MA, [3]Cornell Univ., Ithaca, NY.

337 Microbial Communities in Restored Wetland Sediments
S. He[1], M. Waldrop[2], L. Windham-Myers[2], S. Malfatti[1], T. Glavina del Rio[1], S. Tringe[1]; [1]DOE Joint Genome Inst., Walnut Creek, CA, [2]U.S. Geological Survey, Menlo Park, CA.

338 Why Are Ammonia-Oxidizing Archaea So Abundant in Everglades Histosols?
K. Zhalnina[1], P. Dörr de Quadros[1], J. Fagen[1], C. T. Brown[1], K. Gano[1], A. Davis-Richardson[1], S. H. Daroub[2], E. W. Triplett[1]; [1]Univ. of Florida, Gainesville, FL, [2]Everglades Res. and Ed. Ctr., Univ. of Florida, Belle Glade, FL.

339 Characterization of Fungi Isolated from Halite
K. A. Simmons, J. S. Swanson; Los Alamos Natl. Lab., Carlsbad, NM.

340 Impact of DNA Extraction Method and PCR Amplification on Bacterial Community Composition of Arctic Permafrost and Active Layer as Defined by Tag-Encoded Pyrosequencing Analysis
T. A. Vishnivetskaya[1], A. Layton[1], G. Saarunya[1], K. Cheng[1], J. Murphy[1], S. Pfiffner[1], K. Chourey[2], R. Hettich[2], X. Liu[2], T. J. Phelps[2], L. Whyte[3], M. C. Y. Lau[4], B. Stackhouse[4], T. Onstott[4]; [1]Univ. of Tennessee, Knoxville, TN, [2]Oak Ridge Natl. Lab., Oak Ridge, TN, [3]McGill Univ., QC, CANADA, [4]Princeton Univ., Princeton, NJ.

028 Biofuels and Biobased Materials I (Division O)

10:45 a.m. – 12:30 p.m.; Poster Hall

341 Construction of Artificial Cellulosomes in B. Subtilis and Their Abilities for Saccharification of Lignocellulosic Materials
C-Y. Ho[1], J-J. Chang[2], T-Y. Chin[1], F-J. Ho[2], C-C. Huang[1]; [1]Natl. Chung Hsing Univ., Taichung, TAIWAN, [2]Genomics Res. Ctr., Academia Sinica, Taipei, TAIWAN.

342 Engineering of Bacterial Methyl Ketone Synthesis for Biofuels
E. Goh, H. R. Beller; Joint BioEnergy Inst., Berkeley, CA.

343 Rapid Enrichment of (Homo)acetogens from Animal Feces Using a High Mass-Transfer Gas-Lift Reactor Fed with Synthesis-Gas
S. Park[1], D. Kim[1], H-D. Park[2], C. Kang[3], D. Kim[4], I. Chang[1]; [1]Gwangju Inst. of Sci. and Technology, Gwangju, KOREA, REPUBLIC OF, [2]Korea Univ., Seoul, KOREA, REPUBLIC OF, [3]Chodang Univ., Muangun, KOREA, REPUBLIC OF, [4]Korea Environment Corp., Incheon, KOREA, REPUBLIC OF.

344 Photosynthetic Production of 3-Hydroxybutyrate Directly from CO2
B. Wang[1], W. Zhang[1], S. Pugh[2], D. Nielsen[2], D. Meldrum[1]; [1]The Biodesign Inst., Arizona State Univ., Tempe, AZ, [2]Arizona State Univ., Tempe, AZ.

345 Proteomic Analysis of Feast-Famine Polyhydroxyalkanoate Synthesis by an *Acinetobacter* sp. Isolated from a Mixed Microbial Consortium
A. J. Hanson, E. R. Coats; Univ. of Idaho, Moscow, ID.

346 In Situ Detoxification of Lignocellulosic-derived Inhibitors During Butanol Production by Solventogenic *Clostridium* Species
Y. Zhang, T. C. Ezeji; The Ohio State Univ., Wooster, OH.

347 Engineering *ActinoBacillus succinogenes* for Succinate Production from Lignocellulosic Hydrolysates and Glycerol
C. Vieille, N. R. McPherson, R. V. Joshi, B. D. Schindler; Michigan State Univ., East Lansing, MI.

348 Genome-wide Analysis of a Novel Fungus *Penicillium Expansum* YT02 for Effificent Saccharification of Lignocellulosic Biomass
L. Gao[1,2], A. Zhou[1], P. Liu[1,2], L. Wu[1], Z. He[1], J. V. Nostrand[1], A. Wang[3], J. Zhou[1]; [1]Inst. for Environmental Genomics, Norman, OK, [2]Harbin Inst. of Technology, CHINA, [3]State Key Lab. of Urban Water Resource and Environment, Harbin, CHINA.

349 Tolerance to Ethanol Stress by the Cellulosomes of *Clostridium cellulolyticum*
U. Anieto, D. Kunz, M. S. Allen; Univ. of North Texas, Denton, TX.

350 Microbial Based Pretreatment of Corn Stover by White Rot Fungus
B. C. Saha, M. A. Cotta; Bioenergy Res. Unit, Natl. Ctr. for Agricultural Utilization Res., Agricultural Res. Service, USDA, Peoria, IL.

351 Fuel Ethanol Production from Corn Stover Under Optimized Dilute Phosphoric Acid Pretreatment and Enzymatic Hydrolysis
A. Avci, B. C. Saha; Bioenergy Res. Unit, Natl. Ctr. for Agricultural Utilization Res., Agricultural Res. Service, USDA, Peoria, IL.

352 Fermentation Charateristics of Solventogenic Clostridia from Ceylon Moss Hydrolyzate
T. Kim[1], Y. Kim[1], G. Kim[2], M-K. Shin[2], Y. Kim[2], J-J. Yoon[2], I. Chang[1]; [1]Gwangju Inst. of Sci. and Technology, Gwangju, KOREA, REPUBLIC OF, [2]Korea Inst. of Industrial Technology (KITECH), Cheonan, KOREA, REPUBLIC OF.

353 Microbial Analysis of Thermophilic Cellulose-degrading Culture Digesting Various Co-substrates Under Various Loadings by Illunima High-throughput Sequencing
Y. Xia, T. Zhang, L. Cai, H. H. P. Fang; The Univ. of Hong Kong, Hong Kong, HONG KONG.

354 Identification of a Free Fatty Acid Exporter in *Escherichia coli* for Increased Microbial based Fuel Production
S. Srinivas, J. E. Cronan; Univ. of Illinois, Champaign, IL.

355 Comparative Study for the Kinetics of Extracellular Xylanases from Trichoderma Harzianum and Chaetomium Thermophilum
S. Ahmed[1,2], A. Jamil[2]; [1]Univ. of New Mexico, NM, [2]Univ. of Agriculture Faisalabad, PAKISTAN.

356 Analysis of Alterations in Membrane Permeability and Phospholipid Acyl Chain Content Induced by the Presence of Ethanol in Ethanologenic *Escherichia coli*
K. A. Romano, J. A. Senerchia, M. J. Simons, Z. E. Gaudioso, M. Stahl, A. M. Heibel, J. H. Knight, G. A. Caputo, G. B. Hecht; Rowan Univ., Glassboro, NJ.

357 Bio-Ethanol Production from Local Louisiana Cultivar of Gamagrass, Tripsacum dactyloides
D. Samaha, R. Boopathy; Nicholls State Univ., Thibodaux, LA.

358 Tethering H2-producing electrocatalysts to the Outer Membrane of Biofuel-producing *Ralstonia eutropha* H16
Y-C. Yeh[1], J. W. Jurss[2], J. Mueller[1], C. Bi[1], H. R. Beller[1], C. J. Chang[2], S. W. Singer[1], S. Chhabra[1]; [1]Lawrence Berkeley Natl. Lab., Berkeley, CA, [2]Univ. of California Berkeley, Berkeley, CA.

359 Characterization of the Cellulosomal Scaffolding Protein Cbpb from *Clostridium Cellulovorans* 743b
D. Nakajima[1], A. Nagano[1], H. Morisaka[2], K. Kuroda[2], M. Ueda[2], H. Miyake[1,3,4]; [1]Dept. of Life Sci., Graduate Sch. of Bioresources, Mie Univ., Tsu, JAPAN, [2]Div. of Applied Life Sci., Graduate Sch. of Agriculture, Kyoto Univ., Kyoto, JAPAN, [3]Dept. of Bioinformatics, Life Sci. Res. Ctr., Mie Univ., Tsu, JAPAN, [4]Lab. of Applied Biotechnology, Industrial Technology Innovation Inst., Mie Univ., Tsu, JAPAN.

360 Enzymatic Saccharification and Fermentation of Switchgrass and Hybrid Poplar to Ethanol
M. Yan[1], Y. Yang[1], F-H. Chang[2]; [1]Univ. of Minnesota, Saint Paul, MN, [2]Bemidji State Univ., Bemidji, MN.

361 Butanol Hyper-production and Increased Xylose Consumption by *Clostridium* beijerinckii in the Presence of Anthraquinone-2,6-disulfonate (AQDS) and the Terminal Electron Acceptor Ferrihydrite
J. Popovic, K. T. Finneran; Clemson Univ., Clemson, SC.

362 Diversity of Xylanase Gene Sequences from Filamentous Fungi Associated with Wood-Feeding Beetles in Indonesia
L. Ignatia[1], I. Sitepu[1], A. Mobeen[1], S. Faulina[2], A. Kanti[3], A. Joko Nugroho[3], N. Schiff[4], K. Boundy-Mills[1]; [1]Univ. of California Davis, Davis, CA, [2]Ministry of Forestry, Bogor, INDONESIA, [3]Inst. of Sci., Biology, Cibinong, INDONESIA, [4]USDA Forest Service, Stoneville, MS.

363 Enhanced Microbial Electrosynthesis by the Formation of Carbon Nanofiber-Microbe Composite Biofilm
J. Kim[1], H-S. Shin[1], S. Lim[2], B-K. Cho[1,3]; [1]Korea Advanced Inst. of Sci. and Technology, Daejeon, KOREA, REPUBLIC OF, [2]Fuel Cell Res. Ctr., Korea Inst. of Energy Res., Daejeon, KOREA, REPUBLIC OF, [3]Intelligent Synthetic Biology Ctr., Daejeon, KOREA, REPUBLIC OF.

364 Exploring the Stress-response and Resistance Mechanisms to Fuel Candidates in *Saccharomyces Cerevisiae*
Z. Y. Dossani[1,2], J. D. Keasling[1,2], A. Mukhopadhyay[1,2]; [1]Joint BioEnergy Inst., Emeryville, CA, [2]Lawrence Berkeley Natl. Lab, Berkeley, CA.

365 Solubility Enhancement of Isoflavonoids Complexed by Acyclic Hexadecasaccharides, Succinoglycan Dimers Isolated from *SinoRhizobium meliloti*
E. Cho, J. Choi, H. Kim, S. Jung; Dept. of BioSci. and Biotechnology, Bio/Molecular Informatics Ctr. & Ctr. for Biotechnology Res. in UBITA, Konkuk Univ., Seoul, KOREA, REPUBLIC OF.

366 Engineering Free Fatty Acid Production in *Escherichia coli*
B. F. Pfleger; Univ. of Wisconsin-Madison, Madison, WI.

367 Construction for the Enhanced Xylose-assimilating *Saccharomyces Cerevisiae* Strain on the Production of Bio-ethanol
Y-H. Wei; Yuan Ze Univ., Taoyuan, TAIWAN.

029 General Food Microbiology I (Division P)

10:45 a.m. – 12:30 p.m.; Poster Hall

368 Comparison of Current Food Microbiology Testing Practices Between the US and Europe
T. R. Weschler; Strategic Consulting Inc, Woodstock, VT.

369 Anti-Bacterial Effectiveness of a Quaternary Sanitizer on a Processed Bamboo Cutting Board
J. Jackson[1], J. Coffman[2]; [1]Palm Beach Atlantic Univ., West Palm Beach, FL, [2]Barry Univ., Hollywood, FL.

370 Development of a Novel Broad-Range Antimicrobial Surface Coating Technique
I. E. Ivanov[1], A. E. Morrison[1], C. A. Fahey[2], J. E. Cobb[1], T. A. Camesano[1]; [1]Worcester Polytechnic Inst., Worcester, MA, [2]The George Washington Univ., Washington, DC.

371 Evaluation of Matrix-Assisted laser Desorption/Ionization Time-of-Flight Mass Spectrometry for the Identification of Beer Spoilage Microorganisms
S. Asano, Y. Aoki, K. Iijima, H. Yamagishi, M. Aizawa; Asahi Breweries, LTD, Moriya-shi, JAPAN.

372 Microbial Quality of Leafy Greens: A Comparative Analysis Between Aquaponic and In-Soil Grown Produce
S. A. Sirsat, J. A. Neal; Univ. of Houston, Houston, TX.

373 Effect of Different Treatments of Spores from *Rhizopus oligosporus* on the Glyceollins Induction
M-J. Cho[1], J-H. Kim[1,2], H-J. Kim[3], J-S. Kim[3]; [1]Div. of Appl. Life Sci. (BK[21]), Graduate Sch., Gyeongsang Nat'l. Univ., Jinju, KOREA, REPUBLIC OF, [2]Inst. of Agric.and Life Sci., Jinju, KOREA, REPUBLIC OF, [3]Appl. Biosci. (BK[21]) and Food Sci. Biotechnol., Kyungpook Nat'l. Univ., Daegu, KOREA, REPUBLIC OF.

374 Tube Bioluminescence Extinction Technology: Simple Assay for the Determination of the Quality of Milk and Chocolate Drinks Based on Oxygen Content
WITHDRAWN

375 Influence of Crp/fnr Family Transcription Factors on the Growth and Biofilm Productivity in *Listeria monocytogenes*
J. K. Salazar, W. Zhang; Illinois Inst. of Technology/Inst. for Food Safety and Hlth., Bedford Park, IL.

376 Evaluation of a Pcr-based Serotyping Method to Screen, Identify, and Serotype *Salmonella* Sp. from Cilantro
J. Jean-Gilles Beaubrun[1], L. Ewing[1], K. Jarvis[1], K. Dudley[1], G. Gopinath[1], M. Lamont (MDP)[2], T. McGrath (FERN)[3], D. E. Hanes[1]; [1]U.S. Food and Drug Admin., Laurel, MD, [2]AMS Microbiol. Data Program (MDP), Manassas, VA, [3]U.S. Food and Drug Admin., Rockville, MD.

377 Development of Sweet Potato (Ipomoea batatas) Base Medium for the Growth of Lacto*Bacillus* reuteri
S. A. Hayek, S. A. Ibrahim, A. SHAHBAZI; North Carolina A&T State Univ., GREENSBORO, NC.

378 Influence of pH and Temperature on the Thermal Resistance of Alicyclo*Bacillus* acidoterrestris in Tropical Fruit Juices
W. C. Oliveira, A. D. Paiva, H. C. Mantovani, Sr.; Federal Univ. of Viçosa, Viçosa-MG, BRAZIL.

379 Comparison of Growth Inhibitor Efficacy Against *Listeria monocytogenes* in Laboratory Medium and on Cold Smoked Salmon
S. Tang, M. J. Stasiewicz, T. M. Bergholz, M. Wiedmann, K. J. Boor; Dept. of Food Sci., Cornell Univ., Ithaca, NY.

380 Functional Analysis of *ycfR*, *sirA*, and *yigG* in *Salmonella enterica* Serovars Typhimurium and SaintPaul
J. K. Salazar[1], K. Deng[2], M. Tortorello[2], W. Zhang[1]; [1]Illinois Inst. of Technology/Inst. for Food Safety and Hlth., Bedford Park, IL, [2]Food and Drug Admin./Inst. for Food Safety and Hlth., Bedford Park, IL.

381 Comparison of a New Preenrichment Strategy for the Isolation and Detection of *Salmonella* Enteritidis and S. Heidelberg in Whole Shell Eggs with the FDA Bacteriological Analytical Manual *Salmonella* Culture Method
G. Zhang, E. Thau, E. Brown, T. Hammack; Food and Drug Admin., College Park, MD.

382 Survival of Viruses on Strawberries during Freeze-dry Dehydration
X. Wang[1], Y. Sun[2], Y. C. Shieh[2]; [1]Illinois Inst. of Technology / Inst. for Food Safety and Hlth., Bedford Park, IL, [2]US FDA / Inst. for Food Safety and Hlth., Bedford Park, IL.

383 Cold Plasma Inactivation of *Escherichia coli* and *Bacillus cereus* on Agar Plates as an Alternative Sterilization Method for Food Products and its Effect on the Bacterial Growth
M. Thiyagarajan[1], A. Doyoungan[2], H. Pham[2], J. Ausland[2], G. Vidal[2]; [1]PERL Texas A&M Univ., Corpus Christi, TX, [2]Texas A&M Univ., Corpus Christi, TX.

384 Identification of the CosR Regulon in *Campylobacter jejuni*
S. Hwang[1], B. Jeon[2], S. Ryu[1]; [1]Seoul Natl. Univ., Seoul, KOREA, REPUBLIC OF, [2]Univ. of Prince Edward Island, Charlottetown, PE, CANADA.

385 Use of a Multiplex PCR Method to Group Environmental *Salmonella* Isolates
R. McEgan[1], L. D. Goodridge[2], M. D. Danyluk[1]; [1]Univ. of Florida, Lake Alfred, FL, [2]Colorado State Univ., Fort Collins, CO.

386 Gyrase A Mutations in *Campylobacter* with Resistance to Different Fluoroquinolones
S. Mukherjee, S. Zhao, S. Bodeis-Jones, S. Young, H. Tate, S. Gaines, P. McDermott; US Food And Drug Admin., Laurel, MD.

387 Effects of Grape Seed Extract on the Growth and Shiga Toxin Production of *Escherichia coli* O157:H7
S. A. Olsen, J. Hu, W. J. Means, R. J. McCormick, M. J. Zhu; Dept of Animal Sci., Univ. of Wyoming, Laramie, WY.

388 Occurrence and Characterization of *Listeria monocytogenes* Isolated from Food Markets in Culiacan, Sinaloa, Mexico
M. Castañeda-Ruelas[1], N. Castro-del Campo[1], J. León-Felix[1], J. Valdez-Torres[1], R. Guzmán-Uriarte[1], C. Martinez[1], J. B. Luchansky[2], A. C. S. Porto-Fett[2], B. A. Shoyer[2], C. Chaidez[1]; [1]Centro de Investigacion en Alimentacion y Desarrollo, Culiacan, MEXICO, [2]USDA/ARS/ERRC, Wyndmoor, PA.

389 Genetic Diversity within *Cronobacter sakazakii* as Revealed by Whole Genome Sequencing
C. J. Grim[1], M. L. Kotewicz[2], K. Power[3], G. Gopinath[2], K. G. Jarvis[1], Q. Q. Yan[3], M. H. Kothary[2], A. A. Franco[2], L. Hu[1], V. Sathyamoorthy[2], C. Iversen[4], S. Fanning[3], B. D. Tall[2]; [1]USFDA and ORISE, Laurel, MD, [2]USFDA, Laurel, MD, [3]UCD Ctr. for Food Safety, Dublin, IRELAND, [4]Nestle Res. Ctr., Lausanne, SWITZERLAND.

390 Graphical and Real Time Analysis of Multiple Datasets from the 1998 and 2007 Vibrio Retail Market Surveys Using the Pathogen-Annotated Tracking Resource Network: A Useful Tool for Illness Investigations and Risk Assessments
K. Hari[1], G. Gopinath[2], J. C. Bowers[3], R. Jain[1], PATRN PAG, B. D. Tall[2]; [1]cBio, Inc., Fremont, CA, [2]US FDA, Laurel, MD, [3]US FDA, College Park, MD.

391 Emerging Hypervirulent Strains of *Clostridium difficile* NAP7 Can Survive High Temperatures
Y. Uyanwune[1,2], A. L. Guardian[1], G. Broukhanski[1,2]; [1]PHO Lab., Toronto, ON, CANADA, [2]Univ. of Toronto, Toronto, ON, CANADA.

392 Metatranscriptomic Analysis of Lactic Acid Bacterial Gene Expressions During Kimchi Fermentation
C. Jeon[1], J. Jung[1], E. L. Madsen[2]; [1]Chung-Ang Univ., Seoul, KOREA, REPUBLIC OF, [2]Cornell Univ., Ithaca, NY.

393 Antimicrobial and Antioxidant Activity of *Pelargonium odoratissimum* Essential Oil Exhibits Seasonal Variation
Y. Samaras[1], D. Koulougliotis[2], E. Makariadou[1], L. Shahini[1], A. Tsolou[1], E. Sakadani[1], E. Eriotou[1]; [1]Dept. of Organic Farming and Food Technology,Technological Ed.al Inst. of Ionian Islands, Argostoli, GREECE, [2]Dept. of Environmental Technology and Ecology,Technological Ed.al Inst. of Ionian Islands, Zakynthos, GREECE.

394 Seasonal Variation of Antimicrobial Activity of Thyme Essential Oil on *Listeria monocytogenes* and *Staphylococcus* sp
E. Eriotou[1], D. Koulougliotis[2], A. Tsolou[1], E. Sakadani[1], I. Kokosi[1], A. Amitsi[1], C. Roussa[1], Y. Samaras[1]; [1]Dept. of Organic Farming and Food Technology, Technological Ed.al Inst. of Ionian Islands, Argostoli, GREECE, [2]Dept. of Environmental Technology and Ecology, Technological Ed.al Inst. of Ionian Islands, Zakynthos, GREECE.

030 Air Microbiology and Microbes in Extreme Environments (Division Q)

10:45 a.m. – 12:30 p.m.; Poster Hall

395 Global Dispersion of Bacterial Cells on Asian Dust
N. Yamaguchi[1], T. Ichijo[1], A. Sakotani[2], T. Baba[1], M. Nasu[1]; [1]Osaka Univ., Osaka, JAPAN, [2]Osaka Ohtani Univ., Osaka, JAPAN.

396 Metabolic Activity and Growth Potential of Airborne Microbes
V. Krumins[1], V. Partee[2], G. Mainelis[1], L. J. Kerkhof[1], D. E. Fennell[1]; [1]Rutgers Univ., New Brunswick, NJ, [2]Univ. of Georgia, Athens, GA.

397 Identification, Characterization and Survival of Isolates Collected from a Mars-bound Spacecraft
S. A. Smith[1], D. Anderl[1], M. Schrader[1], E. Wear[1], A. Paszczynski[1], J. N. Benardini, III[2], W. W. Schubert[2], S. E. Childers[1,3]; [1]Univ. of Idaho, Moscow, ID, [2]Jet Propulsion Lab., Pasadena, CA, [3]Colby Coll., Waterville, ME.

398 Tracking the Long Distance Transport of the Fungal Plant Pathogen *Fusarium graminearum* from a Field-Scale Source of Clonal Inoculum
A. J. Prussin II, S. D. Ross, D. G. Schmale III; Virginia Tech, Blacksburg, VA.

399 Aerobic Methanotrophs Detected in Microbial Mats Growing at a Hydrocarbon Seep
B. G. Paul, D. L. Valentine; Univ. of California Santa Barbara, CA.

400 Physiology and Genetics of a Novel, Marine Dissimilatory Perchlorate Reducing Bacterium: Isolation and Characterization of *Arcobacter* sp. Strain CAB
C. I. Carlstrom[1], R. A. Melnyk[1], T. Torok[2], O. Wang[1], A. Engelbrektson[1], J. D. Coates[1]; [1]UC Berkeley, Berkeley, CA, [2]Ernest Orlando Lawrence Berkeley Natl. Lab., Berkeley, CA.

401 The Characterization of Diel Cycle Proteomes for Two *Micromonas* Strains Reveal Similarities and Differences in Their Physiology
S. O. Purvine[1], S. J. Callister[1], C. K. Ansong[1], M. J. van Baren[2], P. Waltman[3], E. Reistetter[2], J. Stuart[3], A. Z. Worden[2]; [1]Pacific Northwest Natl. Lab., Richland, WA, [2]Monterey Bay Aquarium Res. Inst., Moss Landing, CA, [3]Univ. of California Santa Cruz, Santa Cruz, CA.

402 Hidden Treasure Lies Beneath the Earth's Surface: Do Human Impact and Nutrient Availability Correlate with Antibiotic Production in Cave Bacteria?
L. O. Henderson[1], M. Dapkevicius[2], D. E. Northup[1]; [1]Univ. of New Mexico, Albuqueruque, NM, [2]Univ.e dos Açores, Ponta Delgada, São Miguel, PORTUGAL.

403 Isolation and Characterization of an Antarctic Stenotrophomonas Strain with Extracellular Protease Activity
M-J. Sohn[1], D. Kim[2], E. Ahn[1], M. Yoo[1], E. Kim[1]; [1]Yonsei Univ., Seoul, KOREA, REPUBLIC OF, [2]Korea Polar Res. Inst., Incheon, KOREA, REPUBLIC OF.

404 Characterization of New Siderophores Produced by a Soda Lake Isolate
L. O. Serrano Figueroa, B. H. Schwarz, A. M. Richards; Montana State Univ., Bozeman, MT.

405 Survey of Fungal Functional Genes from Alaska Permafrost Deposits Under Ambient and "Warming" Conditions
J. W. Voordeckers[1], M. Yuan[1], Z. Shi[1], Y. Deng[1], T. Yuan[1], J. Zhang[1], J. D. Van Nostrand[1], L. Wu[1], Z. He[1], E. A. G. Schuur[2], J. Zhou[1]; [1]Univ. of Oklahoma, Norman, OK, [2]Michigan State Univ., East Lansing, MI.

406 Enrichment of Iron and Sulfur Oxidizing Microbes from Polar Environments
W. P. Adkins, B. Christner; Louisiana State Univ., Baton Rouge, LA.

031 Biodegradation of Halogen and Nitrogen Containing Organics (Division Q)

10:45 a.m. – 12:30 p.m.; Poster Hall

407 Single Cell Amplified Genomes of Three Dechlorinating Organisms Reveal Mechanisms of Co-Operative Reductive Dechlorination of Chlorinated Solvents
L. A. Hug[1], P. J. McMurdie[2], P. C. Blainey[2], A. Sczyrba[3], T. Woyke[4], S. R. Quake[2], A. M. Spormann[2], E. A. Edwards[1]; [1]Univ. of Toronto, Toronto, ON, CANADA, [2]Stanford Univ., Stanford, CA, [3]Bielefeld Univ., Bielefeld, GERMANY, [4]Joint Genomes Inst., Walnut Creek, CA.

408 Enzyme Kinetics of Haloacid Dehalogenases using Isothermal Titration Calorimetry
C. D. Tran[1], P. Chan[2], A. F. Yakunin[3], E. Edwards[3]; [1]Univ. of Toronto, Cell and Systems Biology, Toronto, ON, CANADA, [2]Dept. of Biochemistry, Univ. of Toronto, Toronto, ON, CANADA, [3]Dept. of Chemical Engineering and Applied Chemistry, Univ. of Toronto, Toronto, ON, CANADA.

409 Use of Nucleic Acid-Based Tools to Predict and Monitor Detoxification of 1,2-Dichloropropane at Contaminated Sites
E. Padilla-Crespo, J. Yan, F. E. Loeffler; Univ. of Tennesse-Knoxville, Knoxville, TN.

410 Linking Quantitative mRNA and Protein measurements in *Dehalococcoides* and *Methanospirillum*
A. R. Rowe, G. L. Heavner, C. B. Mansfeldt, R. E. Richardson; Cornell Univ., Ithaca, NY.

411 Dichloromethane Fermentation by a Dehalobacter sp. in an Enrichment Culture Derived from Pristine River Sediment
S. D. Justicia-Leon[1], F. E. Löffler[1,2,3], E. E. Mack[4]; [1]Georgia Inst. of Technology, Atlanta, GA, [2]Univ. of Tennessee, Knoxville, TN, [3]Oak Ridge Natl. Lab., Oak Ridge, TN, [4]DuPont Corporate Remediation Group, Newark, DE.

412 Using Electron Balances to Predict TCE-indcued Shifts to the Microbial Community Structure
M. Ziv-El, S. Popat, P. Parameswaran, D. Kang, R. Halden, B. Rittmann, R. Krajmalnik-Brown; Arizona State Univ., Tempe, AZ.

413 Identification of Active Fermenters and Hidden Microbial Partnerships in TCE-Dechlorinating Microbial Communities Using DNA-Based and RNA-Based Stable Isotope Probing
B. Stenuit, X. Mao, Y. Men, L. Alvarez-Cohen; Dept. of Civil and Environmental Engineering, Univ. of California, Berkeley, CA.

414 Reductive Dechlorination of 1,1,1-trichloroethane by a *Desulfitobacterium*-containing Coculture
C. Ding, J. He; Natl. Univ. of Singapore, Singapore, SINGAPORE.

415 Effect of Ammonia on Trichloroethene Dechlorinating Communities Containing *Dehalococcoides*
A. G. Delgado[1,2], P. Parameswaran[1], K. L. Kegerreis[1,3], R. U. Halden[1,3], R. Krajmalnik-Brown[1,3]; [1]Swette Ctr. for Environmental Biotechnology at Biodesign Inst., Arizona State Univ., Tempe, AZ, [2]Sch. of Life Sci., Arizona State Univ., Tempe, AZ, [3]Ira A. Fulton Sch.s of Engineering, Arizona State Univ., Tempe, AZ.

416 Effects of Acetate on the Growth and TCE Degradation of Syntrophic co-culture *Dehalococcoides* ethenogenes 195 and Syntrophomonas wolfei
X. Mao, L. Alvarez-Cohen; Univ. of California, Berkeley, Berkeley, CA.

417 Aerobic Biodegradation of Tetrachloroethylene (PCE) by Consortiums Enriched with Toluene and Methanol
S. Srinivasan[1], J. Kim[1], T. You[2], S-S. Lee[1]; [1]Kyonggi Univ., Suwon, KOREA, REPUBLIC OF, [2]Dept. of Biological Sci., Buies Creek, NC.

418 Comparing Network Reconstructions of Two Dehalococcoides Containing Mixed Cultures
R. E. Richardson[1], C. Mansfeldt[1], G. Heavner[1], A. Rowe[1], L. Hug[2], E. Edwards[2], B. Church[3], B. Hayete[3]; [1]Cornell Univ., Ithaca, NY, [2]Univ. of Toronto, Toronto, ON, CANADA, [3]GNS Hlth.care, Cambridge, MA.

419 Microbial Community Characterization in TCE Dechlorinating Flow Through Columns
S. MURUGANANDAM[1], D. Sorensen[1], J. Mclean[1], R. Dupont[1], J. Norton[2]; [1]Utah Water Res. Lab, Logan, UT, [2]Utah State Univ., Logan, UT.

420 Genetic Identification of Reductive Dehalogenase Motifs in a Trichloroethene-degrading Anaerobic Consortium
Y-H. Peng, Y-h. Shih; Dept. of Agricultural Chemistry, Natl. Taiwan Univ., Taipei City, TAIWAN.

421 Modeling Gene Interactions with Experimental Parameters for *Dehalococcoides* ethenogenes Strain 195
C. Mansfeldt[1], A. Rowe[1], G. Heavner[1], R. Richardson[1], B. Church[2], B. Hayete[2]; [1]Cornell Univ., Ithaca, NY, [2]GNS Hlth.care, Cambridge, MA.

422 Reductive Dehalogenation of Polychlorinated Alkanes by a Novel *Dehalogenimonas* sp. Isolate
K. S. Bowman[1], F. A. Rainey[2], W. M. Moe[1]; [1]Louisiana State Univ., Baton Rouge, LA, [2]Univ. of Alaska at Anchorage, Anchorage, AK.

423 Study on the Biodegradation of Trichloroethylene (TCE) by Toluene Utilizing Bacteria UI-mix
J. LEE[1], H. Kim[1], J. Kim[2], J. J. Bang[3], S-s. Lee[4]; [1]Dept. of Bioengineering, Kyonggi Univ., Suwon, KOREA, REPUBLIC OF, [2]Basic Sci. Res. Inst., Kyonggi Univ., Suwon, KOREA, REPUBLIC OF, [3]Dept. of Environmental, Earth and Geospatial Sci., North Carolina Central Univ., NC, [4]Dept. of Life Sci., Coll. of Natural Sci., Kyonggi Univ., Suwon, KOREA, REPUBLIC OF.

424 Transcriptional Biomarkers of Reductive Dechlorination in Bioaugmentation Culture KB-1
G. L. W. Heavner[1], C. B. Mansfeldt[1], S. T. Hellerstedt[1], P. C. Dennis[2], E. A. Edwards[3], R. E. Richardson[1]; [1]Cornell Univ., Ithaca, NY, [2]SiREM, Guelph, ON, CANADA, [3]Univ. of Toronto, Toronto, ON, CANADA.

425 Biodegradation of 4-nitroaniline by a *Rhodococcus* sp
Z. Kurt, Y. Qu, E. Lang, J. Spain; Georgia Inst. of Technology, Atlanta, GA.

426 Molecular Identification of Hexahydro-1,3,5-Trinitro-1,3,5-Triazine (RDX)-Utilizing Microorganisms Under Different Electron-Accepting Conditions
K-C. Cho[1], D. Lee[1], M. E. Fuller[2], P. B. Hatzinger[2], K-H. Chu[1]; [1]Texas A&M Univ., College Station, TX, [2]Shaw Environmental, Inc., Lawrenceville, NJ.

427 Photobiological Degradation of RDX Using *Rhodobacter sphaeroides*
K. Millerick[1], K. Finneran[2]; [1]Civil and Environmental Engineering, Univ. of Illinois at Urbana-Champaign, Urbana, IL, [2]Environmental Engineering and Earth Sci., Clemson Univ., Clemson, SC.

428 Structure-Function Analysis of Nitrobenzene 1,2-Dioxygenase
K. M. Mahan, J. V. Parales, R. E. Parales; UC Davis, Davis, CA.

429 Degradation of Dioxin-like Compounds by *Pseudomonas mendocina* Strain NSYSU
W-C. Lin[1], J-K. Liu[1], G-P. Chang-Chien[2], C-M. Kao[3], L. Newman[4], T-Y. Wong[5]; [1]Dept. of Biological Sci., Natl. Sun Yat-sen Univ., Kaohsiung City, TAIWAN, [2]Dept. of Chemical and Materials Engineering, Cheng Shiu Univ., Kaohsiung City, TAIWAN, [3]Inst. of Environmental Engineering, Natl. Sun Yat-sen Univ., Kaohsiung City, TAIWAN, [4]Biology Dept., Brookhaven Natl. Lab., New York, NY, [5]Dept. of Biological Sci., Univ. of Memphis, Memphis, TN.

430 Determining Potential for Microbial Atrazine Degradation in Agricultural Drainage Ditches
H. L. Tyler[1], S. Khalid[2], C. R. Jackson[2], M. T. Moore[1]; [1]USDA-ARS Natl. Sedimentation Lab., Oxford, MS, [2]Univ. of Mississippi, Dept. of Biology, Oxford, MS.

431 Aerobic Biodegradation of Mixtures of 1,4-dioxane and Chlorinated Solvents
B. Wang, K-H. Chu; Texas A&M Univ., College Station, TX.

432 Pathways for Biodegradation of Fluorotelomer Alcohols in Two *Pseudomonas* Strains
M. Kim[1], N. Wang[2], K-H. Chu[1]; [1]Texas A&M Univ., College Station, TX, [2]E.I. du Pont De Nemours & Company, Inc, Wilmington, DE.

433 Anaerobic Oxidation of Ethene Coupled to Sulfate Reduction in Enrichment Cultures
H. Fullerton, S. H. Zinder; Cornell Univ., Ithaca, NY.

434 Anaerobic Carbazole Degradation by Iron-reducing Bacteria
K. Inoue, F. Watanabe, Y. Kawano; Univ. of Miyazaki, Miyazaki, JAPAN.

032 General Biodegradation and Biotransformation (Division Q)

10:45 a.m. – 12:30 p.m.; Poster Hall

435 Production of Bioflocculant by Isolated Stain W2 from Hydrolysate of Corn Stover
L. Wang[1,2], A. Wang[1], D-J. Lee[1,3], F. Ma[1], L. Liu[1], L. Chen[1], L. Zhao[1]; [1]Sch. of Municipal and Environmental Engineering,Harbin Inst. of Technology, Harbin, CHINA, [2]Life Sci. and Technology Coll., Harbin Normal Univ., Harbin, CHINA, [3]Dept. of Chemical Engineering, Natl. Taiwan Univ., Taipei, TAIWAN.

436 Metabolically Engineered *Shewanella* Strains Using Glucose as Sole Carbon and Energy Sources
D. Choi[1], S. Lee[1], S. Kim[2], B. Min[2], I. Choi[2], I. Chang[1]; [1]Gwangju Inst. of Sci. and Technology, Gwangju, KOREA, REPUBLIC OF, [2]Korea Univ., Seoul, KOREA, REPUBLIC OF.

437 Decoloration of Commercial Textile Dyes by Novel Thermotolerant Fungal Strains, Isolated from Hot Compost
K. Rivera - Hernández[1], I. Hazas - Arteaga[1], K. Rodríguez - Sarmiento[1], J. Lara - Arellano[2]; [1]CIBA - IPN, Tlaxcala, MEXICO, [2]NUTEK S.A. de C.V., Puebla, MEXICO.

438 Variation in Polyhydroxyalkanoate (PHA) Biosynthesis by *Bacillus thuringiensis* during Cultivation Under Two Stage Process: Effect of Culture Conditions
P. Kumar, M. Singh, S. K. S. Patel, V. C. Kalia; Inst. of Genomics and Integrative Biology, Delhi, INDIA.

439 Biodegradation of the Sesquiterpene β-Caryophyllene in a Laboratory-Scale Biofilm Reactor
T. A. Key, W. Hu, K. S. Bowman, W. M. Moe; Louisiana State Univ., Baton Rouge, LA.

440 Aerobic and Anaerobic Composting with Biochar
C. Currie, E. Maki, A. M. Briones, Jr.; Univ. of Idaho, Moscow, ID.

441 Toxicity and Bacterial Decolourization of Textile Dyes
A. A. Ogunjobi, E. A. Ademola, O. E. Fagade; Univ. of Ibadan, Ibadan, NIGERIA.

442 Kinetics and Functional Characterization of Extremophile Microorganisms Isolated from a Mexican Oilfield
I. Gaytán[1], A. L. Ramírez[1], A. M. Muñoz-Colunga[1], L. S. Zamudio[1], N. Rojas[2], R. Hernández[2], A. González[1], M. Méndez[1]; [1]Inst. Mexicano del Petróleo, México D.F., MEXICO, [2]CICATA-IPN, Querétaro, MEXICO.

443 A Thermostable Multicopper Oxidase Enzyme from Wastewater Treatment Activated Sludge Isolated by a Metagenomic Approach
N. Kimura, Y. Kamagata; Natl. Inst. of Advanced Industrial Sci. and Technology, Tsukuba, JAPAN.

444 Toxicity of Flue Gas in Microalgae CO2 Mitigation Systems
A. PACHECO, J. Lara-Gil, M. M. Alvarez; Tecnologico de Monterrey, Monterrey, Nuevo, MEXICO.

445 Hydrogen-oxidizing Autotrophic Denitrification Using Enriched Microbial Communities
Y. Mao, T. Zhang; Environmental Biotechnology Lab., Dept. of Civil Engineering, The Univ. of Hong Kong, HONG KONG.

446 Reclamation of Canadian Oil Sands Industry Mine Tailings Using *Frankia*, Mycorrhizae and Indigenous Shrubs
C. Bissonnette[1], J. Beaudin[1], B. Fahlman[2], K. M. Peru[2], A. Quoreshi[3], J. V. Headley[2], D. P. Khasa[4], C. W. Greer[5], S. Roy[1]; [1]Université de Sherbrooke, Sherbrooke, QC, CANADA, [2]Water Sci. and Technology Div., Saskatoon, SK, CANADA, [3]Symbiotech Res. Inc., Edmonton, AB, CANADA, [4]Université Laval, Ste-Foy, QC, CANADA, [5]NRC Biotechnology Res. Inst., Montréal, QC, CANADA.

447 Degradation of Poly(ε-caprolactone) by *Streptomyces thermoviolaceus* 76T-2
M-K. Yang[1], T-K. Chua[1], M. Tseng[2]; [1]Fu Jen Univ., Hsin Chuang, TAIWAN, [2]Bioresource Collection and Res. Ctr., Food Industry Res. and Dev. Inst., Hsinchu, TAIWAN.

448 Evaluation of the Impact of Exposure of Sudan Azo Dyes and Their Metabolites on Prevalent Human Intestinal Bacteria
H. Pan[1], J. Feng[1], G-X. He[2], C. E. Cerniglia[1], H. Chen[1]; [1]NCTR, Jefferson, AR, [2]Univ. of Massachusetts Lowell, Lowell, MA.

449 A Study of the Applicability of a Novel Approach of Microbial Enhanced Hydrocarbon Recovery (MEHR)
H. Zhu, J. D. Coates; UC Berkeley, Berkeley, CA.

450 Subsurface Microbe-Electrode Electron Transfer: Real-Time Monitoring of Rates of Microbial Metabolism and Stimulating Contaminant Degradation with Subsurface Snorkels
R. Orellana, J. R. Izbicki, K. P. Nevin, D. R. Lovley; Univ. of Massachusetts, Amherst, MA.

451 Bioremediation of Perchlorate Contamination
T. Else[1], D. Hartley[1], S. Iddyadinesh[1], J. Suba[1], K. Dakay[1], J. Batista[2], P. S. Amy[2]; [1]Touro Univ. Nevada, Henderson, NV, [2]Univ. of Nevada, Las Vegas, Las Vegas, NV.

452 High-Sensitivity Stable-Isotope Probing of a Military Training Range Soil Community Assimilating 15N-Nitrogen from 15N-Labeled RDX
P. Andeer, D. A. Stahl, S. E. Strand; Univ. of Washington, Seattle, WA.

033 General Environmental Microbiology (Division Q)

10:45 a.m. – 12:30 p.m.; Poster Hall

453 Differential Responses of Archaeal and Bacterial Nitrifiers to Spilled Oil in the Gulf of Mexico
H. Urakawa[1], J. C. Garcia[1], P. D. Barreto[1], G. A. Molina[1], M. G. Klotz[2], J. C. Barreto[1]; [1]Florida Gulf Coast Univ., Fort Myers, FL, [2]Univ. of North Carolina, Charlotte, NC.

454 Growth Characteristics of a Mutant of *Desulfovibrio vulgaris* Hildenborough Deleted of Multiple Sulfate-Permeases
G. M. Zane[1,2], K. L. Keller[1], J. D. Wall[1,2]; [1]Univ. of Missouri, Columbia, MO, [2]ENIGMA, Office of Sci., Deptartment of Energy, DC.

455 Trophic Transfer of TiO2 Nanoparticles in an Experimental Microbial Food Chain
J. H. Priester, R. E. Mielke, R. Werlin, A. M. Horst, E. Orias, P. A. Holden; UCSB, Santa Barbara, CA.

456 The Phytohormone, Abscisic Acid, Affects the Growth and Cellulose Production of *Gluconacetobacter xylinus*
J. L. Strap[1], O. Qureshi[1], H. Sohail[1], A. Latos[2]; [1]Univ. of Ontario Inst. of Technology, Oshawa, ON, CANADA, [2]Univ. of Toronto, Toronto, ON, CANADA.

457 Controlling Ineffective Indigenous Brady*Rhizobium* japonicum with Phages to Enhance Soybean Nodulation and Biological Nitrogen Fixation by Inoculant Strains
F. M. Hashem, B. Green, R. B. Dadson; Univ. of Maryland Eastern Shore, Princess Anne, MD.

458 Biochemical and Gene Expression Analysis of Lipopeptide Surfactant Production in *Variovorax paradoxus* EPS
R. J. Fredendall[1], R. W. Belcher[2], P. M. Orwin[1]; [1]California State Univ., San Bernardino, San Bernardino, CA, [2]Univ. of California, Riverside, Riverside, CA.

459 Application of Biossurfactants and Polymers from *Bacillus subtilis* RI4914 to Microbial Enhanced Oil Recovery
P. L. Fernandes[1], F. R. Paiva[1], P. B. Nobre[1], G. S. Barcelos[1], H. C. Mantovani[1], M. J. McInerney[2], M. R. Totola[1]; [1]Federal Univ. of Viçosa, Viçosa - MG, BRAZIL, [2]Univ. of Oklahoma, OK.

460 The Investigation of Reduced Phosphorus Species of Possible Microbial Origin from the Hindgut of Termites
L. Shi, T. M. Salmassi; California State Univ., Los Angeles, Los Angeles, CA.

461 Enhanced Induction of Mutation by Extracellular Nucleic Acids in *Escherichia coli*
T. Kenzaka[1], H. Nasuno[1], T. Kuga[1], M. Nasu[2], K. Tani[1]; [1]Osaka Ohtani Univ., Tondabayashi, JAPAN, [2]Osaka Univ., Suita, JAPAN.

462 Engineering Global Regulator cAMP Receptor Protein for Improved Cell Performance Under Stress
H. Chong, L. Huang, R. Jiang; Nanyang Technological Univ., Singapore, SINGAPORE.

463 Diversity of bamA Populations in Biogeographically Distinct Sediments
E. A. Rodgers-Vieira[1], A. W. Porter[1], Q. Wang[2], E. Kim[3], J. R. Cole[2], L. Y. Young[1], G. J. Zylstra[1]; [1]Rutgers, The State Univ. of New Jersey, New Brunswick, NJ, [2]Michigan State Univ., East Lansing, MI, [3]Yonsei Univ., Seoul, KOREA, REPUBLIC OF.

464 Activities and Transcriptomic Response of PAH-degrading *Sphingomonas* sp. LH128 Biofilms Induced with Solute Stress
T. Fida[1], B. Philip[1], L. Rob[1], C. Edith[2], J. Dave[2], v. Jan Roelof[2], M. Antonia[2], H. J. Hermann[3], H. Johan[1], S. Dirk[1]; [1]KU Leuven, Heverle, BELGIUM, [2]Univ. of Lausanne, Lausanne, SWITZERLAND, [3]Helmholtz Ctr. for Environmental Res., Leipzig, GERMANY.

465 Egalitarianism in biofilm
D. Gao[1,2]; [1]Harbin Inst. of Technology, Harbin, CHINA, [2]Northeast Forestry Univ., Harbin, CHINA.

466 *Campylobacter jejuni* in mixed-culture biofilms
V. Caner[1], T. Ica[2], O. Istanbullu[2], D. R. Call[2], H. Beyenal[2]; [1]Pamukkale Univ., Pamukkale, TURKEY, [2]Washington State Univ., Pullman, WA.

467 Exclusive Localization of Tellurium Nanorod Structures in Periplasm of *Shewanella oneidensis* MR-1
D. Kim[1], K. Kwon[1], H-G. Hur[1,2]; [1]Gwangju Inst. of Sci. and Technology, Gwangju, KOREA, REPUBLIC OF, [2]Intl. Environmental Analysis and Ed. Ctr., Gwangju, KOREA, REPUBLIC OF.

468 Molecular Breeding of Yeast Strains with Ability to Adsorb Uranyl Ion by Cell Surface Engineering
K. Ebisutani, K. Iida, T. Nishitani, K. Kuroda, M. Ueda; Graduate. Sch. of Agriculture, Kyoto Univ., Kyoto, JAPAN.

469 Adaptation of *Shewanella oneidensis* MR-1 to Elevated NaCl in Experimental Evolution
M. XIE, A. Zhou, D. Qiu, Z. He, J. Van Nostrand, L. Wu, J. Zhou; Inst. for Environmental Genomics, Norman, OK.

470 Why Some *Pseudoalteromonas* Species Will Die During 10 Days Cultivation
E. Darabpour[1,2], M. Roayaei Ardakani[2], H. Motamedi[2]; [1]Univ. of Tehran, Tehran, IRAN, ISLAMIC REPUBLIC OF, [2]Shahid Chamran Univ., Ahvaz, IRAN, ISLAMIC REPUBLIC OF.

471 Functional and Structural Analysis of Homogentisate 1,2-Dioxygenase in Comamonas sp. Strain P19
B. Soh[1,2], J. Ju[1], J-S. Kim[3], G. J. Zylstra[4], K-J. Lee[1], J-C. Chae[1]; [1]Chonbuk Natl. Univ., Iksan, KOREA, REPUBLIC OF, [2]Seonam Univ., Namwon, KOREA, REPUBLIC OF, [3]Chonnam Natl. Univ., Gwangju, KOREA, REPUBLIC OF, [4]Rutgers Univ., New Brunswick, NJ.

472 Dynamics of Rhizosphere Microbial Communities During the Phytostabilization of Metalliferous Desert Mine Tailings: A Mesocosm Experiment
A. Valentin-Vargas, K. N. Nelson, R. A. Root, J. Chorover, R. M. Maier; The Univ. of Arizona, Tucson, AZ.

473 Toxicity of Copper Nanoparticles to Laboratory Strains of *Bacillus* and *E. coli* and its Use for Validation of Their Environmental Impact
A. Alboloushi, A. Alum, M. Abbaszadegan; Arizona State Univ., Tempe, AZ.

474 Improvement of Bacterial Hydrogen Production by ATP in Mixed Organic Compounds Extracted from *Rhodobacter sphaeroides* Aerobically Cultured Under Dark Conditions
H. J. Lee[1], Y-H. Kim[2], J. Min[1]; [1]Chonbuk Natl. Univ., Jeonju, KOREA, REPUBLIC OF, [2]Chungbuk Natl. Univ., Cheongju, KOREA, REPUBLIC OF.

475 Halogenation Enzymes in Bacteria Associated with the Acorn Worm, Ptychodera jamaicensis
M. M. Lilles[1], S. Rech[1], J. Shinseki[1], M. Ngo[1], O. Garcia[2], V. Tran[1]; [1]San Jose State Univ., San Jose, CA, [2]Gavilan Coll., Gilroy, CA.

476 Production of Bacteriorhodopsin by *Halobacterium* Incubated under Light Illumination
Z-S. Lin[1], S-C. Hsu[1], P-Y. Weng[2], C-H. Hung[1]; [1]Dept. of Environmental Engineering, Natl. Chung Hsing Univ., Taichung, TAIWAN, [2]Graduate Inst. of Environmental Engineering, Natl. Taiwan Univ., Taichung, TAIWAN.

477 Modification of the Validated AOAC Three Step Method (TSM) to One Step Method (OSM) to Accommodate Testing of Spores of *Clostridium difficile*
J. Hasan, S. Tomasino, K. Japal; US EPA, Ft. Meade, MD.

478 Involvement of aa3-Type *Cytochrome c* Oxidase in Ubiquinol Oxidase Activity of Iron- and Sulfur-Grown Acidithio*Bacillus* ferrooxidans
T. Sugio[1], F. Takeuchi[2]; [1]Sugio Inst. of Chemolithoautotrophy, Okayama, JAPAN, [2]Environmental Management Ctr., Okayama Univ., Okayama, JAPAN.

479 Long-term Analysis of Nitrogen Cycling Genes in Biochar-ammended Soils Using Quantitative Real-Time PCR
T. F. Ducey[1], J. A. Ippolito[2], K. B. Cantrell[1], J. M. Novak[1]; [1]Agricultural Res. Service - USDA, Florence, SC, [2]Agricultural Res. Service - USDA, Kimberly, ID.

480 Isolation and Characterization of an *Aspergillus* Species Found to be Pathogenic to Incisitermes Minor Drywood Termites
D. C. Ojala, R. Graham-Howard, C. Scarth, E. Woertz, S. M. Richart; Azusa Pacific Univ., Azusa, CA.

481 Bacteria Associated with the Initial Inoculum of Leaf Cutter Ants´ Fungus Gardens
R. Moreira[1], E. Sanchez[1], C. Currie[2], A. Pinto[1]; [1]Univ. de Costa Rica, San Jose, COSTA RICA, [2]Univ. of Wisconsin-Madison, WI.

034 Metagenomics and Symbiosis (Division R)

10:45 a.m. – 12:30 p.m.; Poster Hall

482 Microbiome Analysis of Turkey Gut: Initial Colonization, Flock Environment and Gut Health
J. L. Danzeisen, A. J. Calvert, S. L. Noll, T. J. Johnson; Univ. of Minnesota, St. Paul, MN.

483 Comparison of Microarray and Metagenomic Sequencing for Detecting *Dehalococcoides* Genes
V. L. Brisson[1], P. K. H. Lee[1,2], L. Alvarez-Cohen[1,3]; [1]Univ. of California, Berkeley, CA, [2]City Univ. of Hong Kong, HONG KONG, [3]Lawrence Berkeley Natl. Lab., Berkeley, CA.

484 Comparison of Standard and Novel Sequence-Based Bioinformatic Methods for Examination of the Human Salivary Microbiome
N. A. Hasan[1,2], S. A. Faith[3], H. Li[1], D. M. Bornman[3], A. Minard-Smith[3], B. A. Young[3], S. Y. Choi[1,2], A. G. Longmire[1], T. A. Cebula[1,4], R. R. Colwell[1,2,5,6]; [1]CosmosID Inc, College Park, MD, [2]Univ. of Maryland, College Park, MD, [3]Battelle Mem. Inst., Columbus, OH, [4]Dept. of Biology, Johns Hopkins Univ., Baltimore, MD, [5]Johns Hopkins Bloomberg Sch. of Publ. Hlth., Baltimore, MD, [6]Ctr. for Bioinformatics and Computational Biology, Univ. of Maryland, College Park, MD.

485 Functional Metagenomic Analysis Reveals Selection for Antibiotic Resistance in the Gut Microbiota During Intensive Care Hospitalization
E. Bülow[1], L. A. Ogilvie[2], T. B. Gonzalez[3], M. W. J. van Passel[4], H. Smidt[3], M. J. M. Bonten[1], R. J. L. Willems[1], B. V. Jones[2], W. Van Schaik[1]; [1]Dept. of Med. Microbiol., Univ. Med. Ctr. Utrecht, NETHERLANDS, [2]Ctr. for BioMed. and Hlth.Sci. Res., Sch. of Pharmacy and Biomolecular Sci., Univ. of Brighton, UNITED KINGDOM, [3]Lab. of Microbiol., Wageningen Univ., NETHERLANDS, [4]Systems and Synthetic Biology, Wageningen Univ., NETHERLANDS.

486 Widespread Potential of Antibiotic Resistance in Marine Habitats
S. M. Hatosy, A. J. Fields, A. C. Martiny; Univ. of California, Irvine, CA.

487 Comparing the Diversity Present in Forests Soils Metagenomic Libraries, and the Soil Sources Using Denaturing Gradient Gel Electrophoresis
S. L. Silva-Del Toro, C. Rios-Velazquez; Univ. of Puerto Rico, Mayaguez Campus, Mayaguez, PUERTO RICO.

488 VIROME: A Shotgun Metagenome Analysis and Exploration Tool
S. W. Polson[1], J. D. Bhavsar[1,2], D. Nasko[1], S. Khaleel[1], K. E. Wommack[1]; [1]Univ. of Delaware, Newark, DE, [2]Univ. of Maryland, Baltimore, MD.

489 Comparative Resistome of a Polluted and Preserved Area in an Urban Stream
J. D. Medeiros[1], M. E. Cantão[2], M. F. Nicolás[2], C. G. Diniz[1], V. L. Silva[1], D. E. Cesar[1], A. T. Ribeiro de Vasconcelos[3], C. M. Coelho[1]; [1]Federal Univ. of Juiz de Fora, Juiz de Fora, BRAZIL, [2]Natl. Lab. of Scientific Computation, Petrópolis, BRAZIL, [3]Laboratório Natl. de Computação Científica, LNCC, Petrópolis, BRAZIL.

490 Metatranscriptomics of Coastal Microbial Community Response to the Deepwater Horizon Oil Spill
R. Lamendella[1], S. Borglin[1], R. Chakraborty[1], O. U. Mason[1], J. Hultman[2], E. Prestat[1], T. C. Hazen[3,4], J. Jansson[1,5,6]; [1]Lawrence Berkeley Natl. Lab., Berkeley, CA, [2]Univ. of Helsinki, Helsinki, FINLAND, [3]Univ. of Tennessee, Knoxville, TN, [4]Oak Ridge Natl. Lab., Oak Ridge, TN, [5]Joint Genome Inst., Walnut Creek, CA, [6]Joint Bioenergy Inst., Emeryville, CA.

491 Identification, Characterization and Modeling of Cellulases Active Against Oil Palm Empty Fruit Bunch from Metagenomic Library of Extreme Environments
D. C. Ardila[1], L. M. Palma[1], A. F. González[1], S. Restrepo[1], M. M. Zambrano[2]; [1]Univ. de los Andes, Bogota, COLOMBIA, [2]Corpogen, Bogota, COLOMBIA.

492 Evaluation of Multiplexed 16S rRNA Microbial Population Surveys Using Ilumina MiSeq Platform
J. Tremblay, E. S. Kirton, K. Singh, F. Chen, S. G. Tringe; DOE Joint Genome Inst., Walnut Creek, CA.

493 Comparative Metagenetics of the Bacterial Communities in the Coral Montastraea cavernosa
J. K. Jarett, C. L. Fiore, M. P. Lesser; Univ. of New Hampshire, Durham, NH.

494 Limnology of Lake Vostok Inferred from Accretion Ice Metagenomics and Metabolomics
Y. M. Shtarkman[1], R. Edgar[2], Z. A. Koçer[3], P. F. Morris[1], S. O. Rogers[1]; [1]Bowling Green State Univ., Bowling Green, OH, [2]Mount Allison Univ., Sackville, NB, CANADA, [3]St. Jude Children's Res. Hosp., Memphis, TN.

495 An Infant Gut Microbiome Observed with Time-series Metagenomics of Daily Samples
A. E. Darling[1], E. K. F. Chan[2], T. Nelson[3], J. Zhang[1], D. Larsen[4], G. Jospin[1], T. Treangen[5], J. Eisen[1,6]; [1]Univ. of California, Davis, CA, [2]-, Davis, CA, [3]Univ. of New South Wales, Sydney, AUSTRALIA, [4]Univ. of Michigan, MI, [5]Johns Hopkins Univ., MD, [6]DOE Joint Genome Inst., Walnut Creek, CA.

496 Unravel Potential Biomedical Bioremediation Activities Using Metagenomics
E. F. Ferrer González, C. Ríos Velázquez; Univeristy of Puerto Rico at Mayaguez, Mayaguez, PR.

497 Metagenomic Analysis of Greenland Ice During Times of High and Low Atmospheric CO2
C. Knowlton, S. Rogers; Bowling Green State Univ., Bowling Green, OH.

498 Metagenomic Analysis of Microbial Communities in Winogradsky Columns
E. A. Rundell[1], L. Banta[2], D. J. Esteban[1]; [1]Vassar Coll., Poughkeepsie, NY, [2]Williams Coll., Williamstown, MA.

499 Metagenomic Study of the Transformation of Oral Microbiome from Normal Oral Cavity to Acute Endodontic Infections
W. W. Hsiao[1], K. L. Li[2], Z. Liu[3], C. Jones[4], C. Fraser-Liggett[4], A. F. Fouad[2]; [1]BCCDC Publ. Hlth.Lab., Vancouver, BC, CANADA, [2]Sch. of Dentistry, Univ. of Maryland, Baltimore, MD, [3]Sch. of Med., Univ. of Maryland, Baltimore, MD, [4]Inst. for Genome Sci., Univ. of Maryland, Baltimore, MD.

500 Metagenomic and Metabolomic Analyses of Surface Ice from Lake Erie
Y. M. Shtarkman[1], R. Edgar[2], N. A. D'souza[1], Z. A. Koçer[3], P. F. Morris[1], S. O. Rogers[1]; [1]Bowling Green State Univ., Bowling Green, OH, [2]Mount Allison Univ., Sackville, NB, CANADA, [3]St. Jude Children's Res. Hosp., Memphis, TN.

501 Comprehensive Analysis of Intestinal Microbiome of Poultry Using Both PITChip 2 and Pyrosequencing
S. Wei[1], A. Gutek[1], L. Wang[1], M. Lilburn[1], M. Morrison[1,2], R. Moore[2], Z. Yu[1]; [1]The Ohio State Univ., Columbus, OH, [2]CSIRO Livestock Industries, AUSTRALIA.

502 FISH 'n' Chips: Single-cell Genomic Analysis of Complex Microbial Communities
R. J. Meagher[1], P. Liu[1], Y. K. Light[1], S. Yilmaz[1], D. Saxena[2], A. K. Singh[1]; [1]Sandia Natl. Lab., Livermore, CA, [2]New York Univ., New York, NY.

503 Acetic Acid Bacteria Dominate the Gut Microbiome of Overwintering Monarch Butterflies
L. Servín, A. Sánchez-Quinto, E. Martinez-Romero; Genomic Sci. Ctr., UNAM, Cuernavaca, MEXICO.

504 Bacterial symbionts of the Cochineal Insect *Dactylopius coccus*
S. Ramírez-Puebla, M. Rosenblueth, E. Martínez-Romero; Genomic Sci. Ctr., UNAM, Cuernavaca, MEXICO.

505 Endophytic Bacteria of Forest Conifers: Specificity and Adaptive Potential of an Unexplored Symbiosis
C. Frank, A. Carrell, E. Wilson; UC Merced, Merced, CA.

506 Deep, Massively Parallel Sequence Community Analysis of Clinical Melioidosis Urine and Sputum Metagenomes
J. M. Schupp[1], A. Rawat[1], J. L. Buchhagen[1], R. E. Colman[1], J. Gillece[1], L. Richardson[2], M. Kaestli[2], M. Mayo[2], D. Wagner[3], D. M. Engelthaler[1], B. Currie[4,5], P. Paul[1,3]; [1]Translational Genomics, Flagstaff, AZ, [2]Menzies Sch. of Hlth.Res., Charles Darwin Univ., Darwin, AUSTRALIA, Darwin, AUSTRALIA, [3]Northern Arizona Univ., Flagstaff, AZ., Flagstaff, AZ, [4]Menzies Sch. of Hlth.Res., Charles Darwin Univ., Darwin, AUSTRALIA, dar, AZ, [5]Royal Darwin Hosp., Darwin, AUSTRALIA, Darwin, AUSTRALIA.

507 Composition of Oyster (*Crassostrea virginica*) Stomach and Gut Microbiomes and Potential Impact of a Freshwater Diversion
G. M. King[1], C. Judd[1], C. Kuske[2]; [1]Louisiana State Univ., Baton Rouge, LA, [2]Los Alamos Natl. Lab., Los Alamos, NM.

035 Viral Pathogenesis and Disease (Division S)

10:45 a.m. – 12:30 p.m.; Poster Hall

508 Abrogation of vhs's RNase Activity in Herpes Simplex Virus Type 1 is Able to Increase the Efficiency of Translation in the Absence of VP22
E. F. Mbong[1], L. Woodley[1], E. Dunkerley[1], J. E. Schrimpf[2], L. A. Morrison[2], C. Duffy[1]; [1]Univ. of Alabama, Tuscaloosa, AL, [2]Saint Louis Univ. Sch. of Med., St. Louis, MO.

509 Characterization of the Enzymatic Activities of the VZV Terminase Proteins
J. J. Gerber, R. J. Visalli; Indiana Univ. Purdue Univ. Fort Wayne, Fort Wayne, IN.

510 The US27 Gene of Human Cytomegalovirus Enhances Signaling of Host Chemokine Receptor CXCR4
K. L. Arnolds, J. V. Spencer; Univ. of San Francisco, San Francisco, CA.

511 Identification of Eukaryotic Viruses in the Oral Cavity Using Density Gradient Centrifugation and Virochip Analysis
R. Le[1], K. Schwarzberg[1], M. Furlan[1], J. Slots[2], S. T. Kelley[1], University of California, San Francisco Viral Diagnostics and Discovery Center; [1]San Diego State Univ., San Diego, CA, [2]Univ. of Southern California, Los Angeles, CA.

512 Murine Cytomegalovirus (MCMV) Infection Upregulates p38 MAP Kinase in Aortas of Apo E KO Mice: A Molecular Mechanism for MCMV-Induced Acceleration of Atherosclerosis
G. R. Lochhead, Y. J. Tang Feldman, S. R. Lochhead, M. George, C. Pomeroy; Univ. of California, Davis, Davis, CA.

513 EBNA-2 and LMP-1 Sequence Determination of Epstein - Barr Virus (EBV) Isolates from a Cluster of Epstein-Barr Virus-Associated Hemophagocytic Lymphohistiocytosis in United States
T. Kelesidis, R. Humphries; UCLA, Los Angeles, CA.

514 Dissecting the Role of Autophagy in BK Virus Infection of Host Cells
S. J. Bouley; Assumption Coll., Worcester, MA.

515 Microarrays Applied to Rapid Detection and Characterization of Viral and Bacterial Pathogens
J. B. Thissen, S. Gardner, K. McLoughlin, T. Slezak, C. Jaing; Lawrence Livermore Natl. Lab, Livermore, CA.

516 Acidic Arginine as a New Antiviral Strategy Against Body Surface Herpetic Infection
K. Ikeda[1], K. Tsujimoto[2], H. Yamasaki[1], Y. Suzuki[1], T. Naito[3], H. Irie[4], T. Arakawa[5], A. H. Koyama[1,2]; [1]Wakayama Med. Univ., Wakayama, JAPAN, [2]Wakayama Shin-Ai Women's Junior Coll., Wakayama, JAPAN, [3]Tokushima Univ. Sch. of Med., Tokushima, JAPAN, [4]Teikyo Univeristy Sch. of Med., Tokyo, JAPAN, [5]Alliance Protein Lab., Thousand Oaks, CA.

517 Genotype Distribution of Rotavirus infections in Urban and Rural Nepal
L. Bodhidatta[1], S. Shrestha[2], S. Silapong[1], B. Shrestha[3], J. Dhakwa[4], O. Sethabutr[1], C. J. Mason[1]; [1]Armed Forces Res. Inst. of Med. Sci., Bangkok, THAILAND, [2]Walter Reed/AFRIMS Res. Unit-Nepal (WARUN), Kathmandu, NEPAL, [3]Bharatpur Hosp., Bharatpur, NEPAL, [4]Kanti Children Hosp., Kathmandu, NEPAL.

518 A Simple Solution for Medical Device Viral Ingress Testing of Human Immuno Virus and Hepatitis B Virus
A. Ball, S. Malia, L. Desai; Toxikon Corp., Bedford, MA.

519 Molecular Epidemiological Investigation of Hepatitis B Virus Infection Status in the HBsAg-positive Population from Guangdong Province of China
Y. Chang[1,2], X-L. Guo[1], Z-Y. Zeng[1], S. Wu[1,2]; [1]Kingmed Ctr. For Clinical Lab., Guangzhou, CHINA, [2]Tianjin Med. Univ., Tianjin, CHINA.

520 Immune Gene Expression Profiles in Swine Inguinal Lymph Nodes with Different Grades of Porcine Circovirus Type 2 Infection
C-M. Lin, C-R. Jeng, V. Pang; Graduate Inst. of Vet. Med., Sch. of Vet. Med., Natl. Taiwan Univ., TAIWAN.

036 Epidemiology and Antivirals (Division T)

10:45 a.m. – 12:30 p.m.; Poster Hall

521 Design and Synthesis of HIV-1 Capsid Core Inhibitors Using SAR Analysis
J. D. Brown[1], M. F. Summers[2]; [1]Univ. of West Florida, Pensacola, FL, [2]Univ. of Maryland Baltimore County, Baltimore, MD.

522 A Multiplexed Cell-Based Assay for the Screening of Viral Protease Inhibitors
C. Smurthwaite, B. Hilton, C. Rajakuberan, R. Wolkowicz; San Diego State Univ., San Diego, CA.

523 Analysis of Hiv Co-receptor Novel Ccr5 Mutations Obtained from an African-american Family
A. L. Clarke, A. A. Lilly, E. M. McCallister, D. A. Shuman, J. Meier, H. W. Kestler, III; LORAIN COUNTY COMM Coll., ELYRIA, OH.

524 The Analysis of the CCR5 Delta 32 Deletion Mutation from a Population in Northeastern Ohio
A. C. Shawver, J. N. Makowski, C. J. Anderson, V. Soewarna, A. Fulton, M. N. Sheldon, H. W. Kestler, III; LORAIN COUNTY COMM Coll., ELYRIA, OH.

525 Use of Deep Sequencing to Analyze Rabies Virus Quasispecies during Cross-Species Transmission Events
M. Borucki[1], J. Allen[1], S. Messenger[2], T. Slezak[1]; [1]Lawrence Livermore Ntl Lab, Livermore, CA, [2]California Dept. of Publ. Hlth., Richmond, CA.

526 First Isolation and Characterization of Equine Influenza H3N8 Virus from Stud Farm in South Korea, 2011
W-S. Na[1,2], M. Hong[1,2], E-J. Song[1,3], J-H. Nam[1], H. Moon[4], B. Kang[4], D. Song[1,2], H. Poo[1,2], J-K. Kim[1,3]; [1]Korean Res. Inst. of BioSci. and Biotechnology, Daejeon, KOREA, REPUBLIC OF, [2]Univ. of Sci. and Technology, Daejeon, KOREA, REPUBLIC OF, [3]Coll. of Pharmacy, Korea Univ., Chungnam, KOREA, REPUBLIC OF, [4]Res. Unit, Green Cross Vet. Products, Yong-in, KOREA, REPUBLIC OF.

527 Genetic Dominance of Recombinants from Natural Mixed Infection Case with Canine Influenza Viruses H3N2 and Recombinant H3N1 Subtypes
M. Hong[1,2], W. Na[1,2], E-J. Song[1,3], J-H. Nam[1], H. Moon[4], B. Kang[4], H. Poo[1,2], J-K. Kim[1,3], D. Song[1,2]; [1]Korea Res. Inst. of BioSci. and Biotechnology, Daejeon, KOREA, REPUBLIC OF, [2]Univ. of Sci. and Technology, KOREA, REPUBLIC OF, [3]Coll. of Pharmacy, Korea Univ., KOREA, REPUBLIC OF, [4]Res. Unit, Green Cross Vet. Products, Yongin, KOREA, REPUBLIC OF.

528 Inter- and Intraspecies Transmission of Canine Influenza Virus (H3N2) in Dogs, Cats, and Ferrets
E-J. Song[1,2], M. Hong[1], W. Na[1], H. Moon[3], D. Song[1], J-K. Kim[1,2], B. Kang[3]; [1]Korea Res. Inst. of BioSci. and Biotechnology, Daejeon, KOREA, REPUBLIC OF, [2]Coll. of Pharmacy, Korea Univ., Yeongigun, Chungnam, KOREA, REPUBLIC OF, [3]Res. Unit, Green Cross Vet. Products, Yong-In, Gyeonggi, KOREA, REPUBLIC OF.

529 In-Silico Drug Discovery of Influenza Virus Polymerase Complex Inhibitors
A. O. Díaz[1], W. I. Silva[2], M. Otero[2], H. M. Maldonado[3]; [1]UPR Cayey, Cayey, PR, [2]UPR Med. Sci. Campus, San Juan, PR, [3]UCC Med. Sch., Bayamón, PR.

530 Identification of Norovirus in Infants with Gastroenteritis in the City of Chihuahua
L. E. Davila-Romero[1], M. R. Medina-Soltero[1], T. Siquieros-Cendon[1], F. J. Zavala Diaz-de la Serna[1], M. C. González-Horta[1], B. E. Sánchez-Ramírez[1], G. Erosa de la Vega[1], J. F. Contreras-Cordero[2], R. Infante-Ramírez[1]; [1]Univ. Autonoma de Chihuahua, Chihuahua, Chih., MEXICO, [2]Univ. Autonoma de Nuevo León, Monterrey, N.L., MEXICO.

531 Protective Immune Response to Measles Virus in Vaccinated and Unvaccinated Children in KARACHI-PAKISTAN
G. Fatima[1], S. U. Kazmi[2]; [1]Univ. of Karachi and Civil Hosp., Karachi, PAKISTAN, [2]Univ. of Karachi, Karachi, PAKISTAN.

532 A Field-Derived *Aedes aegypti* Mosquito Population from Southern New Mexico is Susceptible to Infection with All Four Serotypes of Dengue Virus
W. L. Johnson, D. P. Price, I. A. Hansen, K. A. Hanley; New Mexico State Univ., Las Cruces, NM.

533 Prevalence of Circulating Coronaviruses in Domestic and Wild Ruminants in Arkansas, USA
L. B. Mullis[1], J. O. Britt[2], R. S. Steele[1], M. P. Azevedo[1]; [1]The Natl. Ctr. for Toxicological Res., Jefferson, AR, [2]Vet. Diagnostic Lab., AR Livestock & Poultry Commision, Little Rock, AR.

534 Peptide Functionalized Gold Nanoparticles in the Inhibition of Respiratory Syncytial Virus
P. M. Tiwari, K. Vig, V. A. Dennis, S. R. Singh; Alabama State Univ., Montgomery, AL.

535 Functionalization of a Multivalent DNA Vaccine with Gold Nanoparticles for Enhanced Delivery
P. Subbarayan, V. A. Dennis, A. B. Waffo, K. Vig, S. R. Singh; Ctr. for NanoBiotechnology Res., Alabama State Univ., Montgomery, AL.

536 Designing Cross-Protective RNAi Inhibitors Targeting the Flaviviral 3' UTR
N. E. Maes, P. Kumar; Yale Univ. Sch. of Med., New Haven, CT.

537 A New Mucosal Vaccine Shows Cross-Strain Protective Immunity Against Influenza
M. Arévalo, M. ZENG; Texas Tech U Hlth.Sci Ctr, El Paso, TX.

538 *In vitro* and *in vivo* Expression of RSV-F DNA Vaccine and Development of Nanoparticle Delivery System for a DNA Vaccine
E. Eroglu, A. B. Waffo, V. A. Dennis, K. Vig, P. M. Tiwari, S. R. Singh; Alabama State Univ., Montgomery, AL.

539 qRT PCR of Sense vs. Antisense Sendai Virus Variants
E. Bucar; California State Univ., Los Angeles, CA.

037 Virus Replication and Host Cell Interactions (Division T)

10:45 a.m. – 12:30 p.m.; Poster Hall

540 Stress Granule Proteins are Required for the Assembly of the Betaretrovirus Mouse Mammary Tumor Virus
D. Bann, A. R. Beyer, L. J. PARENT; Penn State Coll. of Med., Hershey, PA.

541 Bimolecular Fluorescence Complementation Reveals Ubiquitin and SUM01 regulation of Nipah Virus Matrix Protein Sub-nuclear Trafficking
T. Lester, M. Pentecost, Y. E. Wang, B. Lee; UCLA, Los Angeles, CA.

542 Alphavirus RNAs Bind the Cellular HuR Protein and Alter the Regulation of Cellular mRNA Stability
A. W. Emch, A. M. Dickson, S. L. Moon, J. R. Anderson, J. Wilusz; Colorado State Univ., Fort Collins, CO.

543 Imbalance of Placental Treg and Th17 Cell Dynamics in the FIV-infected Cat
C. E. Boudreaux[1], K. S. Coats[2]; [1]Virginia Tech Carilion Sch. of Med. and Res. Inst., Roanoke, VA, [2]Mississippi State Univ., Mississippi State, MS.

544 A Compensatory Mutation Provides Resistance to Disparate HIV Fusion Inhibitor Peptides and Enhances Membrane Fusion
M. P. Wood, A. L. Cole, A. M. Cole; Univ. of Central Florida Coll. of Med., Orlando, FL.

545 Transwell Limiting Dilution Co-culture as a Novel and Effective Method for HIV-1 Latent Reservoir Analysis
Y-C. Ho, J. N. Blankson, R. F. Siliciano; Johns Hopkins Univ. Sch. of Med., Baltimore, MD.

546 CD16+ Monocytes as a Potential HIV-1 Viral Reservoir in HAART-Suppressed Patients
F. Irizarry-Delgado[1], M. D. Hill[2], L. Godoy-Munoz[2], E. Lorenzo[3], S. Valentin[4], G. Tirado[2], M. Vazquez[2], C. A. Lopez-Rivera[2]; [1]Pontifical Catholic Univ. of Puerto Rico, Ponce, PR, [2]Ponce Sch. of Med. & Hlth.Sci., Ponce, PR, [3]Natl. Inst. of Allergy and Infectious Diseases, Bethesda, MD, [4]San Juan Bautista Med. Sch., Caguas, PR.

547 Arenavirus Attenuation Mechanisms
A. Grant, C. Peters; UTMB, Galveston, TX.

548 Influenza a Virus Nuleoprotein Induces Cell Death in Human Lung Epithelial Cells by Targeting Clusterin
S. Tripathi[1], W. Cao[2], K. Sharma[1], J. R. Patel[2], P. Ranjan[2], J. M. Katz[2], N. J. Cox[2], R. B. Lal[2], S. Sambhara[2], S. K. Lal[1]; [1]Intl. Ctr. for Genetic Engg. & Biotechnology, New Delhi, INDIA, [2]Influenza Div., Natl. Ctr. for Immunization and Respiratory Diseases, CDC, Atlanta, GA.

549 Binding of Influenza Virus to Host Factors
K. M. Gallegos, A. A. Weiss; Univ. of Cincinnati, Cincinnati, OH.

550 Deficiency of Il-6 Impairs Lung Repair after Influenza Virus Infection Through Tgf-β Overexpression
WITHDRAWN

551 Pre-Stimulation with Toll-Like Receptor Agonists Improves the Outcome of Highly Pathogenic Avian Influenza Virus Infection Challenge
M. N. Maughan, C. M. Boettger, B. S. Ladman, C. L. Keeler, Jr.; Univ. of Delaware, Newark, DE.

552 Autophagosome Acidification Promotes a Late Step in Infectious Poliovirus Production
A. L. Richards, W. T. Jackson; Med. Coll. of Wisconsin, Milwaukee, WI.

553 The Interferon-Stimulated Gene *IFITM3* Restricts Reovirus Cell Entry
A. Anafu[1], A. L. Brass[2,3], G. H. Holm[1]; [1]Colgate Univ., Hamilton, NY, [2]Ragon Inst. of Massachusetts Gen. Hosp., Massachusetts Inst. of Technology, and Harvard Univ., Charlestown, MA, [3]Gastrointestinal Unit, Dept. of Med., Massachusetts Gen. Hosp., Boston, MA.

554 Utilizing *in vivo* Imaging Systems (IVIS)to Visualize the Early Infection of TC83 and the Caudal Viral Progression within the CNS
WITHDRAWN

555 Reduced mRNA and Protein Levels Cause a Decrease in Viral Production in Sendai Virus
C. M. House, N. L. McQueen; California State Univ. Los Angeles, Los Angeles, CA.

556 Experimental Murine Model for the Pathogenesis Study of Dengue Viruses
D. F. B. Vieira, Ortrud Monika Barth, Hermann Gonçalves Schatzmayr; Fundação Oswaldo Cruz, Rio de Janeiro, BRAZIL.

557 The Loss of Infectivity Due to a 1 nt-Deletion in the RdRP Coding Region of an Ourmiavirus Agroclone Can Be Restored by the Presence of a Specific Mutation in a Distinct Region of the Viral RdRP
M. Ciuffo, M. Rossi, M. Turina; Plant Virology Inst., CNR, Torino, ITALY.

038 Diagnostic Clinical Microbiology (Division V)

10:45 a.m. – 12:30 p.m.; Poster Hall

558 Demonstrating the Performance of a Fully Integrated, Low-cost, Ultra-rapid PCR Device with Point-of-Care Applications
M. Green, J. Squibbs, A. Larry, S. Brake, A. Webster, D. Shenton; Atlas Genetics Ltd, Trowbridge, UNITED KINGDOM.

559 Comparison of Two Commercially Available Automated ANA Screening Methods
G. Kallstrom, Ph.D., A. Wong, B. Hu, C. Higashida, W. A. Agee, III, C. A. Barrera, T. Chang; Tripler Army Med. Ctr., Honolulu, HI.

560 Rapid Detection of *Streptococcus agalactiae* by a Newly Developed Immunochromatographic Test
H. Matsui[1], T. Ohdan[2], L. Cui[1], T. Nakae[1], K. Sunakawa[1], H. Hanaki[1]; [1]Kitasato Univ., Tokyo, JAPAN, [2]Kohjin Bio Co., Ltd., Saitama, JAPAN.

561 A Novel Assay for the Identification of Multiple Human Csf Viral and Bacterial Pathogens in a Single Sample
K. E. Dempsey[1], M. van Ranst[2], E. Wollants[2], E. Keyaerts[2], C. Estell[1], **A. Ricketts**[1], K. Fitchett[1], J. Redden[1]; [1]Renishaw Diagnostics Limited, Glasgow, UNITED KINGDOM, [2]Rega Inst. for Med. Res., Leuven, BELGIUM.

562 *Mycobacterium tuberculosis* Diagnosis Using Transrenal DNA
L. G. Klinkenberg, A. Kolyva, B-S. Chia, P. C. Karakousis; Johns Hopkins Univ., Baltimore, MD.

563 A Novel Monoclonal Antibody Detects *Aspergillus* Galactomannan Antigens in Urine
K. Datta[1], S. F. Dufresne[1,2], X. Li[3], M. Feldmesser[3], J. F. Staab[1], K. A. Marr[1,4]; [1]Dept. of Med., John Hopkins Univ. Sch. of Med., Baltimore, MD, [2]Université de Montréal, Montreal, QC, CANADA, [3]Dept. of Micrbiology & Immunology, Albert Einstein Coll. of Med., Bronx, NY, [4]Sidney Kimmel Comprehensive Cancer Ctr., John Hopkins Univ. Sch. of Med., Baltimore, MD.

564 Method Comparison of Three ASR Reagents for PCR Detection of Varicella-zoster Virus
T. N. Weiler, M. E. Nedd, T. S. Uphoff; Marshfield Labs, Marshfield, WI.

565 New Rapid Immunoassay for the Direct Detection of *Legionella pneumophila* serogroup 1 in Human Urine
G. Stroup, C. Maity, J. Kraft, K. Johnson, S. Elagin; Meridian BioSci., Cincinnati, OH.

566 Poor Sensitivity and Specificity of Serology in the Diagnosis of Pulmonary Tuberculosis
S. Singh, J. Singh, S. Kadian; All India Inst. of Med. Sci., New Delhi, INDIA.

567 Configurable Viral Agent Assays for Biodefense Pathogens
T. Motley[1], D. Duncan[1], S. Hofstadler[1], D. Ecker[1], C. Redden[2], M. Rosovitz[2], J. Burans[2], M. Eshoo[1]; [1]Ibis BioSci.s, a Div. of Abbott Labortories, Carlsbad, CA, [2]Natl. Biodefense Analysis and Countermeasures Ctr., Ft. Detrick, MD.

568 Immunoproteomic Identification of Immunodominant Antigens in *Campylobacter jejuni* Associated with Sheep Abortion
Z. Wu, O. Sahin, Q. Zhang; Dept. of Vet. Microbiol. and Preventive Med.,Iowa State Univ., Ames, IA.

569 Importance of Coating Antigen Supplier for Evaluation of Animal and Human Serum Antibody Responses by ELISA to *Clostridium difficile* Toxin A and B
I. Caro-Aguilar, L. Indrawati, M. Miezeiewski, J. M. Antonello, J. H. Heinrichs, J. M. Skinner; Merck & Co., West Point, PA.

570 Preliminary Analysis of Commercially Available Serological Assays in the U.S. for the Diagnosis of Pertussis
L. Pawloski, B. Plikaytis, M. Martin, S. Martin, M. Tondella; CDC, Atlanta, GA.

571 Reverse Line Blot Assay for Rapid Detection of Bacterial Agents of Infective Endocarditis in Clinical Samples
A. K. Jain[1], K. Hennessy[1], D. Snydman[2], S. Doron[2], L. Perry[2], N. X. Krueger[1], A. E. Levin[1]; [1]Immunetics Inc, Boston, MA, [2]Tufts Med. Ctr., Boston, MA.

572 Identification of Major Components of *Fasciola hepatica* Tegument that is Highly Reactive with Sera from Humans with Chronic Infection and its Potential for Immunodiagnosis
A. MORALES, A. M. Espimo; Univ. of Puerto Rico, Med. Sci. Campus, San Juan, PUERTO RICO.

573 A Novel Method for Accelerated Development of Real-Time PCR Diagnostic Assays Using *in Silico* Powered Design
R. Del Mastro, C. Leslin, H. Reiske, A. Jacobs; IntelligentMDx, Cambridge, MA.

574 Clinical Value of Quantitative and Sequential Procalcitonin (PCT) in ICU Patients
Y. F. Wang[1,2], V. Kasinathan[1], B. P. Hobbs[3], D. Burden[2], J. P. Salomone[1], G. Martin[1]; [1]Emory Univ. Sch. of Med., Atlanta, GA, [2]Grady Mem. Hosp., Atlanta, GA, [3]Orlando Med. Centr., Orlando, FL.

575 Differential Expression, Localization and Serodiagnosis Potential of a 16.5kDa Tegument-Associated Antigen from the Liver Fluke *Fasciola hepatica*
J. F. Gaudier, K. Cabán-Hernández, A. M. Espino; Univ. of Puerto Rico-MSC, San Juan, PR.

576 Capsule-reactive mAbs for the Detection of Antigenemia During Anthrax Exhibit Stereo-specificity for D-Glutamic Acid
M. Hubbard, P. Thorkildson, W. Welch, D. AuCoin, T. Kozel; Univ. of Nevada Sch. of Med., Reno, NV.

577 Comparison of the Immunochromatogram Patterns Described by Scanning of Immunochromato-Reader for Serodiagnosis of *Chlamydia trachomatis* Infections
T. Komoda[1], T. Oshima[2], H. Bannai[1]; [1]Kyorin Univ., Sch. of Hlth.Sci., Tokyo, JAPAN, [2]Meiji Corp. Ltd., Tokyo, JAPAN.

578 Unmasking the Contribution of Oral Flora to the Biofilm Accretion-Endotrach Microbiota During Mechanical Ventilation using 16s Microarray Detection
C. Waters[1], H. M. Motlagh[1], A. Wilson[2], B. Pasteur[3], J. G. Thomas[1]; [1]West Virginia Univ., Morgantown, WV, [2]West Virginia Univ. Hosp., Morgantown, WV, [3]Forsyth Dental, Harvard Univ., Boston, MA.

579 Identification of High Affinity Monoclonal Antibodies for Detection of Stx2 and Neutralization of Cytotoxicity
X. He, L. H. Stanker, S. McMahon; USDA-ARS-WRRC, Albany, CA.

580 Recombinant Ferritin of *Fasciola hepatica* as a Potential Serodiagnostic Antigen
K. Caban-Hernandez, C. Ruiz-Jimenez, J. F. Gaudier, A. M. Espino; Univ. of Puerto Rico-Sch. of Med., San Juan, PUERTO RICO.

039 Microbiology and Biology Education (Division W)

10:45 a.m. – 12:30 p.m.; Poster Hall

581 Involving Microbiology Students in a Watershed Project: Reconnecting Students with the Land
J. L. Enos-Berlage; Luther Coll., Decorah, IA.

582 A Simple Soil Assay to Demonstrate Enzyme Regulation
C. D. Phelps; Rutgers Univ., New Brunswick, NJ.

583 Impact of Different Kinds of Measures on Student Comprehension in an Undergraduate Basic Microbiology Class
M. E. Santos; Univ. of North Carolina at Pembroke, Pembroke, NC.

584 BioCurious—Moving Biotech Science Education Beyond the Classroom
P. D'haeseleer[1,2,3], R. Shigeta[4], P. Noailles[1,5], P. Jaschke[6], P. Sahni[1], M. Chavez[1], C. Graham[1]; [1]BioCurious, Sunnyvale, CA, [2]Lawrence Livermore Natl. Lab., Livermore, CA, [3]Joint BioEnergy Inst., Emeryville, CA, [4]Affymetrix Inc., Emeryville, CA, [5]Radiant Sci. Learning LLC, CA, [6]Dept. of Bioengineering, Stanford Univ., Stanford, CA.

585 PRIMER Alliance for Environmental Biotechnology and Sustainable Development
J. R. Pérez-Jiménez[1], L. Y. Young[2], S. A. Cantrell[1]; [1]Univ. del Turabo, Gurabo, PR, [2]Rutgers, The State Univ. of New Jersey, New Brunswick, NJ.

586 The Nomads Information Centers: Bringing the Colors of Biotechnology Actively to the University Community
C. Rios-Velazquez; Industrial Biotechnology Program, Univ. of Puerto Rico at Mayaguez, Mayaguez, PR.

587 Updating an Undergraduate Teaching Tool: Bringing the Winogradsky Column into the Metagenomic Era
D. J. Esteban[1], L. Banta[2]; [1]Vassar Coll., Poughkeepsie, NY, [2]Williams Coll., Williamstown, MA.

588 Undergraduate Research Lab Space Design: Gigapan Imaging Enhancing Educational Practice
D. I. Hanauer[1], D. Jacobs-Sera[2], G. F. Hatfull[2]; [1]Indiana Univ. of Pennsylvania, Indiana, PA, [2]Univ. of Pittsburgh, Pittsburgh, PA.

589 The Development of 'Algae: A Practical Resource for Schools
J. Redfern[1], J. Verran[1], P. Gilroy[1], D. Burdass[2]; [1]Manchester Metropolitan Univ., Manchester, UNITED KINGDOM, [2]Society for Gen. Microbiol., Reading, UNITED KINGDOM.

590 Calibrated Peer Review Use Improved Low-Achieving Student Performance on the California Critical Thinking Skills Test Posttest
J. P. Caruso; Florida Atlantic Univ., Boca Raton, FL.

591 Intensive Service Learning: Graduate Students Infusing Research into the High School Science Curriculum
L. B. Regassa, M. Bennett; Georgia Southern Univ., Statesboro, GA.

592 Genome Solver: Analyzing the Human Microbiome for Education and Research
G. Arora[1], R. Madupu[2], J. Roecklein-Canfield[3], A. Rosenwald[1], J. Russell[1]; [1]Georgetown Univ., Washington, DC, [2]J. Craig Venter Inst., Rockville, MD, [3]Simmons Coll., Boston, MA.

593 Antibacterial Effectiveness of Five-Day Old 10% Bleach in a Student Laboratory Setting
N. Goodyear; Univ. of Massachusetts Lowell, Lowell, MA.

594 Bay Area Biotechnology Consortium (BABEC): A Model for the Organization of Teacher Professional Development through Education and Life Science Industry Partnerships
K. M. Land[1], K. Korsmeyer[2], D. R. Stronck[3]; [1]Univ. of the Pacific, Stockton, CA, [2]San Jose State Univ., San Jose, CA, [3]California State Univ. East Bay, Hayward, CA.

595 Microbes in Space: A STEM Program for Civil Air Patrol Cadets, Advanced High School and Undergraduate Students
J. A. Adamo[1], P. Dixon[2], M. A. Gealt[3]; [1]NJ Wing Civil Air Patrol and Georgian Court Univ., Lakewood, NJ, [2]Toms River High Sch., North, Toms River, NJ, [3]Univ. of Arkansas at Little Rock, Little Rock, AR.

596 Microbiological Drama
S. Viramontes-Ramos, M. Portillo-Ruiz; Univ. Autonoma de Chihuahua, Chihuahua, Chihuahua, MEXICO.

040 Molecular Genetics and Response to Stress and Antimicrobials in Eukaryotes (Division X)

10:45 a.m. – 12:30 p.m.; Poster Hall

597 Cloning, Expression and Characterization of the *msrB*⁺ gene from *S. pombe*
H. Jo, A. R. Park, I. W. Ryu, C. J. Lim; Kangwon Natl. Univ., Chuncheon, KOREA, REPUBLIC OF.

598 Xylanolytic Activity in Fungi Isolated from Antarctic Marine Sponges
R. Chavez[1], A. Del Cid[1], P. Ubilla[1], M. Henriquez[2], I. Vaca[2]; [1]Univ. de Santiago de Chile, Santiago, CHILE, [2]Univ. de Chile, Santiago, CHILE.

599 Tissue and Stage Specific Expression of HLH-29 in the *C. elegans* Spermatheca
T. Tran, H-t. Chou, C. M. Johnson; Georgia State Universitty, Atlanta, GA.

600 Do *AflJ* and *AflJ*-like Proteins Play Multiple Roles in Secondary Metabolite Production?
K. C. Ehrlich, B. M. Mack, Q. Wei, D. Bhatnagar, P. Li; Southern Regional research Ctr., New Orleans, LA.

601 Differential Susceptibility of Different Leishmania Species to Antibiotics
M. A. Garcia[1,2], M. A. Viviescas[1,2], M. L. Posada-Buitrago[3,2], M. Camacho[1,2]; [1]Univ. Natl. de Colombia, Bogota, COLOMBIA, [2]Centro Internacional de Fisica, Bogota, COLOMBIA, [3]FCNM, Univ. del Rosario, Bogota, COLOMBIA.

602 Identification of Potential Quorum Sensing Genes Involved in Regulating Mating Competency in *Didymium iridis*
M. Silliker, L. Zimmerman, M. Francis; DePaul Univ., Dept. of Biological Sci., Chicago, IL.

603 Importance of the Functional Correlation of Lysosomes and Peroxisomes for Decreasing Quantity of Melanin
D. Park[1], J. Yoon[1], Y-H. Kim[2], J. Min[1]; [1]Chonbuk Natl. Univ., Jeonju, KOREA, REPUBLIC OF, [2]Chungbuk Natl. Univ., Jeonju, KOREA, REPUBLIC OF.

604 Methionine-R-Sulfoxide Reductase Plays Protective Roles Against Oxidative and Nitrosative Stresses in the Fission Yeast
H. Jo[1], K. Ahn[2], Y. M. Shin[1], K. Kim[1], C. J. Lim[1]; [1]Kangwon Natl. Univ., Chuncheon, KOREA, REPUBLIC OF, [2]Baekseok Culture Univ., Cheonan, KOREA, REPUBLIC OF.

605 The *L. donovani* Virulence Factor A2 is a Stress Response Factor that Protects the Parasite Against Host Defenses
L-I. McCall, G. Matlashewski; McGill Univ., Montreal, QC, CANADA.

606 A Possible Role of the Yeast Spindle Pole Body in Protein Targeting to the Inner Nuclear Membrane
G. Díaz[1], T. Harchar[2], C. Boone[3], A. K. Hopper[4]; [1]The Ohio State Univ., Molecular Cellular and Dev.al Biology Program, Columbus, OH, [2]Pennsylvania State Univ., Coll. of Med., Hershey, PA, [3]Banting & Best Dept. of Med. Res. Univ. of Toronto, Toronto, ON, CANADA, [4]The Ohio State Univ., Molecular Genetics Dept., Columbus, OH.

607 Ferrioxamine B Uptake Depends on Protein Interaction Between Aft1 and Arn3 in *Saccharomyces Cerevisiae*
C. Kang; Korea Univ., Seoul, KOREA, REPUBLIC OF.

608 Cellular Functions of Thioredoxin Reductase Against Oxidative/Nitrosative Stress in *Schizosaccharomyces pombe*
K. Ahn[1], M. S. Park[2], I. W. Ryu[2], C. J. Lim[2]; [1]Baekseok Culture Univ., Cheonan, KOREA, REPUBLIC OF, [2]Kangwon Natl. Univ., Chuncheon, KOREA, REPUBLIC OF.

609 Connecting Mitochondrial Network Asymmetry to Human Physiology and Disease through Biophysical Modeling and Mitochondrial DNA Sequencing
P. K. Patel, A. Wallace, K. C. Huang; Stanford Univ., Stanford, CA.

610 Deletion Mutation Analysis Demonstrates a Biphasic Response to an Extracellular Calcium Pulse in *Saccharomyces Cerevisiae*: Implications for a Mathematical Model of Calcium Homeostasis
J. L. Kepler, Z. Nektalova, H. Wang, F. J. Solis, P. A. Marshall; Arizona State Univ. at the West campus, Phoenix, AZ.

611 Determining Functional Specificity of Yeast Cytosolic Hsp70 Nucleotide Exchange Factors
J. L. Abrams[1], P. A. Gibney[2], K. A. Morano[1]; [1]Univ. of Texas Med. Sch. and Graduate Sch. of BioMed. Sci., Houston, TX, [2]Princeton Univeristy, Princeton, NJ.

612 Pap1-Dependent Transcriptional Up-Regulation of Thioredoxin and Thioredoxin Reductase by Nitrosative Stress in the Fission Yeast
M. S. Park, K. Kim, C. J. Lim; Kangwon Natl. Univ., Chuncheon, KOREA, REPUBLIC OF.

613 Novel Nitrosative Stress Tolerance Genes in *Aspergillus nidulans*
S. Zhou, T. Narukami, Y. Kamimura, M. Shimizu, T. Hoshino, N. Takaya; Univ. of Tsukuba, Tsukuba, JAPAN.

614 Resistance to the Antimalarial Agent Fosmidomycin in *Plasmodium falciparum*
M. L. Kelly[1], A. Mitchell[1], M. Black[1], A. R. Odom[2]; [1]Washington Univ. in St. Louis, St. Louis, MO, [2]Washington Univ. Sch. of Med., St. Louis, MO.

041 Detection and Characterization of Animal Pathogens (Division Z)

10:45 a.m. – 12:30 p.m.; Poster Hall

615 Molecular Approaches to Detecting and Discriminating Among Prions, a Class of Pathogenic Molecules
C. J. Silva[1], B. C. Onisko[2], I. Dynin[1], M. L. Erickson[1], C. Hui[3], J. M. Carter[1]; [1]USDA, Albany, CA, [2]OniPro BioSci.s, Kensington, CA, [3]Univ. of California, Berkeley, Berkeley, CA.

616 Development and Evaluation of a Point-of-Care LAMP Assay for Detection of Animal Chlamydiosis
M. A. Calapai, W. C. Webley; Univ. of Massachusetts, Amherst, MA.

617 Real Time PCR Detection of Hemotropic *Mycoplasma* Species in Symptomatic Dairy Cattle from the Midwest United States
A. J. Kreuder, P. J. Plummer, A. L. Herrick, U. B. Donnett, J. D. Trujillo; Iowa State Univ., Ames, IA.

618 A Rapid Extraction and LAMP Detection Assay to Detect *Samonella enterica* in Canine Stool Samples
M. Duggan, T. Parrish, P. Williams; Evogen, Inc., Lenexa, KS.

619 A PCR Assay for Identification of *Bordetella hinzii*
K. B. Register; USDA/ARS/Natl. Animal Disease Ctr., Ames, IA.

620 Optimization of *in vitro* Growth Conditions and DNA Extraction from *Treponema phagedenis* Isolated from Bovine Digital Dermatitis Lesions
A. C. Krull, P. Plummer; Iowa State Univ., Ames, IA.

621 Development of an Enzyme-Linked Immunosorbent Assay Test to Detect IgG Antibodies Against Herpesvirus in Dolphins (*Tursiops* spp)
E. G. Valdivia-Lara, J. C. Del Río-García, C. Cuenca-Verde, F. Alba-Hurtado, L. Ibarra-Vargas, G. Valdivia-Anda; Facultad de Estudios Superiores, Cuautitlan, UNAM, Edo. Mexico, MEXICO.

622 Matrix-Assisted Laser Desorption Ionization—Time of Flight Mass Spectrometry for Identification of Bacterial Isolates from CFTR-Knockout Ferrets Modeling Cystic Fibrosis
T. Frana[1], J. Kinyon[1], X. Xun[2], H. Sui[2], B. Liang[2], Y. Yi[2], W. Zhou[2], Y. Zhang[2], J. Engelhardt[2]; [1]Iowa State Univ., Ames, IA, [2]Univ. of Iowa, Iowa City, IA.

623 Identification of Bacteria Associated with Feline Chronic Gingivostomatitis and Oral Health by 16S rRNA Gene Sequencing
M. Riggio[1], S. Dolieslager[1], N. Johnston[2], D. Bennett[3]; [1]Dental Sch., Univ. of Glasgow, Glasgow, UNITED KINGDOM, [2]Dental Vets, North Berwick, UNITED KINGDOM, [3]Sch. of Vet. Med., Univ. of Glasgow, Glasgow, UNITED KINGDOM.

624 Prevalence of *Coxiella burnetii* in a Healthy Bighorn Sheep Population
J. Ninneman[1], W. Stensland[1], R. Dewell[1], P. Wolff[2], E. Strait[1], P. Plummer[1]; [1]Iowa State Univ., Ames, IA, [2]Nevada Dept. of Wildlife, Reno, NV.

625 A Survey of the Prevalence of Select Diseases within Feral Swine (Sus scrofa) and Javelina (Pecari tajacu) of Trans-Pecos Texas
D. Melton, A. Morales, J. Navarrete, K. Kubala, C. Ritzi, J. Denson; Sul Ross State Univ., Alpine, TX.

626 Utilization of MALDI-TOF Mass Spectrometry for the Rapid Identification of *Streptococcus halichoeri* Infections in Canines: A Novel Pathogen and Host Range Expansion
B. M. Bulgrin[1], M. E. Stemper[1,2], A. E. Rentschler[1], T. J. Novicki[1], F. M. Moore[1], T. R. Fritsche[1,2]; [1]Marshfield Clinic, Marshfield, WI, [2]Univ. of Wisconsin, La Crosse, WI.

627 Validation of MALDI-TOF Mass Spectrometry for Routine Bacterial Identification in a Regional Veterinary Laboratory Practice and Comparison with Automated Identification Systems
T. R. Fritsche[1,2], C. L. Pike[1], B. J. Olson[3], M. E. Stemper[1,2], F. M. Moore[1], M. Kostrzewa[4], J. K. Meece[3], S. K. Shukla[3], T. J. Novicki[1]; [1]Marshfield Clinic, Marshfield, WI, [2]Univ. of Wisconsin, La Crosse, WI, [3]Marshfield Clinic Res. Fndn., Marshfield, WI, [4]Bruker Daltonik GmbH, Bremen, GERMANY.

628 Performance Evaluation of Biolog GEN III System for Identification of Bacteria of Veterinary Origins
H-M. Hsu; Wisconsin Vet. Diagnostic Lab., Madison, WI.

629 First Report of *Streptococcus parauberis* in Wild Finfish from North America
A. N. Haines[1], D. T. Gauthier[2], E. E. Nebergall[3], S. D. Cole[4], K. M. Nguyen[5], M. W. Rhodes[6], W. K. Vogelbein[6]; [1]Norfolk State Univ., Norfolk, VA, [2]Old Dominion Univ., Norfolk, VA, [3]Oregon State Univ., Corvalis, OR, [4]Univ. of Pennsylvania, Philidelphia, PA, [5]Emory Univ., Atlanta, GA, [6]Virginia Inst. of Marine Sci., Gloucester Pt., VA.

630 Molecular Epidemiology of the Bovine and Piscine Pathogen *Streptococcus parauberis* Reveals Potential Fish Lineage
S. Cole[1], A. N. Haines[2]; [1]Univ. of Pennsylavnia, Philadelphia, PA, [2]Norfolk State Univ., Norfolk, VA.

631 Diagnosis of Infection by the Fish Pathogen *F. psychrophilum* Using Fluorescent in Situ Hybridization (FISH) Directly on Tissues
N. Strepparava[1], T. Wahli[2], H. Segner[2], B. Polli[3], O. Petrini[1]; [1]Cantonal Inst. of Microbiol., Bellinzona, SWITZERLAND, [2]Ctr. for fish and wildlife Hlth., Bern, SWITZERLAND, [3]Ufficio Caccia e Pesca, Bellinzona, SWITZERLAND.

632 Lyme Disease Seroprevalence in Texas Dogs: Comparison of Three Diagnostic Tools
E. McGregor, M. Boggess, M. Esteve-Gassent, S. Rodgers; Texas A&M Univeristy, College Station, TX.

633 Molecular Characterization of Bacteria Present in Failed Loggerhead Sea Turtle (*Caretta caretta*) Eggs
S. L. Schwartz, M. Lamb, M. Walker, C. Weed, K. S. Craven, J. B. Bailey; Armstrong Atlantic State Univ., Savannah, GA.

634 Phenotypic and Genetic Diversity of *Melissococcus plutonius* Isolates from Honeybee Larvae in Japan and Experimental Reproduction of European Foulbrood by Cultured Bacteria
D. Takamatsu[1,2], R. Arai[3,2], K. Tominaga[4], M. Wu[5], M. Okura[1], K. Ito[6], N. Okamura[7], H. Onishi[8], M. Osaki[9], Y. Sugimura[10], M. Yoshiyama[10]; [1]Natl. Inst. of Animal Hlth., Natl. Agriculture and Food Res. Organization, Tsukuba, JAPAN, [2]Gifu Univ., Gifu, JAPAN, [3]Saitama Prefectural Chuo Livestock Hygiene Service Ctr., Saitama, JAPAN, [4]Yamaguchi Prefectural Inst. of Publ. Hlth.and Environment, Yamaguchi, JAPAN, [5]Univ. of Tsukuba, Tsukuba, JAPAN, [6]Gifu Prefectural Gifu Livestock Hygiene Service Ctr., Gifu, JAPAN, [7]Animal Quarantine Service, Ministry of Agriculture, Forestry and Fisheries, Yokohama, JAPAN, [8]Fukushima Prefectural Kenchu Livestock Hygiene Service Ctr., Koriyama, JAPAN, [9]Agriculture, Forestry and Fisheries Res. Council Secretariat, Ministry of Agriculture, Forestry and Fisheries, Tokyo, JAPAN, [10]Natl. Inst. of Livestock and Grassland Sci., Natl. Agriculture and Food Res. Organization, Tsukuba, JAPAN.

635 Prevalence of Virulence Factors, Phylogenetic Analysis and Pathogenicity Score in Strains of Avian Pathogenic *Escherichia coli*
N. L. Barbieri[1], A. L. Oliveira[1], T. M. Tejkowski[2], L. B. Matter[3], B. G. Brito[2], F. Horn[1]; [1]Univ.e Federal do Rio Grande do Sul, Porto Alegre, BRAZIL, [2]Inst. de Pesquisas Veterinárias Desidério Finamor, Eldorado do Sul, BRAZIL, [3]Univ.e Federal de Santa Maria, Porto Alegre, BRAZIL.

636 Distinct *Salmonella* Populations on Dairy Farms in Wisconsin and Minnesota
C. A. Wehnes, T. G. Rehberger, R. Barrangou, A. H. Smith; DuPont Nutrition and Hlth., Madison, WI.

637 Prevalence and Molecular Characterization of *Salmonella* Isolates in Poultry of Savar, Bangladesh
S. Mahmud[1], M. Sultana[2], M. Hossain[1]; [1]Dept. of Microbiol., Univ. of Dhaka, Dhaka, BANGLADESH, [2]Dept. of Microbiol., Jahangirnagar Univ., Dhaka, BANGLADESH.

638 Isolation and Characterization of *Streptococcus suis* from Bovine Clinical Cases
O. E. Okwumabua; Univ. of Wisconsin, Madison, WI.

042 Molecular and Genetic Studies of Free-Living and Parasitic Protozoa (Division AA)

10:45 a.m. – 12:30 p.m.; Poster Hall

639 Expression and Characterization of a Major Cysteine Protease of the Veterinary Protozoal Parasite Tri*Trichomonas* foetus
A. Shokar, K. M. Land; Univ. of the Pacific, Stockton, CA.

640 Characterization of an Adenosylhomocysteine Hydrolase Enzyme in the Protozoal Parasite *Trichomonas vaginalis*
A. Au[1], A. Shokar[1], S. An[1], J. Zayas[2], S. Wnuk[2], K. M. Land[1]; [1]Univ. of the Pacific, Stockton, CA, [2]Florida Intl. Univ., Miami, FL.

641 *Cryptosporidium* parvum Thrombospondin-like Proteins are Multistage Adhesins that Contribute to Sporozoite Motility and Invasion of Host Cells
E. S. Tabe; North Dakota State Univ., FargoFargo, ND, ND.

642 Lymphoproliferative Response to P30 and ROP18 Peptides in Ocular and Congenital Toxoplasmosis
E. Torres[1], A. de-la-Torre[2], L. Taborda[1], N. Cardona[1], J. C. Sepulveda[3], J. E. Gomez-Marin[1]; [1]Univ. del Quindio, Armenia, COLOMBIA, [2]Univ. del Rosario, Bogota, COLOMBIA, [3]Univ. Tecnologica de Pereira, Pereira, COLOMBIA.

643 Molecular Analysis of "*Plasmodium* berghei" Glutathione S-transferase
E. E. Colón-Lorenzo, A. E. Serrano; UPR-Med. Sci. Campus, San Juan, PUERTO RICO.

644 Internalization of *Plasmodium falciparum* in Endothelial Cells in Culture
M. J. Leibowitz[1], C. Utter[2,3], A. E. Serrano[4], J. Glod[2,3]; [1]Univ. of California-Davis, Davis, CA, [2]Univ. of Med. and Dent. of NJ-Robert Wood Johnson Med. Sch., Piscataway, NJ, [3]Cancer Inst. of NJ, New Brunswick, NJ, [4]Univ. of PR Sch. of Med., San Juan, PR.

645 *Leishmania donovani* Argininosuccinate Synthase is Involved in Parasite Pathogenesis
I. Elakhal Naouar[1], A. Jardim[2], Y. Kozakai[1], P. McPhie[3], H. Nakhasi[1], R. Duncan[1]; [1]CBER/FDA, Bethesda, MD, [2]Inst. of Parasitology, MacDonald Campus of McGill University, QC, CANADA, [3]Natl. Inst. of Diabetes and Digestive and Kidney Diseases, Lab. of Biochemistry and Genetics, Bethesda, MD.

646 Isolation of Free-Living Amoebae from Thermal Springs that Supply Swimming Pools of a Recreational Center in Hidalgo, Mexico
P. Bonilla-Lemus[1], M. López-Cruz[1], I. Alfaro-Dominguez[1], M. Ibarra-Montes[1], R. Ortíz-Ortega[1], M. Rojas[2], S. Rojas-Hernandez[3]; [1]UNAM FES Iztacala, Tlalnepantla, edo. de México, MEXICO, [2]UNAM Faculty of Sci., D.F., MEXICO, [3]Inst. Politécnico Natl., D.F., MEXICO.

647 The Impact of Enterohemorrhagic *E. coli* (EHEC) and non-EHEC *E. coli* on Protozoan Population in Municipal Sewage
Z. Li, M. S. Shields, P. P. Sheridan; Idaho State Univ., Pocatello, ID.

Sunday, June 17

1:00 p.m. – 2:45 p.m.

049 Resistance: Prevalence, Patterns and Surveillance II: Gram Negative Organisms (Division A)

1:00 p.m. – 2:45 p.m.; Poster Hall

648 Non-0157 Shiga Toxin-Producing *Escherichia coli* in Russia
I. A. Dyatlov, E. A. Svetoch, B. V. Eruslanov, N. V. Volozhantsev, E. V. Mitsevich, I. P. Mitsevich, V. N. Borzenkov, V. A. Bannov, N. K. Fursova; State Res. Ctr. for Appl. Microbiol&Biotechnol., Obolensk, RUSSIAN FEDERATION.

649 tetA gene provides Elevated tigecycline Tolerance to *Salmonella* spp. Isolated from Clinical and Imported Food
J. Presedo[1,2], T. Akiyama[1], C. Summage West[1], A. A. Khan[1]; [1]U.S. FDA/Nat'l. Ctr. for Toxicol. Res., Jefferson, AR, [2]Dept. of Biology, Boston Coll., Chestnut Hill, MA.

650 Increased Prevalence of *bla*-OXA-48 and Newly Emerging bla-NDM-1 Carbapenemase Encoding Genes in Extended Spectrum—Lactamases (ESBLs) producing *Klebsiella pneumoniae* and *Escherichia coli* at a Tertiary Care Center in Lebanon
M. Baroud, G. F. Araj, A. Chamseddine, R. Wakim, Z. Kanafani, S. Kanj, A. Sabra, G. Dbaibo, G. M. Matar; American Univ. of Beirut, New York, NY.

651 Antimicrobial Susceptibility Profile of *Pseudomonas aeruginosa* Isolates from Blood Stream Infections Compared to Nidus of Infection
M. Suzuki[1], H. Koyama[1], M. Kaneoka[1], E. Fujihara[1], A. Amano[1], K. Matsuzaki[1], M. Hasegawa[1], F. Ikeda[1], A. Kanayama[2], I. Kobayashi[2]; [1]Mitsubishi Chemical Medience Corp., Tokyo, JAPAN, [2]Toho Univ. Sch. of Med., Tokyo, JAPAN.

652 Bacterial Resistance and Virulence Genes among Enteric *Escherichia coli* Isolated from Poultry Fed Antibacterial Agents as Growth Promoting Factors
F. El-Rami, E. A. Rahal, F. Sleiman, A. M. Abdelnoor; American Univ. of Beirut, New York, NY.

653 Emergence of Colistin Resistance in *Acinetobacter baumannii* and *Pseudomonas aeruginosa* during Therapy
P. T. Mc Gann[1], K. St.Clair[2], Y. I. Kwak[1], G. Wortmann[2], M. Zapor[2], P. E. Waterman[1], E. P. Lesho[1]; [1]Walter Reed Army Inst. of Res., Silver Spring, MD, [2]Walter Reed Natl. Navy Med. Ctr., Bethesda, MD.

654 Antibiotic Susceptibility Trends Among *Klebsiella pneumoniae* Isolated in a Major Referral Center from 2002 to 2009
R. Clifford[1], P. Mc Gann[1], R. Van Brackle[2], P. Waterman[1], E. Lesho[1]; [1]Walter Reed Army Inst. of Res., Silver Spring, MD, [2]Walter Reed Natl. Navy Med. Ctr., Bethesda, MD.

655 Co-selection of Antibiotic Resistance and Virulence in *Pseudomonas aeruginosa*
M. Agnello, A. Wong-Beringer; Univ. of Southern California, Los Angeles, CA.

656 Genotypic and Phenotypic Surveillance of Drug Resistance in *Neisseria gonorrhoeae*: California 2011
S. Gose[1], I. Sergian[2], J. Carlson[2], L. Rauch[2], M. Pandori[2]; [1]Univ. of California, Berkeley, Berkeley, CA, [2]San Francisco Dept. of Publ. Hlth., San Francisco, CA.

657 Prevalence of Extended-Spectrum—Lactam Resistance in Pediatric *Pseudomonas aeruginosa* Isolates
L. Chandramohan[1,2], M. Amerson[2], P. Revell[3,2]; [1]Dept. of Pathology, Baylor Coll. of Med., Houston, TX, [2]Texas Childrens Hosp., Houston, TX, [3]Dept. of Pathology and Pediatrics, Baylor Coll. of Med., Houston, TX.

658 Prevalence and Emerging Resistance of Moraxella Catarrhalis Isolated from Sputum of Patients Suffering from Lower Respiratory Tract Infections in Karachi, Pakistan
F. E. Abdullah[1], K. R. Ahuja[2], H. Kumar[2], N. E. Abdulla[3]; [1]Dr. Essa's Lab., Karachi, PAKISTAN, [2]Sindh Med. Coll. (DUHS), Karachi, PAKISTAN, [3]Univ. Of Texas Med. Branch, Galveston, TX.

659 Characterization of *bla*CMY Plasmids and Their Possible Role in Source Attribution of *Salmonella enterica* Serotype Typhimurium Infections
J. P. Folster[1], G. Pecic[1], R. Rickert[1], S. Zhao[2], P. Fedorka-Cray[3], J. Whichard[1], P. McDermott[2]; [1]CDC, Atlanta, GA, [2]U.S. Food and Drug Admin., Laurel, MD, [3]USDA, Athens, GA.

660 Antimicrobial Activity of Ceftaroline/Avibactam Tested Against Clinical *Enterobacteriaceae* Isolates Carrying Multiple β-lactamases from Usa Medical Centers
H. S. Sader, M. Castanheira, R. K. Flamm, R. N. Jones; JMI Lab., Inc., North Liberty, IA.

661 Increased quinolone-resistance among *Shigella* sonnei strains from HIV-infected MSM
H. Sahly[1], I. Krznaric[2], A. Jessen[3], A. Baumgarten[2], S. Dupke, MD[2], P. Ingiliz[4], U. Marcus[5], H-J. Stellbrink[6], K. Schewe[6], H. Sahly[1], C. Hoffmann[6], C. Hoffmann[6]; [1]Labor Lademannbogen, Hamburg, GERMANY, [2]Praxis Driesener Straße, Berlin, GERMANY, [3]Praxis Jessen-Jessen-Stein, Berlin, GERMANY, [4]Medizinisches Infektiologiezentrum Berlin (MIB), Berlin, GERMANY, [5]Robert Koch Inst., Berlin, GERMANY, [6]Infektionsmedizinisches Centrum Hamburg (ICH), Hamburg, GERMANY.

662 Prevalence of β-lactamase Genes in *Salmonella* with Decreased Susceptibility to Cephalosporins Isolated from Humans in 2010, United States
R. Howie[1], J. Folster[1], M. Karlsson[2], J. Whichard[2]; [1]IHRC, Atlanta, GA, [2]CDC, Atlanta, GA.

663 β-lactam Resistance in *Enterobacteriaceae* Isolated from Fecal Samples of *Branta canadensis* Resident in Dupage County, Illinois
Y. Zheng[1], J. Zheng[1], C. Taylor[1], M. L. Tischler[2], R. Lee[1], N. G. Magill[1]; [1]Indiana Univ., Bloomington, IN, [2]Benedictine Univ., Lisle, IL.

664 Antibiotic Resistance in *Salmonella*e Isolated from Rivers of Culiacan, Mexico
M. Jimenez[1], C. Chaidez[2], J. Martínez Urtaza[3]; [1]Facultad de Ciencias Químico Biológicas, Univ. Autónoma de Sinaloa, Culiacán, MEXICO, [2]Centro de Investigación en Alimentación y Desarrollo, Culiacán, MEXICO, [3]Univ. de Santiago de Compostela, Santiago de Compostela, SPAIN.

665 Dissemination of metallo-beta-lactamase in *Enterobacteriaceae* and *Acinetobacter* in Japan
K. Kikuchi[1], S. Notake[1,2], M. Matsuda[1], K. Tamai[2], H. Yanagisawa[2], K. Hiramatsu[1]; [1]Juntendo Univ., Tokyo, JAPAN, [2]Miroku Med. Lab., Saku, JAPAN.

666 Molecular Characterization of *Enterobacteriaceae* Resistant to Quinolones and Cephalosporins
C. Rodriguez, J. Monteiro, S. Silbert, C. Kubasek, R. Widen; Tampa Gen. Hosp., Tampa, FL.

667 Phenotypic Reversion of Fluoroquinolone Resistance in *Neisseria gonorrhoeae* after Cessation of Ciprofloxacin Usage in San Francisco: Using Molecular Typing to Investigate Strain Turnover
K. Espinosa[1], S. Buono[2], S. Phillip[3], J. Klausner[3], M. Pandori[2], D. Hess[1]; [1]Santa Clara Univ., Santa Clara, CA, [2]San Francisco Dept. of Publ. Hlth., Lab., San Francisco, CA, [3]San Francisco Dept. of Publ. Hlth., STD Control and Prevention, San Francisco, CA.

668 Increasing Rates of Extended-Spectrum Beta-Lactamase (ESBL) Producing Strains among Community Urinary Isolates and Impact of Patient Age on ESBL Prevalence and Resistance Rates: A Five-Year Study
S. E. Farhat[1], L. Louie[2], I. Coelho[1], G. Lim[1], C. Watt[2], B. Shingala[1], D. Shah[1], B. Premraj[1], N. Azim[1], A. E. Simor[1,2,3]; [1]Alpha Lab. Inc., Toronto, ON, CANADA, [2]Sunnybrook Hlth. Sci. Ctr., Toronto, ON, CANADA, [3]Univ. of Toronto, Toronto, ON, CANADA.

669 Phenotypic and Molecular Characterization of Clinical Outbreak Isolates of *Acinetobacter baumannii* Obtained from Los Angeles County, California Hospitals
W. A. Warner[1], R. Hernandez[1], J. A. Fleischer[1], S. Chu[2], H. H. Xu[1]; [1]California State Univ., Los Angeles, Los Angeles, CA, [2]Los Angeles County Publ. Hlth.Lab., Downey, CA.

050 Pathogen Physiology and Metabolism-II (Division B)

1:00 p.m. – 2:45 p.m.; Poster Hall

670 Molecular Characterization of a *Vibrio vulnificus* Fructose-specific PTS System Up-regulated *in vivo*
M. J. Park[1], S. Y. Kim[1], K. Jeong[1,2], C. M. Kim[1], S. E. Lee[3], J. H. Rhee[1,2]; [1]Clinical Vaccine R&D Ctr., Jeonnam, KOREA, REPUBLIC OF, [2]Dept. of Microbiol. and Res. Inst. of Vibrio Infections, Chonnam Natl. Univ. Med. Sch., Gwangju, KOREA, REPUBLIC OF, [3]Dental Sci. Res. Inst., Sch. of Dentistry, Chonnam Natl. Univ., Gwangju, KOREA, REPUBLIC OF.

671 Elucidating the *Pseudomonas aeruginosa* Fatty Acid Degradation Pathway: Identification of Additional FadD Fatty Acyl-CoA Synthetases
J. B. Zarzycki-Siek, M. H. Norris, Y. Kang, Z. Sun, A. P. Bluhm, T. T. Hoang; Univ. of Hawaii at Manoa, Honolulu, HI.

672 Fructooligosaccharide Utilization by *Streptococcus pneumoniae*
C. M. Linke[1], M. M. Dustin[1], C. Marion[1,2], H. E. Salhi[1,2], S. V. Verija[1], S. J. King[1,2]; [1]Nationwide Children's Hosp., Columbus, OH, [2]The Ohio State Univ., Columbus, OH.

673 Characterization of *dps* (*dip*2303) in *Corynebacterium diphtheriae* C7(β) as an OxyR-repressed Gene which Encodes a Member of the "DNA-binding Protein from Starved Cells" Group
J-S. Kim[1], R. K. Holmes[2]; [1]Univ. of Colorado, Sch. of Med., Aurora, CO, [2]Univ. of Colorado,Sch. of Med., Aurora, CO.

674 Iron-Citrate Efflux by IceT Restricts *Salmonella* Growth and Reduces Susceptibility to Antibiotics and Oxidative Stress
E. R. Frawley[1], M. L. Crouch[2], H. F. Robbins[1], L. K. Bingham-Ramos[1], W. Wang[3], G. D. Wright[3], F. C. Fang[1]; [1]Univ. of Washington, Seattle, WA, [2]AMRI, Bothel, WA, [3]McMaster Univ., Hamilton, ON, CANADA.

675 Targeting Ferrous Iron to Disrupt *Pseudomonas aeruginosa* Biofilm Development in the Cystic Fibrosis Airways
R. C. Hunter[1,2], F. Asfour[3], T. Samad[1], D. K. Newman[1,4,2]; [1]Div. of Biology, California Inst. of Technology, Pasadena, CA, [2]Howard Hughes Med. Inst., Pasadena, CA, [3]Dept. of Pediatric Pulmonology, Children's Hosp. Los Angeles, Los Angeles, CA, [4]Div. of Geological and Planetary Sci., California Inst. of Technology, Pasadena, CA.

676 Do Aromatic Amino Acids Contribute to Siderophore Biosynthesis in *Vibrio vulnificus* through Chorismate?
W. Tan[1], S. Y. Kim[1], K. Jeong[1,2], C. T. Nguyen[1], S. E. Lee[3], J. H. Rhee[1,2]; [1]Clinical Vaccine R&D Ctr., Jeonnam, KOREA, REPUBLIC OF, [2]Dept. of Microbiol. and Res. Inst. of Vibrio Infections, Chonnam Natl. Univ. Med. Sch., Gwangju, KOREA, REPUBLIC OF, [3]Dental Sci. Res. Inst., Sch. of Dentistry, Chonnam Natl. Univ., Gwangju, KOREA, REPUBLIC OF.

677 Characterization of DalS, a Novel ATP-binding Cassette Transporter for D-alanine and its Role in Pathogenesis in *Salmonella enterica*
S. E. Osborne[1,2], B. R. Tuinema[1,2], M. C. Y. Mok[1], P. Lau[1], A. M. Tomljenovic-Berube[1,2], K. Zhang[1,2], M. Junop[1], B. K. Coombes[1,2]; [1]McMaster Univ., Hamilton, ON, CANADA, [2]Michael G. DeGroote Inst. for Infectious Disease Res., Hamilton, ON, CANADA.

678 *E. coli* MG1655 mot-1, a P41L envZ Missense Mutant, Uses Galactose to Occupy a Unique Niche in the Streptomycin-Treated Mouse Intestine
J. A. Adediran[1], M. P. Leatham-Jensen[1], M. Mokszycki[1], T. Conway[2], P. S. Cohen[1]; [1]Univ. of Rhode Island, Kingston, RI, [2]Univ. of Oklahoma, Norman, OK.

679 Contribution of Hypermutation to *Staphylococcus aureus* Pathoadaptation
G. S. Canfield[1], K. Boonanantanasarn[2], K. L. Vore[2], M. H. Foley[2], B. T. Tsuji[1], D. Ngo[1], A. L. Gill[2], M. D. Sutton[1], S. R. Gill[2]; [1]Univ. at Buffalo, Buffalo, NY, [2]Univ. of Rochester Med. Ctr., Rochester, NY.

680 The *Sit*ABCD and MntH High Affinity Manganese Transporters Promote S. Typhimurium Colonization of the Inflamed Gut
V. E. Diaz-Ochoa, C. Lee, S. Ramirez, J. Z. Liu, R. A. Edwards, M. Raffatellu; Univ. of California, Irvine, CA.

681 Contribution of the *nos-pdt* Operon to *Staphylococcus aureus* Physiology
E. A. Almand[1], A. Sapp[1], C. Greene[1], A. R. Richardson[2], K. C. RICE[1]; [1]Univ. of Florida, Gainesville, FL, [2]Univ. of North Carolina at Chapel Hill, Chapel Hill, NC.

682 The Relationship of the ViuB Hydrolase to Iron-limited Growth, Virulence and Gene Expression of *Vibrio vulnificus*
R. A. Swain, M. K. Jones, P. A. Gulig, N. Rezaie, A. C. Wright; Univ. of Florida, Gainesville, FL.

683 Temperature and Media Influence Motilily in Commensal and Pathogenic *Escherichia coli*
S. C. Pettit, P. A. Cote, C. A. Dehner, J. Kim, D. Y. Lee, C. A. White-Ziegler; Smith Coll., Northampton, MA.

684 Analysis of YnaF Protein from Atypical Enteropathogenic *Escherichia coli* and Investigation of Prevalence of the ynaF Gene in Pathogenic and Non-pathogenic Enterobacteria
C. S. Souza[1], A. Caravelli[1], A. G. Torres[2], R. F. Piazza[1]; [1]Butantan Inst., Sao paulo, BRAZIL, [2]Univ. of Texas Med. Branch, Galveston, TX.

685 Multiple ABC Transporters are Involved with the Acquisition of Petrobactin in *Bacillus anthracis*
S. D. Dixon, B. K. Janes, A. A. E. T. Bourgis, P. E. Carlson, Jr., P. C. Hanna; Univ. of Michigan, Ann Arbor, MI.

686 A High Throughput Screen for Small Molecule Inhibitors of Iron Acquisition in Uropathogenic *E. coli*
A. Yep, T. McQuade, M. J. Larsen, H. L. T. Mobley; Univ. of Michigan, Ann Arbor, MI.

687 Immunomodulatory Effects of Short Chain Fatty Acids (SCFAs) During *Salmonella* Typhimurium Colitis
S. Jellbauer, T. P. Ngyuen, C. Murphy, M. Sassone-Corsi, R. A. Edwards, M. Raffatellu; Univ. of California, Irvine, Irvine, CA.

688 Zinc Sequestration by the Neutrophil Protein Calprotectin Enhances *Salmonella* Growth in the Inflamed Gut
J. Liu[1], S. Jellbauer[1], A. Poe[1], V. Ton[1], M. Pesciaroli[1], T. Kehl-Fie[2], N. Restrepo[2], M. Hosking[1], R. Edwards[1], A. Battistoni[3], P. Pasquali[4], T. Lane[1], W. Chazin[2], T. Vogl[5], J. Roth[5], E. Skaar[2], M. Raffatellu[1]; [1]Univ. of California, Irvine, CA, [2]Vanderbilt Univ., Nashville, TN, [3]Univ. of Rome Tor Vergata, Rome, ITALY, [4]Istituto Superiore di Sanita, Rome, ITALY, [5]Univ. of Muenster, Muenster, GERMANY.

051 Regulation of Virulence II (Division B)

1:00 p.m. – 2:45 p.m.; Poster Hall

689 Fur-Regulated Small RNAs in Nontypeable *Haemophilus influenzae*
E. A. Santana[1,2], A. Harrison[1], P. Hu[1], P. White[1], R. S. Munson, Jr.[1,2]; [1]The Res. Inst. at Nationwide Children's Hosp., Columbus, OH, [2]The Ohio State Univ., Columbus, OH.

690 Repression of Flagella May Promote Systemic Dissemination of *Salmonella enterica* Serovar Dublin in Humans
S. Sasías[1], A. Martínez[2], L. Betancor[2], V. Estevez[1], J. Chabalgoity[1], L. Yim[1]; [1]Depto. Desarrollo Biotecnológico, Inst. de Higiene, Facultad de Med., Univ. de la República, Montevideo, URUGUAY, [2]Depto. Bacteriología y Virología, Inst. de Higiene, Facultad de Med., Univ. de la República, Montevideo, URUGUAY.

691 Characterizing the Interplay Between ToxT and H-NS in Controlling Cholera Toxin Expression in *Vibrio cholerae*
J. Dittmer, J. H. Withey; Wayne State Univ. Sch. of Med., Detroit, MI.

692 Signature-Tagged Mutagenesis Identifies *Escherichia coli* Strain RS218 Genes Involved in Invasion of Intestinal Epithelial Cells
S. M. Shakir, J. M. Goldbeck, D. J. Morton, P. W. Whitby, S. Chavez-Bueno; Univ. of Oklahoma Hlth.Sci. Ctr., Oklahoma city, OK.

693 Virulence Characteristics of *Salmonella* Following Deletion of the tRNA Modification Enzymes GidA and MnmE
D. Shippy, N. Eakley, C. Lauhon, P. Bochsler, A. Fadl; Univ. of Wisconsin-Madison, Madison, WI.

694 Mechanisms for Induction of *Vibrio cholerae* Virulence by Bicarbonate
J. J. Thomson[1], J. H. Withey[2]; [1]Wayne State Univ. Sch. of Med., Detroit, MI, [2]Wayne State Univ., Detroit, MI.

695 The Role of the RNA Chaperone Hfq in the Pathogenesis of *Haemophilus influenzae*
R. J. Hempel, D. J. Morton, T. W. Seale, P. W. Whitby, T. L. Stull; Univ. of Oklahoma Hlth.Sci. Ctr., Oklahoma City, OK.

696 *Pseudomonas aeruginosa* Response Regulator AlgR Phosphorylation and its Implications on Virulence
Y. Okkotsu[1], F. H. Damron[2], M. Barbier[2], J. P. Owings[2], J. B. Goldberg[2], P. Tieku[1], M. E. Churchill[1], M. J. Schurr[1]; [1]Univ. of Colorado, Sch. of Med., Aurora, CO, [2]Univ. of Virginia, Charlottesville, VA.

697 Virulence Genes in Strains of *Listeria monocytogenes* and Listeria innocua Originated from Pork Production Chain in Brazil
L. Z. Moreno, A. M. Moreno, G. R. Matté, M. H. Matte; Univ. of Sao Paulo, Sao Paulo SP, BRAZIL.

698 Regulation of Stress Responses in Ribosomal Protein Genes with Respect to Yeast Pathogenesis
S. Kim, Y. Jung, Y-J. Joo, J. Kim; Korea Univ., Seoul, KOREA, REPUBLIC OF.

699 FexA, Another Global Virulence Regulator of *Vibrio vulnificus*
R. Pendru[1], S. Y. Kim[1], K. Jeong[1,2], W. Tan[1], M. J. Park[1], S. E. Lee[3], J. H. Rhee[1,2]; [1]Clinical Vaccine R&D Ctr., Jeonnam, KOREA, REPUBLIC OF, [2]2Dept. of Microbiol. and Res. Inst. of Vibrio Infections, Chonnam Natl. Univ. Med. Sch., Gwangju, KOREA, REPUBLIC OF, [3]3Dental Sci. Res. Inst., Sch. of Dentistry, Chonnam Natl. Univ., Gwangju, KOREA, REPUBLIC OF.

700 Exploring the Role of a Novel PrfA Regulated Peptide-Pheromone in Pathogenesis of *Listeria monocytogenes*
B. Xayarath[1], F. Alonzo III[2], N. E. Freitag[1]; [1]Univ. of Illinois at Chicago, Chicago, IL, [2]New York Univ., New York, NY.

701 Involvement of TolC in the Expression of *sitA* in *Salmonella*
H. Yoo, A. Yoo, J. Cha, H. Kang; Pusan Natl. Univ., Busan, KOREA, REPUBLIC OF.

702 Superoxide Dismutase (sod) of *Helicobacter pylori* Clinical Isolates from Patients with Gastroduodenal Diseases
K. Morishita; Japan, Nankoku, JAPAN.

703 Amphiphilic Structure in the Environment Modulates the *Pseudomonas aeruginosa* Quorum Sensing Response
K. S. Kaushik, E. Hutchison, A. W. Hall, R. Morrison, T. Nguyen, V. Gordon; Univ. of Texas at Austin, Austin, TX.

704 Differences in cdGMP Signaling Influence Virulence of Francisella Species
X. Zogaj, G. Wyatt, K. E. Klose; Univ. of Texas, San Antonio, TX.

705 Multiple Functions of Endoribonuclease III in Gene Regulation of *Staphylococcus aureus*
E. Lioliou[1], C. M. Sharma[2], I. Caldelari[1], A-C. Helfer[1], P. Fechter[1], F. Vandenesch[3], J. Vogel[4], P. Romby[1]; [1]Architecture et Réactivité de l'ARN, Université de Strasbourg, CNRS, IBMC, Strasbourg, FRANCE, [2]Zentrum für Infektionsforschung (ZINF), Würzburg, GERMANY, [3]3Inserm U851, Ctr. Natl. de Référence des Staphylocoques, Université de Lyon, Lyon, FRANCE, [4]Inst. für Molekulare Infektionsbiologie, Würzburg, GERMANY.

706 Iron and Quorum-Sensing Coordinately Regulates the Expression of Vulnibactin Biosynthesis in *Vibrio vulnificus*
Y. Wen, I-H. Kim, J-S. Son, G-Y. Min, K-S. Kim; Sogang Univ., Seoul, KOREA, REPUBLIC OF.

707 Determining the Inhibition Mechanism of Bile and Unsaturated Fatty Acids on *Vibrio cholerae* Virulence Gene Expression
S. Plecha, J. H. Withey; Wayne State Univ. Sch. of Med., Detroit, MI.

708 Glycine Betaine Importer Limits *Salmonella* Stress Resistance and Tissue Colonization by Reducing Trehalose Production
C. Detweiler, M. C. Plionieta, T. Nagy, D. Jorgensen; Univ. of Colorado Boulder, Boulder, CO.

709 Gene Expression of the Glucose-Inhibited Division (*gidAB*) Operon is Influenced by the Level of AsnC and Different Environmental Conditions
J. M. Rehl, N. M. Eakley, M. D. Brevik, A. A. Fadl; Univ. of Wisconsin-Madison, Madison, WI.

710 Diverse Modulation of Spa Transcription by Cell Wall Active Antibiotics in *Staphylococcus aureus*
L. N. Nielsen, M. Roggenbuck, J. Haaber, D. Ifrah, H. Ingmer; Univ. of Copenhagen, Frederiksberg C, DENMARK.

711 Effect of Polyamines on *Vibrio cholerae* Virulence Properties
J. B. Goforth, N. Walter, E. Karatan; Appalachian State Univ., Boone, NC.

712 Regulation of fimB and fimE Transcription in Uropathogenic *Escherichia coli* Growing in Murine Kidneys and Bladders
H. Ding, W. R. Schwan; Univ. Wisconsin-La Crosse, La Crosse, WI.

052 Surface Structures of Microbial Pathogens II (Division B)

1:00 p.m. – 2:45 p.m.; Poster Hall

713 Identifying Regions of Human TLR[4] Important for Recognition of Glucosamine-Modified *Bordetella Pertussis* Lipid A
N. M. Maeshima[1], N. R. Shah[1], A. M. Hajjar[2], R. C. Fernandez[1]; [1]Univ. of British Columbia, Vancouver, BC, CANADA, [2]Univ. of Washington, Seattle, WA.

714 Molecular Characterization of a Capsule-like Glycoprotein of *Francisella tularensis*, and it's Potential as a Novel Vaccine Candidate
A. E. Champion[1], A. Bandara[1], S. Twine[2], K. Fulton[2], T. J. Inzana[1]; [1]Virginia Tech Coll. of Vet. Med., Blacksburg, VA, [2]Inst. for Biological Sci., Natl. Res. Council [14], Ottawa, ON, CANADA.

715 A Single Amino Acid Determines Glycosyl Transferase Specificity, Capsule Structure and Serological Property of *Streptococcus pneumoniae* Serogroup 11
M. B. Oliver[1], E. R. Zartler[2], T. R. Larson[1], J. J. Calix[1], J. Yother[1], M. H. Nahm[1]; [1]Univ. of Alabama at Birmingham, Birmingham, AL, [2]Quantum Tessera Consulting, LLC, Philadelphia, PA.

716 Duplicate flagelline Genes in *Edwardsiella tarda*
Y. Choe, J. Yu, J. Park, H. Kang; Pusan Natl. Univ., Busan, KOREA, REPUBLIC OF.

717 Identification of Novel Autoaggregation Motifs by Comparative Analysis of Outer Membrane Agglutinins
E. C. Remaly, S. Park, J. Glaubman, M. Bonney, S. Andelman, I. N. Okeke; Haverford Coll., Haverford, PA.

718 Novel Topology of the Enteropathogenic *E. coli* Type IV Pilus Secretin BfpB
J. A. Lieberman, C. D. Sturey, M. S. Donnenberg; Univ. of Maryland, Sch. of Med., Baltimore, MD.

719 Expression and Localization of PstS/DING Family Proteins in *Pseudomonas aeruginosa* PA14 and Multi-drug Resistant Clinical Isolates
M. Shah[1,2], K. Scott[1], J. C. Alverdy[2], **O. Y. Zaborina**[2]; [1]Univ. of Auckland, Auckland, NEW ZEALAND, [2]Univ. of Chicago, Chicago, IL.

720 Removal of O-acetylation Is Essential for Peptidoglycan Elongation Regulation and Virulence in *Neisseria Meningitidis*
F. J. Veyrier, A. Williams, A. Haouz, C. Schmitt, M-K. Taha, I. G. Boneca; Inst. Pasteur, Paris, FRANCE.

721 Clinical *Clostridium difficile* Isolates Exhibit Strain-Specific Motility Patterns and Differential Expression of Flagellar Proteins
A. E. Clark[1], B. Roxas[1], V. Vishwanathan[1], G. Vedantam[1,2]; [1]Univ. of Arizona, Tucson, AZ, [2]Southern Arizona VA Hlth.care System, Tucson, AZ.

722 PspK of *Streptococcus pneumoniae* Binds sIgA and Increases Pneumococcal Cell Adhesion
L. E. Keller[1], C. V. Jones[1], J. Thornton[2], M. E. Sanders[1], I. H. Park[3], M. H. Nahm[3], L. S. McDaniel[1]; [1]Univ. of Mississippi Med. Ctr., Jackson, MS, [2]Mississippi State Univ., Starkville, MS, [3]The Univ. of Alabama at Birmingham, Birmingham, AL.

723 Adherence of VWFA-domain Containing Proteins of *Borrelia burgdorferi* to Extracellular Matrix Components
E. Wood[1], S. Tamborero[2], I. Mingarro[2], M. Esteve-Gasssent[1]; [1]Texas A&M Univ., College Station, TX, [2]Univeristy of Valencia, Burjassot, SPAIN.

724 A Synthetic LTA Mimetic Elicits Protective Antibodies Against *S. aureus* and *Enterococci*
A. Kropec[1], D. Laverde[1], D. Wobser[1], W. F. J. Hogendorf[2], G. A. van der Marel[2], J. D. C. Codee[2], J. Huebner[1]; [1]Univ. Hosp. Freiburg, Freiburg, GERMANY, [2]Leiden Inst. of Chemistry, Leiden, NETHERLANDS.

725 Tale of the Tape: Measuring the Effect of LPS Length on *Salmonella* Pathogenesis
R. W. Crawford, A. Keestra, S. E. Winter, A. J. Baumler; Univ. of California Davis, Davis, CA.

726 The Type IV Pilin-like Protein BfpI Does Not Facilitate Pilus Extension
L. G. De Masi, IV[1], N. Biais[2], M. Flajnik[1], M. Sheetz[2], M. S. Donnenberg[1]; [1]Univ. of Maryland Baltimore, Baltimore, MD, [2]Columbia Univ., New York, NY.

727 FimK Regulation of Type 1 and Type 3 Fimbriae in *Klebsiella pneumoniae* CG43
Z-C. Wang[1], J-R. Huang[2], Y-J. Huang[1], C-C. Wu[1], H-L. Peng[1,2]; [1]Dept. of Biological Sci. and Technology, Natl. Chiao Tung Univ., Hsin Chu, TAIWAN, [2]Inst. of Molecular Med. and Bioengineering, Sch. of Biological Sci. and Technology, Natl. Chiao Tung Univ., Hsin Chu, TAIWAN.

728 Role of the LPS of *Salmonella* Abortusovis in Antigen Presenting Cells
D. Chessa, L. Spiga, C. J. Weinert, P. Cappuccinelli, S. Rubino; Univ., Sassari, ITALY.

729 Single Amino Acid Difference in LpxA of *Bordetella Pertussis* Strains BP338 and 18-323 Affects Lipid A Acyl Chain Length and TLR4 Activation
N. R. Shah[1], S. Nehme[2], M. Caroff[2], R. C. Fernandez[1]; [1]Univ. of British Columbia, Vancouver, BC, CANADA, [2]Université de Paris-Sud, Orsay, FRANCE.

730 Analyzing for the Pathophysiology of *Helicobacter pylori*-associated cITP *Via* Human Platelet-*H. pylori* Outer Membrane Protein Interaction
N. Morimoto[1], H. Takeuchi[2], Y. Kadota[2], Y. Nishida[2], Y. Kumon[2], T. Sugiura[2]; [1]Kochi Med. Sch. Hosp., Nankoku, JAPAN, [2]Lab. medicine, Kochi Med. Sch., Kochi Univ., Nankoku, JAPAN.

053 Specimen Collection, Transportation and Processing (Division C)

1:00 p.m. – 2:45 p.m.; Poster Hall

731 Bioburden Levels from Saphenous Vein Grafts Recovered for Transplant: 2007-2011
M. Hackel[1], M. Bailey-Person[1], M. McCarthy[1], C. Gaylord[1], K. Vitek[2], T. Stevens[2], A. Jordan[2]; [1]Intl. Hlth.Management, Assoc, Schaumburg, IL, [2]Vascular Transplant Services, Schaumburg, IL.

732 Analysis of the Copan SL Solution for Liquefaction of Respiratory Specimens Prior to Gram Stain and Culture
L. J. Doyle, G. S. Hall, A. C. Boss, S. M. Harrington; Cleveland Clinic, Cleveland, OH.

733 Solutions for Implementation of the Automated PREVI Isola Plating Instrument in the Clinical Laboratory
K. C. Chapin[1,2], M. Andrade[1], S. B. Andrea[1], L. A. Tellier[1]; [1]Rhode Island Hosp., Providence, RI, [2]The Brown Alpert Med. Sch., Providence, RI.

734 Processing with the PREVI Isola; Evaluation of Multiple Specimen Types
S. B. Andrea[1], M. Andrade[1], L. A. Tellier[1], K. C. Chapin[1,2]; [1]Rhode Island Hosp., Providence, RI, [2]The Brown Alpert Med. Sch., Providence, RI.

735 Evaluation of the Copan SL Solution to Improve Sputum Culture
S. Silbert, S. Knight, L. Fenton, R. Widen; Tampa Gen. Hosp., Tampa, FL.

736 Evaluation of Three Flocked Swabs and Two Liquid Amies Transport Systems for the Recovery of Fastidious Bacteria
B. Gandhi[1], T. Mazzulli[2]; [1]Mt. Sinai Hosp., Univ. Hlth.Network, Toronto, ON, CANADA, [2]Mt. Sinai Hosp., Univ. Hlth.Network and Univ. of Toronto, Toronto, ON, CANADA.

737 Evaluation of a New Blood Volume Monitoring Software for Ensuring Appropriate Blood Volumes for Sepsis Diagnosis
M. E. Hogan, D. A. Jones; PeaceHlth.Southwest Med. Ctr., Vancouver, WA.

738 Predictability of Urinalysis Parameters in the Diagnosis of Urinary Tract Infection: A Case Study
T. Bhavsar, V. Dadhania, M. Jin, R. Potula, A. L. Truant; Temple Univ. Hosp., Philadelphia, PA.

739 Controlled Clinical Comparison of BacT/ALERT Pediatric Aerobic (PF Plus) Blood Culture Medium with BacT/ALERT PF Blood Culture Medium
S. Mirrett[1], D. C. Halstead[2], J. Abid[2], C. Doern[3], P. Okada[3], L. B. Reller[1]; [1]Duke Univ. Med. Ctr., Durham, NC, [2]Baptist Med. Ctr., Jacksonville, FL, [3]Children's Med. Ctr. of Dallas, Dallas, TX.

740 Easy and Fast DNA Extraction for Preserved Stool Samples
L. A. Sahnow, L. N. K. Nguyen, C. R. Icenhour; Phthisis Diagnostics, Charlottesville, VA.

741 More Rapid Detection of *Clostridium difficile* Infection Using Decentralized Real Time PCR Testing
I. K. Dusich, C. J. Anderson, R. B. Thomson, Jr; NorthShore Univ. Hlth.System, Evanston, IL.

742 Effect of Bleach on Thiourea-dependent PFGE Subtyping
J. L. Halpin[1], K. Eckmann[2], E. M. Ribot[1], M. M. Freeman[1]; [1]CDC, Atlanta, GA, [2]WA Publ. Hlth.Lab., Shoreline, WA.

743 Method to Avoid False Positive Amplification of Bacterial DNA in the Taq Enzyme in "Universal" 16S PCR
K. H. Rand, M.D., H. Houck; Univ. of Florida, Gainesville, FL.

744 Comparison of Anaerobic Media in the Recovery of Obligate Anaerobes
T. M. Wiles, P. Williams, C. Yu; BD Diagnostic Systems, Sparks, MD.

745 Development and Evaluation of a High-throughput Custom ABI Openarray Providing Simultaneous Detection of 30 Genetic Markers for the Detection and Serotyping of Bacterial Meningitis Pathogens
D. Wroblewski, T. A. Halse, J. Edwards, K. A. Musser; NYS Dept Hlth., Albany, NY.

746 Evaluation of Potential Inhibitory Effects of Biological and Chemical Materials on the BD MAX MRSA Assay*, a New Automated Molecular Assay
J-S. Côté, M. Tremblay, C. Roger-Dalbert; BD Diagnostics, Québec, QC, CANADA.

747 Comparison of Copan ESwab and BBL CultureSwab Using Various Study Temperatures
G. Smith, T. Jackson; WakeMed Hlth.& Hosp., Raleigh, NC.

748 Validation of Copan ESwab for the Collection of Clinical specimens for the Detection of *Streptococcus* group A with the Genprobe® GASDT Probe Assay.
S. Castriciano[1], A. Squassina[1], L. Conter[1], C. Fontana[2], C. Russo[3]; [1]Copan Italia, Brescia, ITALY, [2]Tor Vergata Univ., Rome, ITALY, [3]Bambin Jesu', Rome, ITALY.

749 Effects of Storage and Transport Conditions on the Viability of *C. difficile* in Soft or Liquid Human Stool Specimens
B. C. Ellis[1], D. Fuller[2], P. D. Stamper[3], W. Babiker[1], R. Buckner[2], A. June[2], K. Newcomer[2], J. Talbott[2], S. Bouchard[4], P. Qin[5], T. Karchmer[5], T. E. Davis[2], K. C. Carroll[1]; [1]Johns Hopkins Hosp., Baltimore, MD, [2]Dept. of Pathology and Lab. Med., Wishard Hlth.Services, Indianapolis, IN, [3]Johns Hopkins Univ., Baltimore, MD, [4]BD Diagnostics-Infectious Diseases, Quebec City, QC, CANADA, [5]BD Diagnostics, Sparks, MD.

750 Inhibition of Bacterial Growth in Urine Culture after Refrigerated Transport
J. K. January, R. Liao; PeaceHlth.Lab., Springfield, OR.

751 Rapid and Automated Specimen Preparation for Clinical Microbiology
S. Metzger[1], D. Howson[1], C. S. Price[2]; [1]Accelr8, Denver, CO, [2]Denver Hlth.Med. Ctr., Denver, CO.

752 Quantifying the Benefit of an Optically Directed Endotracheal Tube Clearing Device using Bioluminescent Bacteria
J. G. Thomas, H. M. Motlagh, C. Waters, S. L. McLaughlin; West Virginia Univ., Morgantown, WV.

054 Human Microbiome (Division D)

1:00 p.m. – 2:45 p.m.; Poster Hall

753 Enterovirus/Rhinovirus Colonization and Association with *Streptococcus pneumoniae* in the Nasopharynx: Is Age a Factor?
S. Fathima[1], B. Crago[2], M. Louie[2,1], S. J. Drews[2,1], A. McGeer[3,4], Outcomes of Pandemic Influenza in Pregnancy (OPIP)Study Group; [1]ProvLab Alberta, Calgary, AB, CANADA, [2]Univ. of Calgary, Calgary, AB, CANADA, [3]Univ. of Toronto, Toronto, ON, CANADA, [4]Mount Sinai Hosp., ON, CANADA.

754 Pyrosequencing-determined Bacterial Diversity of Gastric Microbiomes of Gastric Cancer Patients in Korea
T. Lee[1], J. Park[1], G. Choi[2], H. Lee[2], Y. Lee[2]; [1]Yonsei Univ., Seoul, KOREA, REPUBLIC OF, [2]Yonsei Univ. Coll. of Med., Seoul, KOREA, REPUBLIC OF.

755 Characterizing the Fungal Diversity of the Human Skin Microbiome
K. M. Findley[1], C. Deming[1], J. Meyer[1], J. Yang[1], S. Conlan[1], NISC Comparative Sequencing Program, H. Kong[2], J. Segre[1]; [1]Natl. Human Genome Res. Inst., Bethesda, MD, [2]Natl. Cancer Inst., Bethesda, MD.

756 Nasal Microecology Following Respiratory Infection
H. Chang[1], D. W. Koenig[2]; [1]Kimberly Clark Corp., Seoul, KOREA, REPUBLIC OF, [2]Kimberly Clark Corp., Neenah, WI.

757 Glove-Juice or Swab: Best Sampling Method for Skin Microbiome Studies
M. Rosenthal[1], A. Miles[1], G. Ramos[2], A. Aiello[1], B. Foxman[1]; [1]Univ. of Michigan, Ann Arbor, MI, [2]Faculdade Evangélica de Med. do Paraná, Curitiba, BRAZIL.

758 Canine Oral Bacteria Identified in Human Skin Microbiome Libraries
F. E. Dewhirst; The Forsyth Inst., Boston, MA.

759 Combination Stem Cell-Microbiome Manipulation Therapy to Abrogate DSS-induced Colitis
J. S. Mar[1], N. A. Nagalingam[1], S. V. Lynch[1], Y. Song[2]; [1]UCSF, San Francisco, CA, [2]Pulmonary Med., Zhongshan Hosp., Fudan Univ., Shanghai, CHINA.

760 Prevalence of TM7a in Human Subgingival Plaque
J. A. Ghadiri[1], F. Ghadiri[1], I. Vinnichenko[1], J. M. Dinis[2], D. Barton[1], C. C. Ouverney[1]; [1]San Jose State Univ., San Jose, CA, [2]Univ. of Wisconsin-Madison, Madison, WI.

761 Comparison of GH and 16S rRNA Gene Profiles Among Human and Animal Fecal Microbiomes
L. Sunghee[1], G. Dirk[2], K. GwangPyo[3]; [1]Seoul Natl. Univ., Seoul, KOREA, REPUBLIC OF, [2]Broad Inst., Cambridge, MA, [3]Seoul Natl. Univ., SEOUL, KOREA, REPUBLIC OF.

762 Molecular Analysis of the Effect of Crude Oil, Dispersant, and Oil-dispersant Mixtures on Human Intestinal Microbiota Using an *in vitro* Culture Test System
J. N. Kim, B-S. Kim, S-J. Kim, C. E. Cerniglia; Natl. Ctr. for Toxicological Res. / FDA, Jefferson, AR.

763 Temporal Variation of Fecal Microbiota from Healthy Korean Twins
J. Lee, J. Sung, G. Ko; Seoul Natl. Univ., Seoul, KOREA, REPUBLIC OF.

764 Network Analysis Reveals Altered Community Structure in the Fecal Microbiota of Children with Irritable Bowel Syndrome
E. B. Hollister[1], D. M. Saulnier[2], R. Luna[1], E. M. Weidler[1], S. Raza[1], M. Rubio-Gonzalez[1], T-A. Mistretta[1], J. F. Petrosino[1], R. Gibbs[1], R. J. Shulman[1], J. Versalovic[1]; [1]Baylor Coll. of Med., Houston, TX, [2]NIZO, Ede, NETHERLANDS.

765 Temporal Changes of Bacterial Functional Butyrate and Sulfite Reduction Gene Communities in Ulcerative Colitis Patients: A Role for the Gut Microbiome in Health and Disease
M. Vital[1], C. R. Penton[1], Q. Wang[1], V. Young[2], D. Antonopoulos[3], M. Sogin[4], H. Morrison[4], L. Harrell[5], E. B. Chang[5], J. Cole[1], J. M. Tiedje[1]; [1]Michigan State Univ., East Lansing, MI, [2]Univ. of Michigan, Ann Arbor, MI, [3]Argonne Natl. Lab, Argonne, IL, [4]Marine Biol. Lab, Woods Hole, MA, [5]Univ. of Chicago, East Lansing, IL.

766 The Developing Gastrointestinal Microbiota of Infants at High Risk for Asthma Development
M. Rauch, M. McKean, M. D. Cabana, S. V. Lynch; Univ. of California, San Francisco, San Francisco, CA.

767 Investigating the low pH Active Taxa within Oral Microbiome Communities Using Stable Isotope Probing Techniques
J. S. McLean[1], A. P. Hall[1], L. Z. Allen[1], Y. Yang[1], L. Guo[2], X. He[2], S. Yooseph[1], R. Lux[2], W. Shi[2], K. E. Nelson[1], K. H. Nealson[3,1]; [1]J.Craig Venter Inst., La Jolla, CA, [2]UCLA, Los Angeles, CA, [3]USC, Los Angeles, CA.

768 Investigating the Human Dental Plaque Microbiome in Children with and without Dental Caries
A. J. Smith, P. Herzyk, M. Riggio, G. Hamilton, T. Mitchell; Univ. of Glasgow, Glasgow, UNITED KINGDOM.

769 Towards a Representative *in vitro* Model of the Human Oropharynx
G. J. Humphreys, A. J. McBain; Univ. of Manchester, Manchester, UNITED KINGDOM.

770 Autism-associated Systematic Changes in Gut Microflora
D-W. KANG[1], J. Park[2], Z. E. Ilhan[1], J. B. Adams[3], R. Krajmalnik-Brown[1,4]; [1]Swette Ctr. for Environmental Biotechnology, Biodesign Inst., Arizona State Univ., Tempe, AZ, [2]Virginia G. Piper Ctr. for Personalized Diagnostics, Biodesign Inst., Arizona State Univ., Tempe, AZ, [3]Sch. for Engineering of Matter, Transport, and Energy, Arizona State Univ., Tempe, AZ, [4]Sch. of Sustainable Engineering and the Built Environment, Arizona State Univ., Tempe, AZ.

771 Dynamics of the Cystic Fibrosis Lung Microbiome Around the Time of Pulmonary Exacerbation
L. A. Carmody[1], J. Zhao[1], P. D. Schloss[1], J. F. Petrosino[2], J. Li[1], V. B. Young[1], J. J. LiPuma[1]; [1]Univ. of Michigan, Ann Arbor, MI, [2]Baylor Coll. of Med., Houston, TX.

772 Effect of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) on Microbial Gut Communities
P. Bhaduri, A. K. Kopec, B. Kaplan, T. R. Zacharewski, N. E. Kaminski, J. Tiedje, S. A. Hashsham; Michigan State Univ., East Lansing, MI.

773 Bacterial Communities in Women with Bacterial Vaginosis: Impact of Microbiota on Clinical Variables
S. Srinivasan[1], M. T. Morgan[1], F. A. Matsen[1], N. G. Hoffman[2], T. L. Fiedler[1], J. M. Marrazzo[2], D. N. Fredricks[1]; [1]Fred Hutchinson Cancer Res. Ctr., Seattle, WA, [2]Univ. of Washington, Seattle, WA.

774 Temporal Shifts in the Skin Microbiome are Associated with Disease Flares and Treatment in Children with Atopic Dermatitis
H. H. Kong[1], J. Oh[2], S. Conlan[2], C. Deming[2], E. A. Grice[2], P. R. Murray[3], M. L. Turner[1], J. A. Segre[2]; [1]NCI, NIH, Bethesda, MD, [2]NHGRI, NIH, Bethesda, MD, [3]CC, NIH, Bethesda, MD.

775 Transmission Patterns of Neonatal Intensive Care Unit Microbes to the Infant Gut
B. Brooks[1], B. A. Firek[2], C. S. Miller[1], B. C. Thomas[1], M. J. Morowitz[2], J. F. Banfield[1]; [1]Univ. of California Berkeley, Berkeley, CA, [2]Univ. of Pittsburgh, Pittsburgh, PA.

776 Associations Between Gut Microbial Community and Serum Sex Steroid Hormone Concentrations in a Cross-Sectional Study of Premenopausal Women
M. A. J. Hullar[1], C. Atkinson[2], F. Li[1], K. W. Reding[1], K. M. Newton[3], J. W. Lampe[1]; [1]Fred Hutchinson Cancer Res. Ctr., Seattle, WA, [2]Univ. of Bristol, UNITED KINGDOM, [3]Group Hlth.Res. Inst., Seattle, WA.

777 Is There a Specific Microbiota in the Upper Respiratory Tract of Patients with Pulmonary Tuberculosis?
L. E. Botero[1], L. Delgado[2], J. R. Bustos[2], M. L. Cepeda[2], J. M. Anzola[2], G. Hernández-Neuta[2], C. Osorio[2], J. Robledo[3], P. Del Portillo[2], M. M. Zambrano[2]; [1]Univ. Pontificia Bolivariana, Medellín, COLOMBIA, [2]Corporación Corpogen, Bogota, COLOMBIA, [3]Corporación para Investigaciones Biológicas, Medellín, COLOMBIA.

778 Human Milk Glycan Concentration in Infant Feces Correlates to Changes in Infant Gut Microbiota
K. M. Kalanetra, M. L. A. de Leoz, S. R. Moyano, N. Bokulich, J. S. Strum, M. A. Underwood, B. German, C. Lebrilla, D. A. Mills; Univ. of California, Davis, CA.

055 Microbial Entry (Invasion or Internalization) and Survival within Host Cells II (Division D)

1:00 p.m. – 2:45 p.m.; Poster Hall

779 Activation of the Classical Complement Pathway by *Bacillus anthracis* is the Primary Mechanism for Spore Phagocytosis and Involves the Spore Surface Protein BclA
C. Gu, S. A. Jenkins, Q. Xue, Y. Xu; Texas A&M Hlth.Sci. Ctr. Inst. of BioSci.s and Technology, Houston, TX.

780 Disruption of *Campylobacter jejuni* phosphotyrosine Signaling by Mucosal Hydrogen Peroxide
N. Corcionivoschi[1], L. Alvarez[2], T. Sharp[3], M. Strengert[2], A. Alemka[2], J. Mantell[3], P. Verkade[3], U. Knaus[2], B. Bourke[2]; [1]Natl. Children Res. Ctr., Dublin, IRELAND, [2]Univ. Coll. Dublin, Dublin, IRELAND, [3]Univ. of Bristol, Bristol, UNITED KINGDOM.

781 The Role of the *vapBC-1* and *vapXD* Toxin-Antitoxin Loci in the Infection Persistence of Nontypeable *Haemophilus influenzae*
D. Ren, A. N. Walker, D. A. Daines; Mercer Univ. Sch. of Med., Macon, GA.

782 Insights into the NtrX Regulation in Development of Obligatory Intracellular Pathogen *Ehrlichia chaffeensis*
Z. Cheng, Y. Rikihisa; The Ohio State Univ., Columbus, OH.

783 *Anaplasma phagocytophilum* Type IV Secretion System Effector AnkA Regulates Host Actin Cytoskeleton
M. Lin, Y. Rikihisa; The Ohio State Univ., Columbus, OH.

784 *Ehrlichia chaffeensis* TRP32 Interacts with Host Cell Targets that Influence Intracellular Survival
T. Luo, J. W. McBride; Univ. of Texas Med. Branch, Galveston, TX.

785 Ehrlichia Type IV Secretion Effector ECH0825 is Translocated to Mitochondria and Curbs ROS and Apoptosis by Upregulating Host MnSOD
H. Liu[1], W. Bao[2], M. Lin[1], H. Niu[1], Y. Rikihisa[1]; [1]The Ohio State Univ., Columbus, OH, [2]Univ. of South Carolina, Columbia, SC.

786 The Essential Role of Autophagy in *Anaplasma phagocytophilum* Infection
H. Niu, Q. Xiong, Y. Rikihisa; The Dept. of Vet. BioSci.s, The Ohio State Univ., Columbus, OH.

787 Intracellular *Yersinia pestis* Escapes Macrophages *Via* Induction of Type III Secretion-Independent Cell Death
N. A. Eisele, L. L. Keleher, D. M. Anderson; Univ. of Missouri, Columbia, MO.

788 Subversion of NPC1 Pathway of Cholesterol Transport by *Anaplasma phagocytophilum*
Q. Xiong, Y. Rikihisa; Ohio State Univ., Columbus, OH.

789 Pathogenic *Chlamydia*l Growth in Human Immortal Jurkat Lymphoid Cells Uncontrolled by Interferon-gamma
K. Ishida[1], T. Kubo[1], J. Matsuo[1], C. Yamane[1], S. Nakamura[2], M. Kunichika[2], M. Yoshida[2], K. Takahashi[2], H. Yamaguchi[1]; [1]Hokkaido Univ., Sapporo, JAPAN, [2]Juntendo Univ., Tokyo, JAPAN.

790 Early-Life Respiratory Infections with *Chlamydia* Significantly Increases mRNA Expression of Histidine decarboxylase, IgE and its High- and Low-Affinity Receptors
K. K. Patel, J. Lavoie, W. C. Webley; Univ. of Massachusetts, Amherst, Amherst, MA.

791 Galleria mellonella as Model of *Legionella pneumophila* Infection
C. R. Harding[1], G. Schroeder[1], S. Reynolds[2], A. Kosta[1], J. W. Collins[1], A. Mousnier[1], G. Frankel[1]; [1]Imperial Coll. London, London, UNITED KINGDOM, [2]Univeristy of Bath, Bath, UNITED KINGDOM.

792 A Characterization of the Guinea Pig Vaginal Microbiota in Healthy and *Chlamydia caviae*-infected States
E. H. Neuendorf[1,2], A. Bowlin[3], P. Gajer[1,2], H. Yang[1], S. Koenig[1], R. Rank[1], P. Bavoil[4], J. Ravel[1,2]; [1]Inst. for Genome Sci., Baltimore, MD, [2]Univ. of Maryland Sch. of Med., Baltimore, MD, [3]Children's Hosp. Res. Inst., Little Rock, AR, [4]Dept. of Microbial Pathogenesis, Univ. of Maryland Dental Sch., Baltimore, MD.

793 Antigenic Proteins in BALB/c and C57BL/6 Mice during *Brucella abortus* Infection and its Similarity with Human Immune Response
T. M. A. da Silva[1,2], M. N. Xavier[1,2], M. G. Winter[1], J. M. Vinetz[3], L. Liang[4], P. L. Felgner[4], R. L. Santos[2], R. M. Tsolis[1]; [1]Univ. of California at Davis, Davis, CA, [2]Univ.e Federal de Minas Gerais, Belo Horizonte, BRAZIL, [3]Univ. of California at San Diego, San Diego, CA, [4]Univ. of California at Irvine, Irvine, CA.

794 IL-22 and IL-23 are Dispensable for Resolution of *Chlamydia muridarum* Genital Tract Infection and the Development of Oviduct Pathology but may Serve a Protective Role During the Early Stages of Endocervical Infection
L. Frazer[1,2], M. Zurenski[1], M. Mintus[1], T. Darville[1,2]; [1]Children's Hosp. of Pittsburgh of UPMC, Pittsburgh, PA, [2]Univ. of Pittsburgh Sch. of Med., Pittsburgh, PA.

795 ***Chlamydia trachomatis* Extrusions Provide Extracellular Protection and Promote Uptake and Survival in Macrophages**
M. Zuck, A. Venida, K. Hybiske; Div. of Infectious Diseases and Vaccinology; Univ. of California, Berkeley, Berkeley, CA.

796 **Role of Myosin II in the Formation of Epithelial Cell Membrane Blebs by Intracellular *Pseudomonas aeruginosa***
D. Takawira[1], O. Oke[1], D. J. Evans[1,2], S. M. Fleiszig[1]; [1]Univ. of California Berkeley, Berkeley, CA, [2]Touro Univ. California, Vallejo, CA.

797 **Macrophage Apoptosis After *Cryptococcus neoformans* Phagocytosis**
C. Coelho[1,2], T. Goncalves[3], A. Casadevall[1]; [1]Albert Einstein Coll. of Med., Bronx, NY, [2]PhD Programme in Experimental Biology & Biomedicine, Ctr. for NeuroSci. and Cell Biology of Coimbra and Inst. of Microbiol., Faculty of Med., Univ. of Coimbra, Coimbra, PORTUGAL, [3]PhD Programme in Experimental Biology & Biomedicine, Ctr. for NeuroSci. and Cell Biology of Coimbra and Inst. of Microbiol., Faculty of Med., Univ. of Coimbra, Coimbra, PORTUGAL.

798 **Caspase-2-Dependent Dendritic Cell Maturation and T Cell Priming in Response to *Brucella abortus* Infection**
X. Li, Y. He; Univ. of Michigan, Ann Arbor, MI.

799 **A Tale of Two Tails: Rickettsia Actin-based Motility Occurs in Two Temporally and Mechanistically Distinct Phases**
S. C. O. Reed, E. Abernathy, M. D. Welch; Univ. of California, Berkeley, Berkeley, CA.

800 **The Role of Cytokeratin 17 in *Chlamydia trachomatis* Infection**
J. A. Brothwell, B. Fan, D. E. Nelson; Indiana Univ.-Bloomington, Bloomington, IN.

801 **Eco-Pathogenomics of *Chlamydia*l Infection: the Role of the Vaginal Microbiota**
B. Ma[1], E. Neuendorf[1], E. Collinetti[2], P. Gajer[1], D. Phillips[3], M. Alsomali[1], H. Yang[1], L. Fu[1], J. Sakamoto[1], S. Koenig[1], P. Bavoil[3], L. Peralta[2], J. Ravel[1]; [1]Inst. for Genome Sci., Univ. of Maryland Sch. of Med., Baltimore, MD, [2]Dept of Pediatrics, Univ. of Maryland Sch. of Med., Baltimore, MD, [3]Dept of Microbial Pathogenesis, Univ. of Maryland Dental Sch., Baltimore, MD.

802 ***Chlamydia*l Nucleoside Diphosphate Kinase Contributes to Pathogenesis by Inhibiting ATP-induced Cell Signaling**
M. L. Avila, D. M. Ojcius; Univ. of California, Merced, Merced, CA.

803 ***Mycobacterium leprae* Infect Nasal and Alveolar Epithelial Cells by Protein Secretion-independent Mechanism**
C. A. M. Silva[1,2], L. Danelishvili[2], M. McNamara[2], M. C. V. Pessolani[1], L. E. M. Bermudez[2]; [1]Fiocruz, Rio de Janeiro, BRAZIL, [2]Oregon State Univ., Corvallis, OR.

804 **Role of eIF2 Alpha Phosphorylation and CHOP Expression in the Intracellular Survival of Mycobacteria**
S. Chang-Hwa, Y-J. Lim, J-A. Choi, S-N. Cho, H-J. Kim; Dept. of Microbiol., Infection Signaling Network Res. Ctr., and Res. Inst. for Med. Sci., Coll. of Med., Chungnam Natl. Univ., Daejeon, KOREA, REPUBLIC OF.

805 **Role of Ubiquilins in Innate Immunity to Mycobacterial Infection**
E. Sakowski[1], S. Hetzenecker[1], M. Porto[1], A. Dricot[1], D. Hill[2], M. Vidal[2], J. A. Philips[1]; [1]NYU Sch. of Med., New York, NY, [2]Dana Farber Cancer Inst., Harvard Med. Sch., Boston, MA.

806 **Growth Dependent Interactions of *Streptococcus suis* Serotype 2 and 9 Strains with Porcine Monocytes**
D. Willms[1], J. Willenborg[1], M. Rohde[2], R. Goethe[1], P. Valentin-Weigand[1]; [1]Univ. of Vet. Med., Hannover, GERMANY, [2]Helmholtz Ctr. for Infection Res., Braunschweig, GERMANY.

056 Vaccinology (Division E)

1:00 p.m. – 2:45 p.m.; Poster Hall

807 **New Vaccine Targets to Prevent Lyme Disease**
M. D. Esteve-Gasent, P. Ferro, A. Mulenga, W. Mwangi; Texas A&M Univ., College Station, TX.

808 **Neuraminidase Immunity to the 2009 Pandemic H1N1 Protects Mice Against a Lethal Infection with Highly Pathogenic H5N1**
J. D. Easterbrook[1], L. M. Schwartzman[1], J. Gao[2], J. C. Kash[1], D. M. Morens[1], M. C. Eichelberger[2], J. K. Taubenberger[1]; [1]Natl. Inst. of Allergy and Infectious Diseases, Bethesda, MD, [2]Food and Drug Admin., Bethesda, MD.

809 **Recombinant Attenuated Vaccine Candidates for *S. aureus* Panton Valentine Leukocidin**
H. Karauzum, R. P. Adhikari, J. Sarwar, L. Abaandou, M. Mahmoudieh, H. Vu, A. Rezai, S. Shulenin, T. Nguyen, S. Venkataramani, K. L. Warfield, M. J. Aman; IntegratedBiotherapeutics Inc., Gaithersburg, MD.

810 **Further Development of a Multi-component Anthrax Vaccine that Potentially Targets Initial Stages of Infection and Toxemia**
C. K. Cote[1], L. Kaatz[1], J. Reinhardt[1], J. Bozue[1], P. Sanz[2], S. C. Darnell[2], F. Alem[2], A. D. O'Brien[2], S. L. Welkos[1]; [1]USAMRIID, Frederick, MD, [2]USUHS, Bethesda, MD.

811 **Identification of New Mutant Meningococcal Factor H Binding Protein Vaccine Candidates that do not Bind Human Complement Factor H**
R. Pajon Feyt, P. Beernink, D. Granoff; Children's Hosp. Oakland Res. Inst. (CHORI), Oakland, CA.

812 ***B. cereus* Spores Protect Mice against B. *anthracis* Ames Challenge without Protective Antigen or BclA**
J. M. Vergis[1], C. K. Cote[2], J. A. Bozue[2], F. Alem[1], C. L. Ventura[1], S. L. Welkos[2], A. D. O'Brien[1]; [1]Uniformed Services Univ. of the Hlth.Sci., Bethesda, MD, [2]U.S. Army Med. Res. Inst. of Infectious Diseases, Frederick, MD.

813 **Efficacy of Active Immunization with the 13 Valent Pneumococcal Conjugate Vaccine against Pneumococcal Endophthalmitis in Rabbits**
M. E. Sanders, S. D. Taylor, N. A. Tullos, M. E. Marquart; Univ. of Mississippi Med. Ctr., Jackson, MS.

814 **Immunological Characterization of Recombinant MOMP-278 Peptide Encapsulated in PLA-PEG Nanoparticles as Vaccine for *Chlamydia trachomatis***
M. A. E. Taha, S. R. Singh, V. A. Dennis, R. Agee, C. Moore; Alabama State Univ., Montgomery, AL.

815 **Lower Antibody Levels to *Staphylococcus aureus* Exotoxins is associated with Sepsis in Hospitalized Adults with Invasive *Staphylococcus aureus* Infections**
R. P. Adhikari[1], A. O. Ajao[2,3], H. Karauzum[1], J. Sarwar[1], A. Lydecker[2,3], J. Johnson[2], C. Nguyen[2], W. H. Chen[4], M-C. Roghmann[2,3], M. J. Aman[1]; [1]Integrated BioTherapeutics, Inc., Gaithersburg, MD, [2]Dept. of Epidemiology and Publ. Hlth., Univ. of Maryland Sch. of Med., Baltimore, MD, [3]VA Maryland Hlth.Care System, Baltimore, MD, [4]Dept. of Med., Univ. of Maryland Sch. of Med., Baltimore, MD.

816 **Novel Adjuvant Options in Anthrax Vaccination**
B. Feinen[1], N. Petrovsky[2], T. J. Merkel[1]; [1]Ctr. for Biologics Evaluation and Res., FDA, Bethesda, MD, [22]Flinders Med. Ctr. and Vaxine Pty Ltd, Bedford Park, AUSTRALIA.

817 **Progress Towards Development of a Multivalent Typhoid-*Shigella* Oral Vaccine**
M. N. Dharmasena, T. Wai, D. J. Kopecko; FDA-CBER, Bethesda, MD.

818 **Novel Structurally Designed Vaccine for *S. aureus* a-Hemolysin: Protection against Bacteremia/Sepsis and Pneumonia**
M. J. Aman, H. Karauzum, R. P. Adhikari, L. Abaandou, M. Mahmoudieh, H. Vu, A. Rezaei-Boroun, S. Shulenin, V. Sathyadevi, K. L. Warfield; Integrated BioTherapeutics, Gaithersburg, MD.

819 **Generation and Characterization of Neutralizing Monoclonal Antibodies to *Bacillus anthracis* Lethal Factor**
M. A. Pohl, A. Casadevall; Albert Einstein Coll. of Med., Bronx, NY.

820 Immunological Mechanism of Protection Elicited by a *Chlamydia trachomatis* (ct) Vaccine Formulated with the Native Major Outer Membrane Protein (nmomp)
S. Pal, J. Weiland, E. M. Peterson, L. M. de la Maza; Univ. of California, Irvine, CA.

821 Novel Vaccination Strategy Based on a Rational Designed Pathogen, Induces Protective Immunity
W. Mohamed[1], S. Sethi[1], S. Tchatalbachev[1], A. Darji[1,2], T. Chakraborty[1]; [1]Inst. of Med. Microbiol., Giessen, GERMANY, [2]Ctr. de Recerca en Sanitat Animal, Barcelona, SPAIN.

822 Characterization of Antibody and Cell-Mediated Immune Responses to a Protective *Burkholderia pseudomallei* Outer Membrane Vesicle Vaccine
W. Nieves, S. Asakrah, H. Petersen, L. A. Morici; Tulane Univ., New Orleans, LA.

823 The Effect of Human Factor H on Immunogenicity of Meningococcal Native Outer Membrane Vesicle Vaccines with Over-expressed Factor H Binding Protein
P. T. Beernink[1], J. Shaughnessy[2], R. Pajon[1], E. M. Braga[1], S. Ram[2], D. M. Granoff[1]; [1]Children's Hosp. Oakland Res. Inst., Oakland, CA, [2]Univ. of Massachusetts Med. Sch., Worcester, MA.

824 Development of Broadly Protective, Multi-Subunit Urinary Tract Infection Vaccine to Target a Diversity of Uropathogenic *Escherichia coli* Strains
A. R. Brumbaugh, S. N. Smith, H. L. T. Mobley; Univ. of Michigan, Ann Arbor, MI.

825 Discovery of Subtypes in serotype 20 of *Streptococcus pneumoniae*
J. J. Calix, A. M. Brady, R. L. Burton, T. R. Larson, J. Yother, M. H. Nahm; Univ. of Alabama at Birmingham, Birmingham, AL.

826 Disease-Enhancing Antibodies to Anthrax Toxin Improve the Activity of Neutralizing Antibodies
S-K. Chow, A. Casadevall; Albert Einstein Coll. of Med., Bronx, NY.

827 Immunogenicity of Mixed and Single Allele Vaccines of *Plasmodium* vivax Duffy Binding Protein Region II
F. B. Ntumngia[1], J. Schloegel[1,2], S. J. Barnes[1], A. M. McHenry[1,3], M. T. George[1], J. H. Adams[1]; [1]Univ. of South Florida, Tampa, FL, [2]La Trobe Univ., Melbourne, AUSTRALIA, [3]Southwestern Adventist Univ., Keene, TX.

828 Flt3 Ligand has Strong Adjuvant Activity that Enhances Immune Responses against *Chlamydia* Vaccine Antigens
R. Jha; Morehouse Sch. of Med., Atlanta, GA.

829 Anti-Caries Vaccines Based on Recombinant *Bacillus subtilis* Spores Expressing Bacterial Adhesins and the N-Terminal Region of the *Streptococcus mutans* P1 Surface Protein
M. B. Tavares, J. D. Paccez, R. D. Souza, M. E. S. Oliveira, R. C. M. Cavalcante, W. B. Luiz, R. C. C. Ferreira, L. C. S. Ferreira; Univ. of São Paulo, São Paulo, BRAZIL.

830 Use of Computational Modelling to Predict Vaccine Targets: Two Examples from *Staphylococcus aureus*
S. B. Smith, G. Pancari, L. Cope, H. Fan, A. Fridman, R. Hepler, J. Joyce, A. Joshi, L. Ottinger, T. McNeely, D. Nahas, I. Pak; Merck & Co., West Point, PA.

831 Designing a Vaccine Against *Staphylococcus lugdunensis*; Keeping the Heart in Mind
N. El Hosseiny[1], R. Amgad[2], N. Mahdally[2], A. S. Attia[1]; [1]Dept. of Microbiol. & Immunology, Faculty of Pharmacy, Cairo Univ., Cairo, EGYPT, [2]Clinical Pharmacy Undergraduate Program, Faculty of Pharmacy, Cairo Univ., Cairo, EGYPT.

832 Immunogenicity & Protective Efficacy of Heparan Sulphate Binding Proteins of Entamoeba *histolytica* Against Experimental Amoebiasis in Guinea Pig Model
M. L. Dubey[1,2], Upninder Kaur, Sumeeta Khurana, Uma Nahar Saikia; [1]Postgraduate Inst. of Med. Ed. and Res., Chandigarh, India, Chandigarh, INDIA, [2]Dept.s of Parasitology & Histopathology Postgraduate Inst. of Med. Ed. & Res., Chandigarh, INDIA.

833 *In vitro* Assessment of Innate Immune Responses to Gas Vesicle Delivery of a *Chlamydia* Vaccine
T. S. Childs, W. C. Webley; Univ. of Massachusetts Amherst, Amherst, MA.

834 Encapsulated Poly D, Lactic co-Glycolic Acid *Chlamydia trachomatis* Major Outer Membrane Protein Vaccine
S. J. Fairley, S. R. Singh, A. B. Waffo, A. N. Yilma, V. A. Dennis; Alabama State Univ., Montgomery, AL.

835 Expression and Characterization of a *C. trachomatis* DNA Vaccine Encapsulated in Chitosan Nanoparticles
C. Cambridge, S. R. Singh, A. B. Waffo, K. Vig, E. Nyairo, V. A. Dennis; Alabama State Univ., Montgomery, AL.

057 Fungal Biology and Virulence (Division F)

1:00 p.m. – 2:45 p.m.; Poster Hall

836 Conserved and Unique Protein Domains Regulate *Aspergillus fumigatus* RasA Localization and Function During Invasive Growth
J. R. Fortwendel; Univ. of South Alabama, Mobile, AL.

837 *Cryptococcus neoformans* Extracellular Vesicles Can Be Categorized by Morphological and Functional Differences
Moved to New Insights into Fungal Pathogenesis Session as a Young Investigator

838 Identification of a Carbohydrate-Binding Module Domain-Containing Protein Induced by N-Acetylglucosamine During *Coccidioides* posadasii Spherule-Endospore Phase Growth
J. M. Lunetta, D. Pappagianis; Dept. of Med. Microbiol. and Immunology, Sch. of Med., Univ. of California, Davis, CA.

839 Genetic and Biochemical Characterization of the Trehalose Pathway in *Cryptococcus neoformans* and *Cryptococcus* gattii
L. H. Rodgers[1,2], J. L. Tenor[1], J. R. Perfect[1]; [1]Duke Univ., Durham, NC, [2]Swarthmore Coll., Swarthmore, PA.

840 A Single Clone of *Geomyces destructans* Causes Geomycosis (White Nose Syndrome) in Bats in the United States
P. Ren[1], K. H. Haman[2], L. A. Last[2], S. S. Rajkumar[1], M. K. Keel[2], V. Chaturvedi[1]; [1]Wadsworth Ctr., NYSDOH, Albany, NY, [2]Coll. of Vet. Med., Univ. of Georgia-Athens, Athens, GA.

841 Subcellular Transport of Sterol Regulatory Element Binding Proteins (SREBPs) in *Aspergillus fumigatus*
D. Chung[1], S. D. Willger[2], R. A. Cramer, Jr.[1]; [1]Montana State Univ., Bozeman, MT, [2]Dartmouth Coll., Hanover, NH.

842 Comparative genomics of *Coccidioides* and its Closest Known Relatives
E. Whiston, J. Taylor; U.C. Berkeley, Berkeley, CA.

843 Cordycepin Suppresses LPS-induced Cell Migration and Invasion of Human Prostate Carcinoma LNCaP Cells *Via* Inhibition of MMP-2 Activity
J-W. Jeong[1], J-Y. Baek[1], C-Y. Jin[2,3], C. Park[2], G-Y. Kim[4], Y-K. Jeong[5], Y-H. Choi[2,3,6], J-D. Lee[1]; [1]Dept. of Microbiol., Coll. of Natural Sci., Pusan Natl. Univ., Busan, KOREA, REPUBLIC OF, [2]Dept. of Biochemistry and Res. Inst. of Oriental Med., Dongeui Univ. Coll. of Oriental Med., Busan, KOREA, REPUBLIC OF, [3]Dept. of Biomaterial Control (BK[21] Program), Dongeui Univ. Graduate Sch., Busan, KOREA, REPUBLIC OF, [4]Lab. of Immunobiology, Dept. of Marine Life Sci., Jeju Natl. Univ., Jeju, KOREA, REPUBLIC OF, [5]Dept. of Med. BioSci., Graduate Sch. and Dept. of Biotechnology, Coll. of Natural Resources and Life Sci., Dong-A Univ., Busan, KOREA, REPUBLIC OF, [6]Blue-Bio Industry Regional Innovation Ctr., Dongeui Univ., Busan, KOREA, REPUBLIC OF.

844 The E3 UbiquitinL Hrd1, Involved in Endoplasmic Reticulum (ER)-Associated Degration, Contributions to Nutritional Versatility and ER Stress Responses in *Aspergillus fumigatus*
X. Feng, K. Krishnan, M. Powers-Fletcher, D. S. Askew; Univ. of Cincinnati, Cincinnati, OH.

845 Expression, Purification, and Immunoreactivity of *Coccidioides* posadasii Heat Shock Protein 10
E. L. Carlson, S. M. Johnson, D. Pappagianis; Univ. of California Davis, Davis, CA.

846 Urea Stimulates Capsule Production in Human Pathogenic *Cryptococcus* Species
A. E. Frazzitta, H. Vora, M. Betancourt, D. Toffaletti, M. S. Price, J. R. Perfect; Duke Univ. Med. Ctr., Durham, NC.

847 Tracking a Fungal Pathogen in Uganda—Identifying Environmental Sources of Human Cryptococcal Infections
A. K. Strain[1], M. Goettge[1], J. Corcoran[2], D. Meya[3], H. Kajumbula[3], J. Knight[2], K. Nielsen[1]; [1]Dept. of Microbiol., Univ. of Minnesota, Minneapolis, MN, [2]Dept. of Forest Resources, Univ. of Minnesota, Minneapolis, MN, [3]Infectious Diseases Inst., Makerere Univ., Kampala, UGANDA.

848 Expression of the Bacterial Surface Polysaccharide Poly-N-Acetyl Glucosamine (PNAG) by Fungal Pathogens and Protective Efficacy of Antibody to PNAG against *Candida albicans* Ulcerative Keratitis
T. S. Zaidi, T. H. Zaidi, C. Cywes-Bentley, G. B. Pier; Brigham and Women's Hosp., Harvard Med. Sch., Boston, MA.

849 Defining the *Aspergillus fumigatus* SREBP, SrbA, Mediated Transcriptome
B. M. Barker[1], C. Carey[1], A. Mazurie[1], S. D. Willger[2,1], S. J. Blosser[1], T. K. Mitchell[3], R. A. Cramer[1]; [1]Montana State Univ., Bozeman, MT, [2]Dartmouth Univ., Hanover, NH, [3]Ohio State Univ., Columbus, OH.

850 Expression of *SAP5* and *SAP9* in *Candida albicans* Biofilms: Comparison of Bloodstream Isolates and Isolates with from Other Sources
J. Shin[1], M. Joo[1], S. Kim[1], M. Jang[1], S. Lee[1], M. Shin[1], S. Suh[1], D. Ryang[1], S. Jang[2]; [1]Chonnam Natl. Univ. Med. Sch., Gwangju, KOREA, REPUBLIC OF, [2]Chosun Univ. Med. Sch., Gwangju, KOREA, REPUBLIC OF.

851 Differential Susceptibility to Reactive Oxygen Species Differentiates *Candida albicans* Isolates from Healthy Volunteers and Patients
C. Fragoso[1], **M. Scandurra**[1], M. Cruchon[2], N. Strepparava[1], E. Bernasconi[3], O. Petrini[1]; [1]Cantonal Inst. of Microbiol., Bellinzona, SWITZERLAND, [2]Sch. of Pharmaceutical Sci., Geneva, SWITZERLAND, [3]Infectious Diseases Service, EOC, Lugano, SWITZERLAND.

852 Loss of Sec4 Impairs the Growth of *Aspergillus fumigatus* but Paradoxically Increases Resistance to the Aminoglycoside, Hygromycin
M. Powers-Fletcher, X. Feng, K. Krishnan, D. S. Askew; Univ. of Cincinnati, Cincinnati, OH.

853 The Trehalose Pathway Intermediate, T6P, Regulates Cell Wall Composition and Virulence in *Aspergillus fumigatus*
S. Puttikamonkul[1], S. D. Willger[1], N. Grahl[1], J. R. Perfect[2], J. Hilmer[1], B. Bothner[1], V. Amanianda[3], J-P. Latge[3], R. A. Cramer Jr.[1]; [1]Montana State Univ., Bozeman, MT, [2]Duke Univ. Med. Ctr., Durham, NC, [3]Inst. Pasteur, Unité des Aspergillus, Paris cedex, FRANCE.

854 Virulence of the Opportunistic Pathogen *Aspergillus* flavus in the Fruit Fly Drosophilla melanogaster
L. A. Ramirez-Camejo[1], P. A. Torres-Ocampo[2], P. Bayman-Gupta[1]; [1]UPRRP, San Juan, MI, [2]UPRRP, San Juan, PUERTO RICO.

855 Localization and Functional Analysis of a *Cryptococcus neoformans AFR1*, an ATP-Binding Cassette (ABC) Transporter-Encoding Gene
E. Sionov, Y. C. Chang, K. J. Kwon-Chung; NIH, Bethesda, MD.

058 The Biology of Mollicutes (Division G)

1:00 p.m. – 2:45 p.m.; Poster Hall

856 Deletion of MG-207 that Encodes Serine/Threonine Phosphatase of *Mycoplasma genitalium* Affects it Pathogenicity
M. Martinez, **K. Das**, S. Saikolappan, L. Materon, S. Dhandayuthapani, K. Das; Regional Academic Hlth.Ctr., Univ. of Texas Hlth. Sci. Ctr. at San Antonio, Edinburg, TX.

857 *Mycoplasma suis* Antigens: from Discovery to a Multiplex Microbead Immunossay
A. M. S. Guimaraes, A. P. Santos, J. B. Messick; Purdue Univ., West Lafayette, IN.

858 Functional Motif Analysis of the Variable Lipoprotein Hemagglutinin (VlhA) Family Proteins of *Mycoplasma synoviae*
D. Dunne[1], D. R. Brown[2], M. May[1]; [1]Towson Univ., Towson, MD, [2]Univ. of Florida Coll. of veterinary Med., Gainesville, FL.

859 Sialidase Activity and Hemagglutination in Songbird Isolates of *Mycoplasma gallisepticum*
J. A. Canter[1], D. H. Ley[2], M. May[1]; [1]Towson Univ., Towson, MD, [2]North Carolina State Univ. Coll. of Vet. Med., Raleigh, NC.

860 Cellular Properties of a *Mycoplasma pneumoniae* Strain with a Greatly Reduced or Absent Trailing Filament
M. F. Balish[1], J. G. McChesney[1], L. B. Duffy[2], R. F. Relich[1], **K. B. Waites**[2], T. P. Atkinson[2]; [1]Miami Univ., Oxford, OH, [2]Univ. of Alabama at Birmingham, Birmingham, AL.

861 *Mycoplasma gallisepticum* Lipoproteins Induce Differential Expression of Early Response Genes in Cultured Chicken Tracheal Epithelial Cells
S. Majumder, F. Zappulla, L. Silbart; Univ. of Connecticut:, Storss, CT.

862 Association of Novel Gene Functions with the Major Adhesins of *Mycoplasma genitalium Via* Pcr Array-based Transcriptome Profiling
A. L. Miller[1], A. Broto-Hernandez[2], J. Pinol[2], A. Medina[1], R. B. Pyles[1]; [1]Univ. of Texas Med. Branch, Galveston, TX, [2]Inst. de Biotecnologia i Biomedicina, Barcelona, SPAIN.

863 Determination of the Length of Time Following Vaccination with Live *Mycoplasma gallisepticum* Vaccine Necessary to Provide Protection from Subsequent Virulent *M. gallisepticum* Challenge
S. A. Leigh, J. D. Evans, S. L. Branton, S. D. Collier; USDA-ARS, Mississippi State, MS.

864 *Ureaplasma* Species Evade Host Immune Response by Lysing Neutrophil Extracellular Traps Using Membrane-associated Nuclease(s)
L. Xiao[1], B. Halloran[1], N. Ambalavanan[1], V. Paralanov[2], J. I. Glass[2], T. P. Atkinson[1], K. B. Waites[1]; [1]Univ. of Alabama at Birmingham, Birmingham, AL, [2]J. Craig Venter Inst., Rockville, MD.

865 Comparative Genomics Reveals Minimal Diversity Among *Mycoplasma genitalium* Genes Encoding Cytadherence-Related or Immunogenic Proteins Worldwide
C. L. McGowin[1], L. Ma[1], M. Mancuso[1], R. Hamasuna[2], J. S. Jensen[3], D. S. Adegboye[4], D. H. Martin[1]; [1]LSU Hlth.Sci. Ctr., New Orleans, LA, [2]Univ. of Occupational and Environmental Hlth., Kitakyushu City, JAPAN, [3]Statens Serum Inst., Copenhagen, DENMARK, [4]Southern Univ. at New Orleans, New Orleans, LA.

866 Experiments Driven by a Computational Whole-Cell Model of *Mycoplasma genitalium* Elucidate Bacterial Physiology
J. C. Sanghvi[1], J. R. Karr[1], D. N. Macklin[1], M. V. Gutschow[1], J. M. Jacobs[1], B. Bolival, Jr.[1], N. Assad-Garcia[2], J. I. Glass[2], M. W. Covert[1]; [1]Stanford Univ., Stanford, CA, [2]J. Craig Venter Inst., Rockville, MD.

867 Genomic Analysis of *Mycoplasma flocculare*
M. J. Calcutt, M. F. Foecking, M. B. Heidari, M. A. McIntosh; Univ. of Missouri, Columbia, MO.

868 Sialidase and N-acetylneuraminate Catabolism in Nutrition of *Mycoplasma alligatoris*
D. L. Demcovitz[1], C. G. Moneypenny[1], S. M. Shama[1], J. A. Liebowitz[1], M. A. May[2], J. I. Glass[3], **D. R. Brown**[1]; [1]Univ. of Florida, Gainesville, FL, [2]Towson Univ., Towson, MD, [3]The J. Craig Venter Inst., Rockville, MD.

869 Cell Line Screening for *Mycoplasma* Species Utilizing the Ibis T5000/Abbott PLEX-ID
J. P. Hardick[1], R. Sampath[2], L. B. Blyn[2], D. J. Ecker[2], R. Rothamn[1], C. A. Gaydos[1]; [1]Johns Hopkins Univ., Baltimore, MD, [2]Ibis BioSci.s, Inc. An Abbott Company, Carlsbad, CA.

Molecular and cellular biology, physiology and pathogenesis of Mollecutes

059 DNA Repair, Recombination and Replication; Gene Expression II (Division H)

1:00 p.m. – 2:45 p.m.; Poster Hall

870 Sublethal Antibiotic Treatment Induces Mutagenesis *Via* Induction of the General Stress Response
A. Gutierrez, **I. Matic**; INSERM U1001, Paris cedex [15], FRANCE.

871 Upregulation of Genes Involved in DNA Double-Strand Break Repair in X-irradiated Escherichia coli
D. L. Castille, D. A. Hudman, V. K. Singh, **N. J. Sargentini**; ATSU/Kirksville Coll. of Osteopathic Med., Kirksville, MO.

872 A Single-Molecule Tool to Study the Assembly and Control of the XerCD-Dif Recombination Machinery
C-T. Diagne[1,2,3], P. Rousseau[3], C. Tardin[1], F. Cornet[3], L. Salome[1]; [1]IPBS, Toulouse, FRANCE, [2]ITAV, FRANCE, [3]LMGM, Toulouse, FRANCE.

873 A Post-translational Cleavage Product of IrrE Protein of *Deinococcus radiodurans*
S. Sivapragasam, **K. Selvam**, J. R. Battista; LSU, Baton Rouge, LA.

874 Identification of *mut*T Genes that Hydrolyzes 8-oxo-dGTP in Cyanobacteria
K. Narita, Y. Kurusu; Coll. of Agriculture, Ibaraki Univ., Ibaraki, JAPAN.

875 Copy-Number Polymorphisms Can Initiate Adaptation of Bacterial Populations
S. Maisnier-Patin, E. Sano, J. R. Roth; Univ. of California-Davis, Davis, CA.

876 Investigating DNA Replication in *Escherichia coli* on the Single Cell Level using Microfluidics together with Single-molecule Fluorescence Microscopy
C. Moolman[1], S. T. Krishnan[1], J. Kerssemakers[1], S. Donkers[1], R. Reyes-Lamothe[2], D. Sherratt[3], N. Dekker[1]; [1]Dept. of BionanoSci., Delft Univ. of Technology, Delft, NETHERLANDS, [2]Dept. of Biochemistry, Univ. of Oxford, Delft, UNITED KINGDOM, [3]Dept. of Biochemistry, Univ. of Oxford, Delft, NETHERLANDS.

877 The Effect of Alanine Substitutions on RadA/Sms Epitope Stability
J. L. Hiatt, N. J. Sargentini, M. K. Stuart; ATSU-KCOM, Kirksville, MO.

878 The Impact of Single-Stranded DNA-Binding Protein Gene Expression on the Radiation Resistance of *Deinococcus radiodurans*
J. S. Lockhart, L. C. DeVeaux; Idaho State Univ., Pocatello, ID.

879 The bvgAS Locus as a Control Point in the Evolution of *Bordetella Pertussis* from a Bordetella bronchiseptica-like Ancestor
Q. Chen, S. Stibitz; CBER/FDA, Bethesda, MD.

880 Molecular and Biochemical Responses of an Amphibian Pathogen *Batrachochytrium dendrobatidis* upon Exposure to Thyroid Hormone
J. C. Thekkiniath, M. R. Pasham, M. Fokar, S. San Francisco, M. J. San Francisco; Texas Tech Univ., Lubbock, TX.

881 Identification and Characterization of a Novel sRNA in *Desulfovibrio vulgaris* Hildenborough
A. S. Burns[1,2], M. L. Kempher[1,2], A. M. Deutschbauer[3,2], M. P. Joachimiak[3,2], A. P. Arkin[3,2], K. S. Bender[1,2]; [1]Southern Illinois Univ. Carbondale, Carbondale, IL, [2]ENIGMA (Ecosystems and Network Integrated with Genes and Molecular Assemblies), CA, [3]Lawrence Berkeley Natl. Lab., Berkeley, CA.

882 Regulation of Overlapping, Divergent Promoters by the Global Transcription Factor TyrR
T. Coulson, C. L. Patten; Univ. of New Brunswick, Fredericton, NB, CANADA.

883 Control of Hemin-Responsive Gene Expression by the ChrAS and HrrAS Two-Component Systems in *Corynebacterium diphtheriae*
J. M. Burgos, M. P. Schmitt; Food and Drug Admin., Bethesda, MD.

884 Identification and Characterization of a Conserved Novel sRNA in *Desulfovibrio*
M. L. Kempher[1,2], A. S. Burns[1,2], A. M. Deutschbauer[3,2], M. P. Joachimiak[3,2], A. P. Arkin[3,2], K. S. Bender[1,2]; [1]Southern Illinois Univ., Carbondale, IL, [2]ENIGMA (Ecosystems and Networks Integrated with Genes and Molecular Assemblies), CA, [3]Lawrence Berkeley Natl. Lab., Berkeley, CA.

885 The Leuo Regulator: Oligomerization and Function
C. Guadarrama, E. Calva; Inst. de Biotecnología, UNAM, Cuernavaca, Morelos, MEXICO.

886 Beyond Foldase and Holdase, an Insight of the Significance of Dnak Heat Shock System in *Staphylococcus aureus*
V. K. Singh[1], M. L. Syring[1], A. Singh[1], K. Singhal[2], T. R. Johansson[1]; [1]A.T. Still Univ. of Hlth.Sci., Kirksville, MO, [2]Truman State Univ., Kirksville, MO.

887 Virus-induced Gene Silencing Vector by *Soybean Yellow Common Mosaic Virus*, a Potential Tool for the Study of Gene Function in Soybean
S. Lim[1,2], R. H. Yoo[1,2], F. Zhao[1,2], M. Nam[3], S-H. Lee[3], S-M. Kim[4], Y-G. Shin[4], J. S. Moon[1,2]; [1]Korea Res. Inst. of BioSci. and Biotechnology, Daejeon, KOREA, REPUBLIC OF, [2]Korea Univ. of Sci. and Technology, Daejeon, KOREA, REPUBLIC OF, [3]Natl. Academy of Agricultural Sci., RDA, Suwon, KOREA, REPUBLIC OF, [4]Animal, Plant and Fisheries Quarantine and Inspection Agency, Suwon, KOREA, REPUBLIC OF.

888 Compartmentalization of Sigma E Activity During Sporulation of *Bacillus subtilis*
V. K. Chary, P. Piggot; Temple Univ. Sch. of Med., Philadelphia, PA.

889 Capillary PCR and Chip Electrophoresis for Rapid Detection of Carbapenamese Genes in *Klebsiella pneumoniae*
N. Thaitrong, K. D. Patel, R. F. Renzi, M. Bartsch, R. J. Meagher; Sandia Natl. Lab., Livermore, CA.

890 Transcriptional Changes Mediated by Chitosan in "*P.capsici*"
R. A. Arjona sabido, F. J. Segura, E. Ortiz, G. Lizama; ITM, Merida, MEXICO.

060 Biology of Archaea (Division I)

1:00 p.m. – 2:45 p.m.; Poster Hall

891 Low Species Barriers in Halophilic Archaea and the Formation of a Recombinant Hybrid
A. Naor[1], M. Mevarech[1], P. Lapierre[2], R. Papke[2], U. Gophna[1]; [1]Tel-Aviv Univ., Tel-Aviv, ISRAEL, [2]Univ. of Connecticut, Storrs, CT.

892 The genome of the Halophilic archaeon Haladaptatus paucihalophilus strain DX253
M. S. Elshahed, N. H. Youssef, K. N. Savage-Ashlock; Oklahoma State Univ., Stillwater, OK.

893 Salt Tolerant Transgenic Arabidopsis Expressing Osmolyte Glycine Betaine Synthesizing Enzymes from Halophilic Methanoarchaeon *Methanohalophilus portucalensis* FDF1T
S-J. Lai, M-C. Lai, Y-H. Chen, H-C. Yen; Life Sci., Natl. Chung Hsing Univ., Taichung, TAIWAN.

894 Natural Transition from One Lifestyle to Another: A Cold-Loving Archaeon switches from Dominating an Ecosystem to Symbiosis with Sulfur-Oxidizing Bacteria
A. J. Probst[1], H-Y. N. Holman[2,3], T. Z. DeSantis[4], Y. Piceno[2], G. L. Andersen[2], H. A. Bechtel[3,5], M. Sonnleitner[1], K. Venkateswaran[6], C. Moissl-Eichinger[1]; [1]Inst. for Microbiol. and Archaea Ctr., Univ. of Regensburg, Regensburg, GERMANY, [2]Ctr. for Environmental Biotechnology, Lawrence Berkeley Natl. Lab., Berkeley, CA, [3]Berkeley Synchrotron Infrared Structural Biology, Lawrence Berkeley Natl. Lab., Berkeley, CA, [4]Dept. of Bioinformatics, Second Genome Inc., San

Bruno, CA, [5]Advanced Light Source, Lawrence Berkeley Natl. Lab., Berkeley, CA, [6]Biotechnology and Planetary Protection Group, Jet Propulsion Lab., California Inst. of Technology, Pasadena, CA.

895 Creation of Circadian-Like Gene Knockout Strains Their Effects in *Haloferax volcanii*
G. Lecorchick, M. Maniscalco, K. Bidle; Rider Univ., Lawrenceville, NJ.

896 Isolation and Characterization of Novel Archaea Affiliated with the Sulfolobales
A. L. Mesler, M. S. Wilson, A. N. Yip, F. A. Arroyo, P. L. Siering; Humboldt State Univ., Arcata, CA.

897 A New Ribosomal RNA Depletion Method Enables Highly Efficient RNA-seq in Archaea
E. Lynch[1], V. Italiani[2], K. Wall[1], N. Arabyan[1], M. Facciotti[1], T. Koide[2]; [1]Univ. of California, Davis, Davis, CA, [2]Univ.e de Sao Paulo, Sao Paulo, BRAZIL.

898 Molecular Chaperone System in Halophilic Methanoarchaeon *Methanohalophilus portucalensis*
M-C. Lai, S-S. Chen, Y-A. Lin, C-J. Shih; Natl. Chung Hsing Univ., Taichung, TAIWAN.

899 Thioredoxin-Linked Redox Control of Metabolism in an Evolutionarily Deeply-Rooted Hyperthermophilic Methanogen
D. Susanti[1,2], J. H. Wong[3], R. DeSantis[4], W. H. Vensel[5], U. Loganathan[1], C. K. Tanaka[5], W. J. Hurkman[5], R. Schmitz[4], M. Balsera[6], B. B. Buchanan[3], B. Mukhopadhyay[1,7]; [1]Virginia Bioinformatics Inst., Virginia Tech, Blacksburg, VA, [2]Genetics Bioinformatics and Computational Biology Graduate Program, Virginia Tech, Blacksburg, VA, [3]Dept. of Plant and Microbial Biology, Univ. of California, Berkeley, Berkeley, CA, [4]Inst. Für Allgemeine Mikrobiologie, Christian-Albrechts-Univ. Kiel, Kiel, GERMANY, [5]Western Regional Res. Ctr., United States Dept. of Agriculture, Agricultural Res. Service, Albany, CA, [6]Departamento de Estrés Abiótico, Inst. de Recursos Naturales y Agrobiología de Salamanca (IRNASA-CSIC), Salamanca, SPAIN, [7]Dept. of Biochemsitry and Biological Sci., Virginia Tech, Blacksburg, VA.

900 Methanogenesis in Bogs and Fens of the Southern Appalachian Region of North Carolina and Characterization of the Associated Archaeal Community
A. N. Hawkins, S. L. Bräuer; Appalachian State Univ., Boone, NC.

061 Cell structure: Biofilms, Motility and Secretion (Division J)

1:00 p.m. – 2:45 p.m.; Poster Hall

901 Localization and Global Gene Expression During Filamentous Bacteriophage Biofilm Infection
T. May, S. Okabe; Hokkaido Univ., Sapporo, JAPAN.

902 Quantification Analysis of Biofilm Structures and Flow-biofilm Interactions at Multiple Scales
W. Zhang, B. V. Merkey, D. L. Chopp, A. I. Packman; Northwestern Univ., Evanston, IL.

903 Colanic Acid Production Decreases Bacterial Attachment on Membranes
K. Yoshida[1], Y. Tashiro[1], T. May[2], S. Okabe[1]; [1]Hokkaido Univ., Sapporo, JAPAN, [2]UC Berkeley, Berkeley, CA.

904 Identification and Characterization of a Large Adhesin Involved in Biofilm Formation by *Psychrobacter arcticus*
S. M. Hinsa-Leasure, C. Koid, J. Schultzhaus; Grinnell Coll., Grinnell, IA.

905 Sum-of-the-Parts: Composition of Amyloid-integrated *E. coli* Biofilms by Solid-state NMR
O. McCrate, X. Zhou, J. Y. Lim, **L. CEGELSKI**; Stanford Univ., Palo Alto, CA.

906 Use of Confocal Microscopy to Assess the Antimicrobial Efficacy of Products against *Pseudomonas aeruginosa* Biofilm
C. O. Odeyale, S. F. Omasino; U.S. Environmental Protection Agency, Fort Meade, MD.

907 Quantitative Analysis and Modeling of the *Agrobacterium tumefaciens* Type IV Secretion System Reveals a Periodic Localization Mechanism
T. A. Cameron[1], M. Roper[2], P. C. Zambryski[1]; [1]Univ. of California, Berkeley, CA, [2]Univ. of California, Los Angeles, CA.

908 Periplasmic Sensing Domain of PilJ Is Not Required for Directional Twitching But is Required for Wild Type Levels of Camp and Twitching Motility in *P. aeruginosa*
G. Riddell, V. Potharla, S. Bardy; Univ. of Wisconsin Milwaukee, Milwaukee, WI.

909 Interaction Partners of the *Pseudomonas aeruginosa* PilN/O Subcomplex
WITHDRAWN

910 Conditional Subcellular Localization of the AcrAB-TolC Complex in *Escherichia coli*
D. E. Vega Mendoza; Univ. of Arkansas for Med. Sci., Little Rock, AR.

911 Structural and Functional Studies of Coiled-coil Domains from Type Three Secretion System First Translocators
M. L. Barta[1], N. E. Dickenson[2], M. Patil[2], J. Keightley[1], G. J. Wyckoff[1], W. D. Picking[2], W. L. Picking[2], B. V. Geisbrecht[1]; [1]Univ. of Missouri-Kansas City, Kansas City, MO, [2]Oklahoma State Univ., Stillwater, OK.

912 Control of Flagellin Homeostasis in *Bacillus subtilis*
D. B. Kearns; Indiana Univ., Bloomington, IN.

913 EHEC Membrane Constituents Likely to Result in a Distinct Mobility of the Type III Protein EscC in SDS PAGE
Y-S. Gao, S-S. Lu, **W. W. Sun**, W-J. Syu; Natl. Yang-Ming Univ., Taiwan, TAIWAN.

914 A Universal Approach for Engineering Extracellular Secretion Pathways
C. Haitjema[1], M. Dominguez[2], S. Withers[2], J. Gardner[2], D. Keating[2], M. DeLisa[1]; [1]Cornell Univ., Ithaca, NY, [2]Great Lakes Bioenergy Res. Ctr., Madison, WI.

062 Cell Walls, Membranes, Organelles, and Biofilms (Division K)

1:00 p.m. – 2:45 p.m.; Poster Hall

915 *Streptococcus mutans* Surface Protein Maturation Involves Trigger Factor and PrsA
P. J. Crowley, K. P. Heim, L. J. Brady; Univ. of Florida, Gainesville, FL.

916 Molecular and Functional Analysis of the Type IV Pili Gene Cluster in *Streptococcus sanguinis* SK36
Y-Y. M. Chen, Y-C. Chiang; Chang Gung Univ., Tao Yuan, TAIWAN.

917 Membrane Fusion Proteins of Type I Secretion System and Tripartite Efflux Pumps Share a Binding Motif to TolC in Gram-negative Bacteria
S. Song[1], M. Lee[1], S-Y. Jun[2], B-Y. Yoon[2], N-C. Ha[2], K. Lee[1]; [1]Chungang Univ., Seoul, KOREA, REPUBLIC OF, [2]Pusan Natl. Univ., Busan, KOREA, REPUBLIC OF.

918 Cytoplasmic pH of Single Cells and Biofilms of *Escherichia coli* Measured by Fluorescence Ratio Imaging Microscopy Display Varying Individual pH
K. A. Martinez, II, J. P. Mershon, J. L. Slonczewski; Kenyon Coll., Gambier, OH.

919 *Escherichia coli* Wild Type Strain 15 (ATCC 9723) Forms Robust Biofilms Subject to Catabolite Repression
S. L. Sutrina, K. Daniel, M. Lewis, N. Thomas, N. Holder, A. Edwards; Univ. of the West Indies, Cave Hill Campus, Bridgetown, BARBADOS.

920 Temperature-dependent Biofilm Formation of the Escherchia coli Strain Obtained from Yeongsan River of South Korea
J. Jang[1], Y-S. Suh[1], D. Di[1], D. Han[1], H-G. Hur[1,2]; [1]Gwangju Inst. of Sci. and Technology, Gwangju, KOREA, REPUBLIC OF, [2]Intl. Environmental Res. Ctr., Gwangju, KOREA, REPUBLIC OF.

921 Outer Membrane Vesicle Production is Linked to at Least Two Stimuli: Envelope Accumulation of Misfolded Proteinaceous Waste and Alteration of Peptidoglycan Metabolism
C. Schwechheimer, M. Kuehn; Duke/ Biochemistry, Durham, NC.

922 Alteration of Conserved Residues of PotD1 Reduces Spermidine Uptake and Affects Biofilm Formation in *Vibrio cholerae*
A. Rutkovsky, E. Karatan; Appalachian State Univ., Boone, NC.

923 Gene Regulation in *Escherichia coli* Biofilms
P. Samanta, S. M. Horne, B. M. Pruess; North Dakota State Univ., Fargo, ND.

924 Tropodithietic Acid and Biofilm Formation Share Regulatory Components in *Phaeobacter* S4
W. Zhao, D. R. Nelson; Univ. of Rhode Island, Kingston, RI.

925 The Involvement of *tdh* and *kbl* Genes of Threonine Utilization Pathway in *Escherichia coli* K-12 Biofilm Formation
X. Lan, J. Wu and C. Xi; Univ. of Michigan, Ann Arbor, MI.

926 The Cellular Localization of Peptidoglycan O-acetyltransferease PatB and O-acetylpeptidoglycan Esterase Ape1a within *Escherichia coli* and *Neisseria gonorrhoeae*
F. A. Herlihey, P. Moynihan, A. J. Clarke; Univ. of Guelph, Guelph, ON, CANADA.

927 A New Method for the Purification of Soluble Peptidoglycan Fragments
P. J. Moynihan, A. J. Clarke; Univ. of Guelph, Guelph, ON, CANADA.

928 Mass Spectrometry Imaging of Spatially Distributed Metabolites in Biofilms
K. B. Louie, B. P. Bowen, A. Arkin, T. R. Northen; Lawrence Berkeley Natl. Lab, Berkeley, CA.

929 Investigation of a Putative Bacterial Microcompartment in the Planctomycetes
O. Erbilgin[1], K. McDonald[1], C. Kerfeld[1,2]; [1]Univ. of California, Berkeley, Berkeley, CA, [2]Joint Genome Inst., Walnut Creek, CA.

930 A Transposon Mutagenesis Screen to Investigate the Roles of Staphylococcal Wall Teichoic Acids
WITHDRAWN

931 Conformational Control of BamA by the BamDE Lipoproteins
N. W. Rigel, J. Schwalm, D. P. Ricci, T. J. Silhavy; Princeton Univ., Princeton, NJ.

932 Mutation and Biological Activity of a GGDEF Protein YcdT, a Putative c-di-GMP Synthesizing Enzyme in *Escherichia coli*
T. Inagaki, K. Higurashi, Y. Nakajima, A. Kitamura, **T. Hirata**; Josai Intl. Univ., Chiba, JAPAN.

933 Mutagenesis of lptD Reveals Regions of the Protein Involved in its Assembly, its Interaction with LPS, and its Interaction with LptA
H. A. Cardoso, T. J. Silhavy; Princeton Univ., Princeton, NJ.

934 Plasma-mediated Inactivation of *Pseudomonas aeruginosa* Biofilms Grown in Continuous Culture
A. J. Zelaya[1,2], K. G. Vandervoort[1], **G. Brelles-Mariño**[1,3]; [1]California State Polytechnic Univ., Pomona, CA, [2]Montana State Univ., Bozeman, MT, [3]CINDEFI, Univ. Natl. de La Plata, La Plata, ARGENTINA.

935 Inhibition Studies of O-acetylpeptidoglycan Esterase 1 from *Neisseria gonorrhoeae*
A. Zia, A. J. Clarke; Univ. of Guelph, Guelph, ON, CANADA.

936 The Neutral Topology Bias of Dual Topology Integral Membrane Proteins is Influenced by Membrane Composition
D. C. Bay, R. J. Turner; Univ. of Calgary, Dept. of Biological Sci., Calgary, AB, CANADA.

937 Expression of the Molecular Chaperone, IbpA, in *Pseudomonas aeruginosa* biofilms
K. D. Compton, K. S. Williamson, **M. Franklin**; Montana State Univ., Bozeman, MT.

938 Bioinformatic Analysis of Bacterial Phospholipid Compositions Reveal Associations Between its Ecological Niche and Taxonomy
D. C. Bay, R. J. Turner; Univ. of Calgary, Dept. of Biological Sci., Calgary, AB, CANADA.

939 Characterization of Physiological Heterogeneity in *Pseudomonas aeruginosa* biofilms
K. S. Williamson[1], L. Richards[1], A. C. Perez-Osorio[2], K. McInnerney[1], B. Pitts[1], P. S. Stewart[1], M. J. Franklin[1]; [1]Montana State Univ., Bozeman, MT, [2]Washington State Dept. of Hlth., Shoreline, WA.

940 Analysis of Carboxysome Function and Assembly in Cyanobacteria
J. C. Cameron, C. A. Kerfeld; Univ. of California-Berkeley, Berkeley, CA.

941 Development of conductive *Geobacter sulfurreducens* biofilms
C. E. Levar, D. R. Bond; Univ. of Minnesota, St. Paul, MN.

063 Soil, Sediment, and Subsurface Microbiology II (Division N)

1:00 p.m. – 2:45 p.m.; Poster Hall

942 The Microbial Degradation of Sulfamethoxazole in Aquaculture Pond Sediments
H-T. Lai, P. Aiumurai, J-H. Hou; Natl. Chiayi Univ., Chiayi, TAIWAN.

943 Proteogenomic Reconstruction of Community Interaction and Cryptic Biogeochemical Cycles Forced by Driving the Carbon and Energy Pool of an Aquifer Community into Excess
K. M. Handley[1], K. Williams[2], N. VerBerkmoes[3], k. Chourey[3], C. Miller[1], B. Thomas[1], I. Sharon[1], K. Wrighton[1], R. Hettich[3], P. Long[4], J. Banfield[1]; [1]Univ. of California, Berkeley, Berkeley, CA, [2]Lawrence Berkeley Natl. Lab., Berkeley, CA, [3]Oak Ridge Natl. Lab., Oak Ridge, TN, [4]Pacific Northwest Natl. Lab., Richland, WA.

944 Proteomics Reveal Microbial Metabolic Activities Important to Environmental Carbon Cycling in Deep Sea Methane Seep Sediments and Arctic Permafrost
K. Chourey[1], S. McGlynn[2], J. J. Marlow[2], R. Hatzenpichler[2], J. A. Steele[2], C. Pan[1], M. C. Y. Lau[3], B. Stackhouse[3], X. Liu[1], L. Whyte[4], G. Saarunya[5], A. Layton[5], T. Vishnivetskaya[5], S. Pffifner[5], T. C. Onstott[3], V. Orphan[2], R. L. Hettich[1]; [1]Oak Ridge Natl. Lab, Oak Ridge, TN, [2]CalTech, Pasadena, CA, [3]Princeton Univ., Princeton, NJ, [4]McGill Univ., QC, CANADA, [5]Univ. of Tennessee, Knoxville, TN.

945 Detection and Preliminary Characterization of Active Iron-Reducing Bacterial Populations in Deeply Buried (1.7-2.0 KM) Saline Sandstone Reservoirs of the Illinois Basin, Midcontinent, USA
Y. Dong[1], R. A. Sanford[1], I. K. O. Cann[1], R. I. Mackie[1], R. A. Locke, II[2], B. W. Fouke[1]; [1]Univ. of Illinois-Urbana Champaign, Urbana, IL, [2]Illinois State Geological Survey, Urbana, IL.

946 Linking Microbial Identity and Function in the Rhizosphere
J. Bougoure[1], S. Shi[2], E. Nuccio[2], X. Mayali[1], E. Brody[3], J. Pett-Ridge[1], M. Firestone[2]; [1]LLNL, livermore, CA, [2]Univ. of California, Berkeley, CA, [3]LBL, Berkeley, CA.

947 Specificity of PCR Primers for Detection of Anammox Bacteria
P. Han[1], U. Klümper[2], A. Wong[1], M. Li[1], **J-D. Gu**[1]; [1]The Univ. of Hong Kong, Hong Kong, HONG KONG, [2]Univ. Duisburg – Essen, Essen, GERMANY.

948 Community Structure of Ammonia Oxidizing Bacteria and Archaea in Sediments from the Gulf of Mexico Continental Margin
D. A. Frabutt, M. Flood, D. Floyd, S. Tiquia; Univ. of Michigan-Dearborn, Dearborn, MI.

949 Comparing Global Distributions of Microorganisms Using Minimum Genetic Distance
J. L. Darcy, M. S. Robeson, II, S. K. Schmidt; Univ. of Colorado, Boulder, CO.

950 Cultivation of Anaerobic Methanotrophic Community from Subseafloor Sediment Using Continuous-Flow Bioreactor
H. Imachi[1], M. Aoki[2], H. Yoshioka[3], T. Yamaguchi[2], K. Takai[1]; [1]JAMSTEC, Yokosuka, JAPAN, [2]Nagaoka Univ. of Tech., Nagaoka, JAPAN, [3]AIST, Tsukuba, JAPAN.

951 Fertilization Mediates the Stochastic Microbial Community Assembly in a Long Term Experimental Site
Z. Lu[1,2], L. Wu[2], Y-H. Jiang[2], Y. Deng[2], J. D. Van Nostrand[2], Z. He[2], I. M. Clark[3], P. R. Hirsch[3], A. MacDonald[3], S. McGrath[3], J. Zhou[2]; [1]Zhejiang Univ., Hangzhou 310058, CHINA, [2]Univ. of Oklahoma, Norman, OK, [3]Rothamsted Res., Harpenden, UNITED KINGDOM.

952 Elucidating Unique Iron Uptake Pathways by an Environmental Bacterium, *Rhizobium* TAL1145
D. Vicente, J. Awaya; Univ. of Hawaii at Hilo, Hilo, HI.

953 Functional Gene Differences in Soil Microbial Communities from Conventional Vs. Low-input and Organic Farmlands
K. Xue[1], L. Wu[1], Y. Deng[1], Z. He[1], J. Van Nostrand[1], P. Robertson[2], J. Zhou[1]; [1]Inst. for Environmental Genomics, NORMAN, OK, [2]Michgan State Univ., NORMAN, MI.

954 Microbial Methane Dynamics in Oligotrophic Short-hydroperiod Freshwater Marshes of the Florida Everglades
D. A. Davis, R. H. Findlay, P. A. Sobecky, G. Starr; Univ. of Alabama, Tuscaloosa, AL.

955 Warming Facilitates Old Carbon Loss from Soil by Altering Functional Microbial Communities
L. Cheng[1], Y. Luo[1], L. Wu[1], Y. Qin[1], J. D. Van Nostrand[1], Y. Deng[1], Z. He[1], K. Xue[1], J. Zhang[1], M. Yuan[1], M. Leigh[2], E. A. G. Schuur[3], J. M. Tiedje[4], J. Zhou[1]; [1]Univ. of Oklahoma, Norman, OK, [2]Univ. of Alaska, Fairbanks, AK, [3]Univ. of Florida, Gainesville, FL, [4]Michigan State Univ., East Lansing, MI.

956 Ecosystem-Dependent Responses of Soil Microbial Communities to Elevated Carbon Dioxide
Z. He[1], Y. Deng[1], J. Xiong[1,2], H. Yu[1,3], M. Xu[1,4], L. Wu[1], K. Xue[1], J. D. Van Nostrand[1], S. E. Hobbie[5], P. B. Reich[5], C. W. Schadt[6], A. Kent[7], E. Pendall[8], M. Wallenstein[9], J. Zhou[1]; [1]The Univ. of Oklahoma, Norman, OK, [2]Inst. of Soil Sci., the Chinese Academy of Sci., Nanjing 210008, CHINA, [3]3Harbin Inst. of Technology, Harbin, CHINA, [4]Guangdong Inst. of Microbiol., Guangzhou, CHINA, [5]Univ. of Minnesota, St. Paul, MN, [6]Oak Ridge Natl. Lab., Oak Ridge, TN, [7]Univ. of Illinois at Urbana-Champaign, Urbana, IL, [8]Univ. of Wyoming, Laramie, WY, [9]Colorado State Univ., Fort Collins, CO.

957 Impacts of Multiple Global Factors of Elevated Co2, N Deposition and Plant Diversity on Functional Genes of Soil Microbial Community
K. Xue[1], J. Xie[1], H. Yu[1], S. Bai[1], Z. He[1], L. Wu[1], **J. Van Nostrand**[1], P. Reich[2], J. Zhou[1]; [1]Inst. for Environmental Genomics, NORMAN, OK, [2]Univ. of Minnesota, MN.

958 Pyrosequencing Analysis of *amoA* Genes for Soil Ammonia-oxidizing Bacterial Communities in Response to Elevated CO2 and Nitrogen as well as Plant Diversity
Y. Qin[1], F. Liu[1], H. Yu[2], J. D. Van Nostrand[1], T. Yuan[1], K. Xue[1], L. Wu[1], Y. Deng[1], Q. Tu[1], Z. He[1], J. Zhou[1]; [1]Univ. of Oklahoma, Norman, OK, [2]Harbin Inst. of Technology, Harbin, CHINA.

959 Pyrosequencing Analysis of *amoA* Genes for Soil Ammonia-oxidizing Archaeal Communities Under Elevated CO2 and Nitrogen Deposition Conditions
F. Liu[1], Y. Qin[1], H. Yu[1], J. van Nostrand[1], K. Xue[1], L. Wu[1], Z. He[1], S. Hobbie[2], P. Reich[2], J. Zhou[1]; [1]Inst. for Environmental Genomics,Univ. of Oklahoma, Norman, OK, [2]Univ. of Minnesota, St. Paul, MN.

960 Uncovering the Impacts of Climate Change on Carbon Cycling in Microbial Communities
A. C. Mosier[1], N. B. Justice[1], C. Pan[2], B. C. Thomas[1], B. P. Bowen[3], T. R. Northen[3], R. L. Hettich[2], J. F. Banfield[1]; [1]Univ. of California, Berkeley, Berkeley, CA, [2]Oak Ridge Natl. Lab., TN, [3]Lawrence Berkeley Natl. Lab., Berkeley, CA.

961 Long Term Elevated Atmospheric Carbon Dioxide and Tropospheric Ozone Affect Soil Bacterial and Fungal Community Structure in an Aspen Plantation
L. Gallegos-Graves[1], B. Steven[1], J. Challacombe[1], D. R. Zak[2], J. Dunbar[1], C. R. Kuske[1]; [1]Los Alamos Natl. Lab., Los Alamos, NM, [2]Univ. of Michigan, Ann Arbor, MI.

962 Transcriptional Events During the Wetting and Drying of *Microcoleus*-Dominated Biological Soil Crusts
L. Rajeev[1], U. Nunes da Rocha[1], N. J. Klitgord[1], E. G. Luning[1], B. Bowen[1], S. Axen[2], N. J. Bouskill[1], U. Karaoz[1], C. Kerfield[2], F. Garcia-Pichel[3], E. L. Brodie[1], T. R. Northen[1], A. Mukhopadhyay[1]; [1]Lawrence Berkeley Natl. Lab., Emeryville, CA, [2]Joint Genome Inst., Walnut Creek, CA, [3]Arizona state Univ., Tempe, AZ.

963 Microbial Communities Correlating with Soil Features Under Different Agricultural Managements
P. Dorr de Quadros[1], K. Zhalnina[1], A. Davis-Richardson[1], C. Bayer[2], F. A. d. Camargo[2], E. W. Triplett[1]; [1]UF, Gainesville, FL, [2]Federal Univ. of Rio Grande do Sul, Porto Alegre, BRAZIL.

964 Microbial Diversity in Two Agricultural Soils Comparing Chemical Pesticide Use
S. L. Meiss[1], N. Barron[1], S. Bernarding[1], K. Eckman[1], T. Torok[2]; [1]California Univ. of Pennsylvania, California, PA, [2]Lawrence Berkeley Natl. Lab., Berkeley, CA.

965 Using Stable Isotope Approaches to Identify Microbial Carbon Cyclers in a Southern California Salt Marsh
J. G. Dillon, L. Darjany, C. Whitcraft; California State Univ., Long Beach, CA.

966 Carbon-Cycling in Low-pH, Anaerobic Communities is Dominated by Archaea
N. B. Justice[1], C. Pan[2], N. VerBerkmoes[2], M. Shah[2], S. Spaulding[1], V. Shah[3], C. L. Sun[1], C. S. Miller[1], A. Mosier[1], V. J. Denef[4], B. Baker[4], B. Thomas[1], B. Bowen[5], T. Northen[5], R. Hettich[2], J. F. Banfield[1]; [1]Univ. of California, Berkeley, CA, [2]Oak Ridge Natl. Lab., Oak Ridge, TN, [3]Univ. of Washington, Seattle, WA, [4]Univ. of Michigan, Ann Arbor, MI, [5]Lawrence Berkeley Natl. Lab., Berkeley, CA.

967 Life at the Hyperarid Margin: Soil Moisture and Bacterial Diversity in the Atacama Desert, Chile
J. Neilson[1], J. Quade[1], M. Ortiz[1], W. Nelson[1], A. Legatzki[1], J. Betancourt[2], R. Wing[1], C. Soderlund[1], R. Maier[1]; [1]Univ. of Arizona, Tucson, AZ, [2]USGS, Tucson, AZ.

968 A Survey of the Microbial Diversity from Two Distinct Locations within the Chihuahuan Desert Research Institute; a Perpetual Spring and a Desert Soil Site
L. Tang, J. Carnes, R. Milan, J. Denson; Sul Ross State Univ., Alpine, TX.

969 Stretching the Limit of Metagenomic Analysis: a Comparison of Oligotrophic Microbial Communities on Stalactite and Rock Surfaces in a Carbonate Cave
A. Legatzki[1], J. Neilson[1], M. Ortiz[1], W. Nelson[1], B. Pryor[1], R. Wing[1], C. Soderland[1], R. Casavant[2], R. Maier[1]; [1]Univ. of Arizona, Tucson, AZ, [2]Arizona State Parks, Phoenix, AZ.

969B Finding the Biotic Fringe in the Continental Deep Subsurface
D. P. Moser[1], B. Sherwood Lollar[2], G. Slater[3], T. C. Onstott[4], J. C. Bruckner[1], J. C. Fishe[1], J. Reihle[1]; [1]Desert Res. Inst., Las Vegas, NV, [2]Univ. of Toronto, Toronto, ON, CANADA, [3]McMaster Univ., Hamilton, ON, CANADA, [4]Princeton Univ., Princeton, NJ.

064 Biofuels and Biobased Materials II (Division O)

1:00 p.m. – 2:45 p.m.; Poster Hall

970 Lipid Accumulation and *in vivo* Transesterification by *Gordonia* sp. KTR[9]
J. Eberly[1], D. Ringelberg[2], K. Indest[1]; [1]US Army Corp of Engineering ERDC-EL, Vicksburg, MS, [2]US Army Corp of Engineering ERDC-CRREL, Hanover, NH.

971 Metabolic Engineering of *Ralstonia eutropha* H16 to Produce Fatty Acid-Derived Biofuels from CO2
J. Mueller, Y-C. Yeh, S. Chhabra, S. W. Singer, H. R. Beller; Lawrence Berkeley Natl. Lab., Berkeley, CA.

972 Comparative Proteomic Analysis of *Scheffersomyces* (*Pichia*) *stipitis* CBS 6054 Adapted to an Industrial Waste Stream
S. Groves, J. Liu, A. Cary, A. Roll, D. Shonnard, S. Bagley; Michigan Technological Univ., Houghton, MI.

973 Developing a "Minimal" Enzyme Cocktail for Lignocellulosic Biomass Deconstruction
Z. Chen[1,2], G. D. Friedland[1,2], D. Chivian[1,3], S. R. Chhabra[1,3], A. P. Akin[1,3], B. A. Simmons[1,2], K. L. Sale[1,2]; [1]Joint BioEnergy Inst., Emeryville, CA, [2]Sandia Natl. Lab., Livermore, CA, [3]Lawrence Berkeley Natl. Lab., Berkeley, CA.

974 Inclusion Complex Behaviors of Cyclosophoraoses and Succinylated Cyclosophoraoses for Naproxen and 4′-hydroxyflavone in Different pH Environments
C. Kwon, **D. Jeong**, J. Kim, S. Jung; Dept. of BioSci. and Biotechnology, Bio/Molecular Informatics Ctr. & Ctr. for Biotechnology Res. in UBITA, Konkuk Univ., Seoul, KOREA, REPUBLIC OF.

975 Interactions of Two Species in a High Hydrogen Yield Bacterial Consortium
W. Liu[1], X. Liu[2], X. Liu[2], Z. He[1], J. Zhou[1]; [1]Inst. for Environmental Genomics, Norman, OK, [2]Central South Univ., Changsha, CHINA.

976 Lipid Production by Red Yeast Fermentation of Peanut Meal for Microbial Biodiesel
A. Nanjundaswamy, R. Hall, **B. C. Okeke**; Auburn Univ. - Montgomery, Montgomery, AL.

977 Characterization of a New Butanol-Producing *Clostridium* Species Strain G42
T. K. Chua, **J. He**; Natl. Univ. of Singapore, SINGAPORE.

978 Bioconversion of Hemicellulose as a Viable Feedstock for Biochemicals
Y. S. Lam, J. He; Natl. Univ. of Singapore, SINGAPORE.

979 Bacterially Precipitated Nanoparticulate Cadmium Sulfide Quantum Dot Production
J-W. Moon[1], I. N. Ivanov[1], C. E. Duty[1], L. J. Love[1], W. Wang[1], Y-L. Li[2], A. S. Madden[3], J. J. Mosher[1], A. K. Suresh[4], A. J. Rondinone[1], C. J. Rawn[1], R. J. Lauf[1], T. J. Phelps[1]; [1]Oak Ridge Natl. Lab., Oak Ridge, TN, [2]The Univ. of Hong Kong, Hong Kong, CHINA, [3]Univ. of Oklahoma, Norman, OK, [4]City of Hope, Duarte, CA.

980 Production of Short-chain-length Polyhydroxyalkanotes (SCL-PHAs) from Hemicellulosic Hydrolysate by Burkholderia cepacia ATCC17759
W. Pan[1], J. A. Perrotta[1], A. J. Stipanovic[2], C. T. Nomura[2], J. P. Nakas[1]; [1]Dept. of Environment and Forestry Biology, SUNY-Coll. of Environmental Sci. and Forestry, Syracuse, NY, [2]Dept. of Chemistry, SUNY-Coll. of Environmental Sci. and Forestry, Syracuse, NY.

981 Solubility Enhancement of Hardly Soluble Drugs by complexation with Acyclic Succinoglycan Oligosaccharides Isolated from *SinoRhizobium meliloti*
J. Choi, H. Kim, E. Cho, S. Jung; Dept. of BioSci. and Biotechnology, Bio/Molecular Informatics Ctr. & Ctr. for Biotechnology Res. in UBITA, Konkuk Univ., Seoul, KOREA, REPUBLIC OF.

982 Biomethane Production Potentials by Methanogens for Microbial Electrosynthesis
S. Nagarajan, S. Chou, C. Wu, S. Cao, Z. Zhou; Natl. Univ. of Singapore, Singapore, SINGAPORE.

983 Study on the Inclusion Complexation Ability of Synthetic Microbial Oligosaccharide Polymers based on the Cyclosophoroases isolated from *Rhizobium phaseoli*
D. Jeong, J. Kim, C. Kwon, S. Jung; Dept. of BioSci. and Biotechnology, Bio/Molecular Informatics Ctr. & Ctr. for Biotechnology Res. in UBITA, Konkuk Univ., Seoul, KOREA, REPUBLIC OF.

984 Syngas to Butanol
J. R. Torres, R. S. Tanner; The Univ. of Oklahoma, Norman, OK.

985 Methods for Preservation of Sweet Sorghum Juice for Bioethanol Production
E. A. B. Emmert, V. D. Kutch, M. P. Carpenter, A. T. Ditzel; Salisbury Univ., Salisbury, MD.

986 Functional Heterologous Expression of an Engineered Full Length CipA from *Clostridium thermocellum* in *Thermoanaerobacterium saccharolyticum*: the First Step Towards Rebuilding a Full Sized Cellulosome
D. H. Currie[1], C. D. Herring[2], A. M. Guss[3], D. A. Hogsett[2], L. R. Lynd[1]; [1]Dartmouth Coll., Hanover, NH, [2]Mascoma Corp., Lebanon, NH, [3]Oak Ridge Natl. Lab., Oak Ridge, TN.

987 Determination of the Optimal pH for Sweet Sorghum Juice Ethanolic Fermentation using *Saccharomyces Cerevisiae*
F. Segura, R. Pacheco, C. Arias, D. Chan, L. Cuevas, E. Ortiz; Inst. Tecnologico de Merida, Mérida, Yucatan, MEXICO.

988 Survey on Cyanobacterial Bidirectional Hydrogenases—the Gene and Activity
A. Kothari, F. Garcia-Pichel; Arizona State Univ., Tempe, AZ.

989 Microbial Limonene Production: Proteomics-Production Correlation Analysis as a Tool to Direct Metabolic Engineering of Heterologous Pathways
J. Alonso-Gutierrez, T. Batth, R. Chan, H. Garcia-Martin, C. Petzold, J. D. Keasling, T. S. Lee; Joint Bioenergy Inst. (JBEI), Emeryville, CA.

990 Metabolic Engineering of *Saccharomyces Cerevisiae* for High Titer Production of Fatty Acid-Derived Biofuels
W. Runguphan, J. D. Keasling; Lawrence Berkeley Natl. Lab, Berkeley, CA.

991 Shifting FabG Cofactor-Specificity to Improve *Escherichia coli* Growth and Fatty Acid Production under Anaerobic Conditions
P. Javidpour[1,2], S. M. Ma[1,2], G. D. Friedland[1,3], F. Zhang[1], D. C. Chivian[1,2], A. P. Arkin[1], J. D. Keasling[1,2,4], S. R. Chhabra[1,2]; [1]Joint BioEnergy Inst., Emeryville, CA, [2]Physical BioSci.s Div., Lawrence Berkeley Natl. Lab., Berkeley, CA, [3]Biomass Sci. and Conversion Technology Dept., Sandia Natl. Lab., Livermore, CA, [4]Dept.s of Chemical Engineering and Bioengineering, Univ. of California, Berkeley, CA.

992 Combinatorial Assembly and Targeted Analysis of Mevalonate Pathway Variants
K. W. George, R. Rosengarten, P. Singh, T. Batth, I. Vaino, P. Adams, J. Keasling, N. Hillson, C. Petzold, T. Lee; Joint BioEnergy Inst., Emeryville, CA.

993 Investigating the Use of Efflux Pumps for Microbial Production of Hydrocarbons
F. Mingardon[1,2], A. Chanal[2], A. Mukhopadhyay[1]; [1]JBEI, Emeryville, CA, [2]TOTAL, Gaz and Power USA Biotech. Inc., Emeryville, CA.

065 General Food Microbiology II (Division P)

1:00 p.m. – 2:45 p.m.; Poster Hall

994 Automated Extraction and Analysis of *Salmonella enterica* from Poultry and Kitchen Surfaces
P. Williams, T. Parrish, J. Chapman; Evogen, Lenexa, KS.

995 Investigating the Transcriptomic Response of *Salmonella* to Desiccation on Stainless Steel
S. Finn[1], K. A. Power[1], K. Händler[2], J. C. D. Hinton[2], A. Amezquita[3], P. McClure[3], S. Fanning[1]; [1]UCD Sch. of Publ. Hlth., Physiotherapy and Population Sci., UCD Ctr. for Food Safety, Dublin [4], IRELAND, [2]Moyne Inst. of Preventative Med., Trinity Coll., Dublin [2], IRELAND, [3]Unilever, Safety and Environmental Assurance Ctr., Bedfordshire, UNITED KINGDOM.

996 Identification of a host-associated DNA methylase in *Campylobacter coli*
V. Dutta[1], E. Altermann[2], J. Olson[1], M. D. Crespo-Rodriguez[1], S. S. Ratani[1], R. M. Siletzky[1], S. Kathariou[1]; [1]North Carolina State Univ., Raleigh, NC, [2]AgRes. Limited, Palmerston North, NEW ZEALAND.

997 An In-house Verification Study on the ABI 7500 FAST in Correlation with the Pathatrix Auto for Detection of Low Levels of *E. coli* O157:H7 in Raw Ground Beef Products
A. J. Minor; WVDA, Charleston, WV.

998 Rhizosphere Microbial Competition, Soil and Surrogate Type Influence the Survival of *E. coli* O157:H7 in Spinach Fields
E. Gutierrez-Rodriguez, K. Scow, J. Six, T. Suslow; Univeristy of California, Davis, CA.

999 Antimicrobial Activity of Thyme Essential Oil on *Staphylococcus aureus* in Cottage Cheese
E. Makariadou[1], E. Eriotou[1], D. Koulougliotis[2], A. Mourelatou[1], I. Kokosi[1], A. Amitsi[1], I. Riga[1], Y. Samaras[1]; [1]Dept. of Organic Farming and Food Technology, Technological Ed.al Inst. of Ionian Islands, Argostoli, GREECE, [2]Dept. of Environmental Technology and Ecology,Technological Ed.al Inst. of Ionian Islands, Zakynthos, GREECE.

1000 Kinetics of Thermal Inactivation and Injury of *Yersinia pestis*, Yersinia *Pseudotuberculosis* and *Yersinia enterocolitica* Inoculated in Milk
T. E. Yehualaeshet, M. Graham, W. Abdela, T. Habtemariam, T. Samuel; Tuskegee Univ., Tuskegee, AL.

1001 Adherence of *Streptococcus* sp. Isolated from Pozol a Traditional Mexican Fermented Beverage
N. L. Ramírez-Chavarin, C. Wacher-Rodarte, G. Diaz-Ruiz, E. P. Salazar-Jiménez, L. G. Flores-Campuzano, U. Hernandez-Chiñas, C. A. Eslava; Univ. Natl. Autonoma de México, Mexico Df, MEXICO.

1002 Pasteurization of Spores in Biofilm of *Bacillus cereus* Using Cosolvent-Modified Supercritical CO2
H. S. Park[1], H. J. Choi[2], K. H. Kim[1]; [1]Korea Univ., Seoul, KOREA, REPUBLIC OF, [2]Ewha Womans Univ. Sch. of Med., Dept. of Med., Seoul, KOREA, REPUBLIC OF.

1003 Dietary n3 Polyunsaturated Fatty Acids Reduce *Campylobacter* Carriage in Broilers
L. K. Williams, E. K. Trantham, M. Toscano, J. Tarlton, T. A. Cogan; Univ. of Bristol, Bristol, UNITED KINGDOM.

1004 Prevalence and Characterization of *Cronobacter* from Desiccated Ready-to-Eat Foods
K-Y. Song, J-W. Chon, D-H. Kim, J-H. Yim, J-Y. Hyeon, C-H. Sung, Y-G. Kim, S-K. Lee, H-S. Kim, J-H. Park, A-S. Oh, J-I. Lee, K-H. Seo; Konkuk Univ., Seoul, KOREA, REPUBLIC OF.

1005 Single Cell Resolution of Changes to *Escherichia coli* Membrane Structure and Function in the Presence of Acetic Acid at a Range of NaCl Concentrations
B. Chapman[1,2,3], L. Turnbull[3], C. Whitchurch[3], T. Ross[2]; [1]CSIRO Div. of Food and Nutritional Sci., North Ryde, NSW, AUSTRALIA, [2]Tasmanian Inst. of Agriculture / Sch. of Agricultural Sci., Univ. of Tasmania, Hobart, Tasmania, AUSTRALIA, [3]The ithree Inst., Univ. of Technology, Sydney, Broadway, NSW, AUSTRALIA.

1006 Isolation and Partial Characterization of a Sporulation Peptide from *Clostridium perfringens*
R. Labbe, C. Kuo, Z. Yin; Univ. of Massachusetts, Amherst, MA.

1007 Multilocus Sequence Typing of *Cronobacter* Isolates from Milk Powder Production Factories
H. Sonbol[1], C. McAuley[2], H. Craven[2], S. J. Forsythe[1]; [1]Nottingham Trent Univ., Nottingham, UNITED KINGDOM, [2]CSIRO, Werribee, AUSTRALIA.

1008 Risk Assessment of *Listeria monocytogenes* in Queso Fresco in Culiacan, Mexico
M. Soto-Beltran[1], K. Mena[2], C. Gerba[1], P. M. Tarwater[3], K. Reynolds[1], C. Chaidez[4]; [1]The Univ. of Arizona, Tucson, AZ, [2]Univ. of Texas Hlth. Sci. Ctr. at Houston Sch. of Publ. Hlth., El Paso, TX, [3]Div. of Biostatistics and Epidemiology, Texas Tech Univ. Hlth.Sci. Ctr., El Paso, TX, [4]Centro de Investigacion en Alimentacion y Desarrollo, Culiacán, MEXICO.

1009 Multiplex PCR for Identification of *Shigella* Genus and 4 Species Using Specific Primer Sets of Target Genes Selected by Comparative Genomics
H-Y. Kim[1], J. Ryu[1], H-J. Kim[2], S-H. Lee[3], I-G. Hwang[3]; [1]Kyung Hee Univ., Yongin, KOREA, REPUBLIC OF, [2]Iowa State Univ., Ames, IA, [3]Korea Food & Drug Admin., Osong, KOREA, REPUBLIC OF.

1010 The Antimicrobial Activity of Thyme Essential Oil on *Salmonella* sp. in Milk is Influenced by Lipid Content
A. Amitsi[1], Y. Samaras[1], E. Makariadou[1], C. Roussa[1], D. Koulougliotis[2], I. Kokosi[1], E. Eriotou[1]; [1]Dept. of Organic Farming and Food Technology, Technological Ed.al Inst. of Ionian Islands, Argostoli, GREECE, [2]Dept. of Environmental Technology and Ecology,Technological Ed.al Inst. of Ionian Islands, Zakynthos, GREECE.

1011 Development of a Novel Multiplex PCR Assay for the Identification of *Salmonella enterica* Typhimurium and Enteritidis
B. Liu, X. Zhou, L. Zhang, W. Liu, X. Dan, C. Shi, X. Shi, X. Shi, X. Shi, X. Shi; MOST-USDA Joint Res. Ctr. for Food Safety and Bor Luh Food Safety Ctr., Sch. of Agriculture and Biol., Shanghai Jiao Tong Univ., Shanghai, CHINA.

1012 Development of a Real-time PCR Assay for Rapid Detection of *Vibrio parahaemolyticus* from Seafood
B. Liu, X. He, W. Chen, S. Yu, C. Shi, X. Zhou, J. Chen, D. Wang, X. Shi; MOST-USDA Joint Res. Ctr. for Food Safety and Bor Luh Food Safety Ctr., Sch. of Agriculture and Biol., Shanghai Jiao Tong Univ., Shanghai, CHINA.

1013 Characterisation of *Cronobacter sakazakii* ST4 Isolated from Powdered Infant Formula Product *rec*All in Saudi Arabia
F. Almajed, S. Hairi, S. J. Forsythe; Nottingham Trent Univ., Nottingham, UNITED KINGDOM.

1014 The EAL Domain Protein YdiV Regulates Motility, Biofilms and Virulence in Enterohemorrhagic *Escherichia coli* O157:H7
B. Wang[1], X. Fang[2], W. J. Means[1], M. Gomelsky[2], **M. J. Zhu**[1]; [1]Dept. of Animal Sci., Univ. of Wyoming, Laramie, WY, [2]Dept. of Molecular Biology, Univ. of Wyoming, Laramie, WY.

1015 Characterization of a Novel Microcin that Kills Enterohemorrhagic *Escherichia coli*
L. J. Eberhart[1], J. R. Deringer[1], K. A. Brayton[1], T. E. Besser[1], A. A. Sawant[2], D. R. Call[1]; [1]Washington State Univ., Pullman, WA, [2]Univ. of Idaho, Moscow, ID.

1016 Gold-nanoparticle-modified Carbon Electrode Biosensor for the Detection of *Listeria monocytogenes*
D. M. Davis, X. Guo, V. Wu; Univ. of Maine, Orono, ME.

1017 Antimicrobial Activity of Mexican Oregano Essential Oil in Combination with Food Factors Such as Protein and Ph
A. Levario-Gómez[1], A. Lopez-Malo Vigil[2], R. Ávila-Sosa Sánchez[3], N. Gutiérrez-Méndez[1], G. V. Nevárez-Moorillón[1]; [1]Univ. Autonoma de Chihuahua, Chihuahua, Chih., MEXICO, [2]Univ. de las Americas en Puebla, Cholula, Puebla, MEXICO, [3]Benemérita Univ. Autónoma de Puebla, Puebla, Pue., MEXICO.

1018 Antimicrobial Effect of Total Aqueous Extracts of Bromelia Pinguin Against Human Pathogens
D. I. Chan-Rodriguez, L. Btiro-Argaez, C. Arias-Argaez, N. Hau-Yam, R. Dzib-Leon, E. Ortiz-Vazquez; Inst. Tecnológico de Mérida, Mérida, MEXICO.

1019 Antibacterial Activity of Some Melipona Honey-intrinsic Components
J. M. Ramon Sierra, J. L. Martinez Guevara, J. A. Lope ayora, N. Hau Yama, F. Segura Zumarraga, E. Ortíz Vázquez; Inst. Tecnologico de Merida, Merida, Yucatan, MEXICO.

1020 Effectiveness of CPC Application on Raw Chicken Giblets
R. J. O'Connor, J. L. Lee, R. A. Baker, K. L. Beers, **P. E. Cook**; Safe Foods Corp, Rogers, AR.

1021 Minimun Inhibitory Concentration of Melipona Honey against *Candida albicans*
G. A. Zapata, J. M. Ramón Sierra, E. Ortiz Vázquez; Inst. Tecnológico de Mérida, Mérida, MEXICO.

1022 Preparation of Starter Cultures for Indusstrial Scale Fermentation of *Parkia biglobosa*
E. Y. Aderibigbe[1], W. Visessanguan[2]; [1]Ekiti State Univ., Nigeria., Ado-Ekiti, NIGERIA, [2]BIOTEC, Pathumthani, THAILAND.

066 Environmental Sample Collection, Processing, and Controls (Division Q)

1:00 p.m. – 2:45 p.m.; Poster Hall

1023 A Seven-lab Collaboration to Compare High-titered Suspensions of *Clostridium difficile* Spores produced in a Semi-solid and a Liquid Medium
J. Hasan[1], J. Noble-Wang[2], D. Rottjakob[3], S. Sattar[4], L. Sehulster[2], K. Japal[1], J. Perez[4], A. Shams[2], P. Toll[3]; [1]US EPA, Ft. Meade, MD, [2]CDC, Atlanta, GA, [3]ATS Labs, Eagan, MN, [4]Univ. of Ottawa, Ottawa, ON, CANADA.

1024 Species-specific qPCR to Assess the Differential Recovery of Microorganisms by Various Sampling Materials
E. Bargoma[1], M. T. La Duc[1], K. Kwan[2], P. Vaishampayan[1], K. Venkateswaran[1]; [1]JPL-NASA, Pasadena, CA, [2]Univ. of Southern California, Los Angeles, CA.

1025 Approaches to Evaluating Embedded Bioburden in Spacecraft Materials
W. W. Schubert; Jet Propulsion Lab., Pasadena, CA.

1026 A Biomolecular Isolation Framework for Molecular Eco-Systems Biology
E. Muller; Luxembourg Ctr. for Systems Biomedicine, Esch-sur-Alzette, LUXEMBOURG.

1027 Recovery of Nucleic acid from Iron Oxide Complexed Clay Environments
R. A. Hurt[1], J. G. Moberly[1], M. Shakya[1], M. M. Drake[1], L. T. Dice[1], T. A. Vishnivetskaya[2], D. A. Elias[1]; [1]Oak Ridge Natl. Lab., Oak Ridge, TN, [2]Univ. of Tennessee, Knoxville, TN.

1028 Automated DNA Purification from Soil Samples
D. Wieczorek, T. Schagat; Promega, Madison, WI.

1029 Microbial Recovery from Chesapeake Bay Tributary Sediment
J. J. Calomiris; Sotiria Sci., Arnold, MD.

1030 An Improved Method for Recovering Enteric Adenoviruses 40 and 41 from Water
B. R. McMinn; USEPA, Cincinnati, OH.

1031 Take the Lab to the Field with a Portable Sample Processor and Dna Stabilization Reagent
N. M. Isely, **S. Wong**, M. E. Van Eden, X. Jia; Zymo Res., Irvine, CA.

1032 Concentration and Detection of DNA and RNA Viruses in Water
F-C. Hsu[1], C-I. Wong[1], L. D. Goodridge[2]; [1]Scientific Methods Inc, Granger, IN, [2]Colorado State Univ., Fort Collins, CO.

1033 Evaluation of a Method to Concentrate and Detect Enteric Viruses from Wastewater
N. E. Brinkman[1], T. D. Haffler[2], J. L. Cashdollar[1], E. R. Rhodes[1]; [1]Environmental Protection Agency, Cincinnati, OH, [2]Student Services Contractor, Cincinnati, OH.

1034 Sensitive Detection of Sample Interference and Recovery in Environmental qPCR
H. C. Green[1], **K. G. Field**[2]; [1]US Environmental Protection Agency, Cincinnati, OH, [2]Oregon State Univ., Corvallis, OR.

1035 Similar Concentration and Extraction Recoveries Allow for Use of Turnip Crinkle Virus as a Spike and Recovery Control for Waterborne Enteroviruses
J. Gentry-Shields, J. R. Stewart; Univ. of North Carolina, Chapel Hill, NC.

1036 Influences of Sample Interference and Interference Controls on Quantification of *Enterococci* Fecal Indicator Bacteria in Inland Surface Water Samples by the qPCR Method
S. D. Siefring[1], S. Cochran[2], J. P. Heath[2], R. A. Haugland[1]; [1]US EPA, Cincinnati, OH, [2]ORSANCO, Cincinnati, OH.

1037 External 16S rRNA Gene Controls for the Assessment of Analytical Performance of Massive Parallel 16S rRNA Gene Sequencing
N. Noda, A. Ohashi, **Y. Sekiguchi**; Natl. Inst. of Advanced Industrial Sci. and Technology (AIST), Tsukuba, JAPAN.

067 Pathogens in Environmental Sources (Division Q)

1:00 p.m. – 2:45 p.m.; Poster Hall

1038 Characterization of Pathogenic *Vibrio parahaemolyticus* from the Chesapeake Bay, Maryland
A. Chen[1], N. A. Hasan[1,2], B. J. Haley[1], E. Taviani[1], S. Y. Choi[1], R. McKay[3], M. Tarnowski[4], K. Brohawn[4], C. N. Johnson[5], D. J. Grimes[6], A. Huq[1], R. R. Colwell[1,2,7,8]; [1]Maryland Pathogen Res. Inst., Univ. of Maryland, College Park, MD, [2]CosmosID™A Biosystematics Company, College Park, MD, [3]Maryland Dept. of the Environment, Annapolis, MD, [4]Maryland Dept. of Natural Resources, Annapolis, MD, [5]Dept. of Environmental Sci., Louisiana State Univ., Baton Rouge, LA, [6]Gulf Coast Res. Lab., The Univ. of Southern Mississippi, Ocean Springs, MS, [7]John Hopkins Bloomberg Sch. of Publ. Hlth., Baltimore, MD, [8]Ctr. for Bioinformatics and Computational Biology, Univ. of Maryland, College Park, MD.

1039 Ecology of *Vibrio vulnificus* in the Tampa Bay Estuary and Relationship to Fecal Indicator Bacteria Levels
E. Chase, V. J. Harwood; Univ. of South Florida, Tampa, FL.

1040 Isolation and Identification of *V. cholerae* Non-O1 Strains from the Aquatic Reservoirs in Haiti
M. Jubair[1], J. A. Johnson[2,3], A. S. Kane[1,3], J. G. Morris[3], A. Ali[1,3]; [1]Dept. of Environmental & Global Hlth., Sch. of Publ. Hlth.& Hlth.Professions, Univ. of Florida, Gainesville, FL, [2]Dept. of Pathology, Univ. of Florida, Gainesville, FL, [3]Emerging Pathogens Inst., Univ. of Florida, Gainesville, FL.

1041 Topological Data Analysis of *Escherichia coli* O157:H7 Survival in Conventional and Organic Soils
A. M. Ibekwe[1], J. Ma[1], D. Crowley[2], C-H. Yang[3], A. Johnson[4], P. Y. Lum[4]; [1]USDA-ARS, Riverside, CA, [2]Univ. of California, Riverside, CA, [3]Univ. of Wisconsin, Milwaukee, WI, [4]Ayasdi, Inc., Palo Alto, CA.

1042 Fungal Communities on Flooded Building Materials
F. Skrobot, III[1], H. A. Aglan[2], S. V. Diehl[1]; [1]Mississippi State Univ., Starkville, MS, [2]Tuskegee Univ., Tuskegee, AL.

1043 Bio-Geographical Survey of Biofouling Microbial Communities on Naturally Weathered Cool Roof Materials
K. R. Cheng[1], S. M. Pfiffner[1], M-D. Cheng[2], A. Desjarlais[2]; [1]Univ. of Tennessee, Knoxville, TN, [2]Oak Ridge Natl. Lab., Oak Ridge, TN.

1044 A Mixed Formulation of Microbial Agents for Turfgrass Disease Control
L. W. Yu[1], C. H. Chang[2], L. N. Huang[1], C. C. Liao[1]; [1]Food Industry Res. and Dev. Inst., Hsinchu, TAIWAN, [2]Fwusow Industry CO., LTD., Taichung, TAIWAN.

1045 Research of Virulence Genes in *Pseudomonas aeruginosa* Isolated from Soil
E. G. Stehling, L. M. Manço, V. V. Martins; São Paulo Univ., Ribeirão Preto, BRAZIL.

1046 Accumulation of *Salmonella* infantis in Soil and Lettuce After Irrigation using Wastewater Effluents
Y. Zhang, X. Li, B. J. Sallach, S. L. Bartelt-Hunt, D. D. Snow, L. Hodges; Univ. of Nebraska-Lincoln, Lincoln, NE.

1047 The Persistence of *Francisella tularensis* in Acidic Solutions
N. J. Adcock[1], B. J. Morris[2], A. O. Jennings[3], E. W. Rice[1]; [1]US Environmental Protection Agency, Cincinnati, OH, [2]Pegasus Technical Services, Inc., Cincinnati, OH, [3]Student Services Contractor, US Environmental Protection Agency, Cincinnati, OH.

1048 Influence of Solution Chemistries on theAggregation and Deposition Behavior of Human Adenovirus
K. wong[1], B. Mukherjee[2], M. Molina[1], R. Zepp[1], A. Kahler[3], M. Garcia[4], S. Riblet[4]; [1]United State Environmental Protection Agency, Athens, GA, [2]The Dow Chemical Company, Midland, MI, [3]CDC, Atlanta, GA, [4]Univ. of Georgia, Athens, GA.

1049 The Investigation of *Hantavirus* Infected Peromyscus Populations in Rural Upstate NY
E. P. Klinedinst, C. E. Bezotte, L. L. Gillie, J. Riling, J. Mohr; Elmira Coll., Elmira, NY.

1050 Ten Years of Microbe Hunting in Great Smoky Mountains National Park: Where is *Pseudomonas aeruginosa*?
S. N. Justice, S. P. O'Connell; Western Carolina Univ., Cullowhee, NC.

068 Mycobacterial Epidemiology and Clinical Research (Division U)

1:00 p.m. – 2:45 p.m.; Poster Hall

1051 Epidemiology of *Mycobacterium tuberculosis* Strains from a Third Level Hospital in Lima-Peru
C. A. Tello[1], N. Borja Santa Cruz, MD.[2], R. G. Gavilan, MSc[3], M. García Rivera[1], R. Garcia-de-la-Guarda, MSc[1]; [1]San Marcos Univ., Lima, PERU, [2]Hosp. Guillermo Almenara Irigoyen, Lima, PERU, [3]Inst. de Acuicultura, Univ. de Santiago de Compostela, Santiago de Compostela, SPAIN.

1052 Tuberculosis Misdiagnosed as Lung Cancer at Peru´s National Institute of Cancer 2006-2009
G. More; Univ. de San Martin de Porres, Lima, PERU.

1053 Changes of Anti-phospholipid Igm Antibodies After the First Month of Intensive Phase Therapy of Pulmonary Tuberculosis in Colon, Panama
A. Goodridge[1], **A. Chavez**[2], O. Luque[2], J. Jurado[3], J. Miranda[3], L. W. Riley[4]; [1]INDICASAT-AIP, City of Knowledge, PANAMA, [2]Hosp. Regional-MINSA, Colon, PANAMA, [3]Hosp. Amador Guerrero-CSS, Colon, PANAMA, [4]Univ. of California, Berkeley, CA.

1054 Production and Characterization of Polyclonal Rabbit Antibodies to Mycobacterial Lipid Antigens
M. Shibata[1,2], T. Naka[1,3], S. Maeda[4], H. Ogura[1], N. Fujiwara[1]; [1]Osaka City Univ. Graduate Sch. of Med., Osaka, JAPAN, [2]Kio Univ., Nara, JAPAN, [3]MBR Co. Ltd., Osaka, JAPAN, [4]The Res. Inst. of Tuberculosis, Japan Anti-Tuberculosis Association, Tokyo, JAPAN.

1055 Molecular Epidemiology and Characterization of Mutations Associated with Resistance to First Line Drugs in Clinical Strains of *Mycobacterium tuberculosis* Isolated in Chihuahua, Mexico
K. F. Chacon Vargas[1], S. Andrade Ochoa[1], L. García Casanova[2], O. Pizano Martínez[2], T. S. Siqueiros Cendón[1], G. Erosa De La Vega[1], S. Pizarro Chávez[3], F. Milián Sauzo[2], S. Arévalo Gallegos[1], B. E. Rivera Chavira[1]; [1]Facultad de Ciencias Químicas, Univ. Autónoma de Chihuahua, Chihuahua, MEXICO, [2]Inst. Natl. de Invest. Forestales, Agrícola y Pecuarias, Ajuchitlán, Qro., MEXICO, [3]Coord. de Invest. en Salud, Inst. Mex. del Seguro Social, Del. Chihuahua, Chihuahua, MEXICO.

1056 Genotypes of *Mycobacterium tuberculosis* in Taiwan
R. Jou, C-W. Chang, H-Y. Chen, C-L. Huang; Taiwan Ctr.s for Disease Control, Taipei, TAIWAN.

1057 SNP-based Comparison of Two Complete Genomes from the Beijing and Manila Families of *Mycobacterium tuberculosis*
L. Qian[1], X. Wan[1], S. Hou[1], K. Drees[2], J. Foster[2], J. T. Douglas[1]; [1]Univ. of Hawaii, Honolulu, HI, [2]Northern Arizona Univ., Flagstaff, AZ.

1058 Analysis of Evolutionary Markers among *Mycobacterium tuberculosis* Spoligotyping Groups
K. Koster[1], L. Qian[1], M. Hoshide[1], V. Crudu[2], R. Warren[3], T. Victor[3], C. Rodrigues[4], H. B. Evasco II[5], T. Tupasi[5], J. T. Douglas[1]; [1]Univ. of Hawaii, Honolulu, HI, [2]Ctr. for Hlth.Policies and Studies, Chisinau, MOLDOVA, REPUBLIC OF, [3]Univ. of Stellenbosch, Tygerberg, SOUTH AFRICA, [4]Hinduja Hosp., Mumbai, INDIA, [5]Tropical Disease Fndn., Inc., Makati, PHILIPPINES.

1059 Prevalence of Bovine Tuberculosis among Cattle Slaughtered at the Jos Abattoir, Plateau State, Nigeria
L. A. Okeke[1,2,3,4], Co-authors: G. Agada[2], A. Saleh[2], I. Okeke[3], M. Muhammad[2], M. Odugbo[2], A. Olabode[3], Lora Davis[4]; [1]Nigeria Field Epidemiology and Lab. Training Programme, Asokoro. Abuja, FCT, NIGERIA, [2]Natl. Vet. Res. Inst., Vom.Plateau State, Jos, NIGERIA, [3]3. Federal Coll. of Vet. and Med. Lab. Technology, Vom, Nigeria, Vom, NIGERIA, [4]4. Human-Animal Interface Project, Natl. Ctr.s for Emerging and Zoonotic Infectious Diseases, Ctr.s for Disease Control and Prevention, Abuja, Nigeria, Fct, NIGERIA.

1060 Subspecies Identification, Clinical Sources and Significance of 280 strains of *Mycobacterium avium* Isolated from Patients with Cancer
Q. T. N. Tran, X. Y. Han; MD Anderson Cancer Ctr., Houston, TX.

1061 Differentiation of *Mycobacterium avium* Complex in Southern Taiwan
H-Y. Shu[1], Y-C. Chang[2], J-L. Huang[1]; [1]Chang Jung Christian Univ., Tainan, TAIWAN, [2]Chest Hosp., Dept. of Hlth., Executive Yuan, Tainan County, TAIWAN.

1062 Dynamics of *Mycobacterium avium* in Residential Environments
T. Ichijo, T. Kato, S. Nakamoto, Y. Izumi, N. Yamaguchi, M. Nasu; Osaka Univ., Suita, Osaka, JAPAN.

1063 Clinical Significance of Genotyping of *Mycobacterium avium* using Variable Number Tandem Repeats Analysis
S-Y. Kim[1], S-T. Lee[1], B. Jeong[1], K. Jeon[1], J-W. Kim[1], S. Shin[2], W-J. Koh[1]; [1]Samsung Med. Ctr., Seoul, KOREA, REPUBLIC OF, [2]Chungnam Natl. Univ., KOREA, REPUBLIC OF.

1064 Phylogeography of *Mycobacterium leprae* in Endemic Regions of Colombia
N. Cardona-Castro[1,2], J. C. Beltrán-Alzate[1], I. M. Montoya-Romero[1], W. Li[3], P. Brennan[3], V. Vissa[3]; [1]Inst. Colombiano de Med. Tropical – Univ. CES, Medellín, COLOMBIA, [2]PhD Student. Univ. de Antioquia., Medellín, COLOMBIA, [3]Dept. of Microbiol., Immunology, and Pathology, Colorado State Univ., Fort Collins, CO.

1065 Old Disease New Insight: The Discovery, Phylogeny, and Significance of the Second Leprosy Agent *Mycobacterium lepromatosis*
X. Y. Han; MD Anderson Cancer Ctr., Houston, TX.

069 Molecular Epidemiology (Division Y)

1:00 p.m. – 2:45 p.m.; Poster Hall

1066 Broadband Detection, Identification, and Strain Typing of Bacterial Organisms Using Optical Genome Sequence Scanning
G. Malkin, D. B. Cameron, S. J. Gerrin, E. Protozanova, M. M. Safranovitch, J. A. Symonds, R. Gilmanshin; PathoGenetix, Woburn, MA.

1067 Rapid Genomic-Scale Analysis of Foodborne Outbreak Strains at the FDA: Enterohemorrhagic and Enteroaggregative *Escherichia coli* O104:H4 Case Study
S. A. Jackson, I. R. Patel, M. L. Kotewicz, D. W. Lacher, J. Gangiredla, C. A. Elkins; US FDA, Laurel, MD.

1068 Investigation of CRISPR-2 Locus for Rapid Strain Typing and in Pathogenic *E. coli*
S. T. Gebru, M. K. Mammel, C. A. Elkins; FDA, Laurel, MD.

1069 Comparison of Repetitive Sequence-based PCR characterization and PFGE for the Molecular Typing of *Salmonella* Isolates in Food Matrices
E. Liu, O. Kaluoch; U.S. Food and Drug Admin., Alameda, CA.

1070 Pulsed-field Gel Electrophoresis—Organism Survival and DNA Degradation
J. Roberts[1,2], A. Cannons[2]; [1]Univ. of South Florida Polytechnic, Lakeland, FL, [2]Ctr. for Biological Defense, Tampa, FL.

1071 Comparison of DiversiLab and PFGE for Subtyping of *Listeria monocytogenes* Isolated from Food and Laboratory Process Controls
J. J. Crowe, A. Bryant, M. L. Ishida, Y. Salfinger; Florida Dept. of Agriculture and Consumer Services, Tallahassee, FL.

1072 Subtyping of *Salmonella* Enteritidis Using Pulsed-Field Gel Electrophoresis, Fluorescent Amplified Fragment Length Polymorphism and Clustered Regularly Interspaced Short Palindromic Repeats
D. A. Tadesse, J. Sabo, J. Abbott, K. Blickenstaff, M. Rasmussen, P. McDermott, S. Zhao; US Food and Drug Admin., Laurel, MD.

1073 Mip Genotyping of Legionella Isolates from Central Air-Conditioning Cooling Towers in Guangzhou Public Places
S. Chen[1,2], X. Gong[3], **X. Li**[1], Y. Zhang[2], P. Qu[2], E. Atwill[1]; [1]Univ. of California, Davis, Davis, CA, [2]Guangzhou Ctr. for Disease Control and Prevention, Guangzhou, CHINA, [3]Sun Yat-Sen Univ., Guangzhou, CHINA.

1074 Potential Use of Sequence Based Typing of Isolates in Legionella Outbreak Investigations
N. A. Kozak, C. E. Lucas, J. Wortham, G. Fischer Langley, L. A. Hicks, S. R. Gargis, E. Brown, J. M. Winchell; CDC, Atlanta, GA.

1075 MLST Analysis of *Borrelia* Isolates from the Chicago Area
T. Carlson[1], H. Nam[2], J. Ondrey[1], E. Koubsky[1], T. Nelson[1], J. Nelson[1], M. D. Schau[1], J. Topp[2]; [1]North Park Univ., Chicago, IL, [2]Gordon Coll., Wenham, MA.

1076 OspC Genotyping of *Borrelia burgdorferi* Isolates from the Chicagoland Area Reveals Significant Heterogeneity
T. F. Nelson[1], E. Koubsky[1], J. Nelson[1], J. Topp[2], M. D. Schau[1]; [1]North Park Univ., Chicago, IL, [2]Gordon Coll., Wenham, MA.

1077 Investigating the Genetic Stability of the Haitian Cholera Outbreak Strain: an *in vitro* Serial Passage Study
P. C. Lafon, J. L. Halpin, S. G. Stroika, M. Freeman, E. M. Ribot, A. Sabol, E. Trees; CDC, Atlanta, GA.

1078 Molecular Epidemiology and Genetic Variation of Pathogenic *Vibrio parahaemolyticus* in Peru
R. G. Gavilan, J. Martinez-Urtaza; Univ. of Santiago de Compostela, Santiago de Compostela, SPAIN.

1079 Characterization of Clinical and Environmental *Vibrio parahaemolyticus* isolated in Washington State in 2011
W. A. Glover[1,2], B. T. Leader[2], K. Eckmann[2], G. Olson[2], Y. Houze[2], R. Gautom[2], B. Hiatt[2]; [1]Univ. of Washington, Seattle, WA, [2]Washington State Publ. Hlth.Lab., Shoreline, WA.

1080 Multi-Locus Sequence Typing of *Staphylococcus saprophyticus* from Clinical and Environmental Sources
L. T. Sorenson, G. F. Sensabaugh; Sch. of Publ. Hlth., Univ. of California, Berkeley, BERKELEY, CA.

1081 Virulence Gene Typing of Methicillin-Resistant *Staphylococcus aureus*. as a Complement in Epidemiological Typing
F. L. Nowrouzian, C. Welinder – Olsson, C. Åhrén; Biomedicine, Göteborg, SWEDEN.

Monday, June 18

10:45 a.m. – 12:30 p.m.

097 Fighting Back I: How the Bugs Resist the Drugs (Division A)

10:45 a.m. – 12:30 p.m.; Poster Hall

1082 Molecular Mechanism of Streptomycin Resistance in *Mycobacterium tuberculosis* Attributable to Mutations in GidB, a 16S rRNA Methyltransferase
S. Wong, C. Barry, [3]rd; NIH, Bethesda, MD.

1083 Rapid Development of Resistance towards Ciprofloxacin in a Long-Term Evolution Study of Mutator *P.aeruginosa*
K. M. Jørgensen[1], T. Wassermann[1], S. Molin[2], N. Høiby[1,3], O. Ciofu[1]; [1]Inst. for Intl. Hlth., Immunology and Microbiol., Univ. of Copenhagen, Copenhagen, DENMARK, [2]Ctr. for Systems Microbiol., Dept. of Systems Biology, Technical Univ. of Denmark, Lyngby, DENMARK, [3]Dept. of Clinical Microbiol. 9301, RigsHosp.et, Univ. of Copenhagen, Copenhagen, DENMARK.

1084 Mutational Reduction in Expression of the *rplU-rpmA* Ribosomal Protein Operon Upregulates the mexXY Multidrug Efflux Genes to Promote Aminoglycoside Resistance in *Pseudomonas aeruginosa*
C. H. Lau, S. Fraud, K. Poole; Dept. of BioMed. and Molecular Sci., Queen's Univ., Kingston, ON, CANADA.

1085 Analysis and Comparison of Antimicrobial Resistance Mechanisms and Plasmids in Multi-Drug Resistant (MDR) *Salmonella enterica* and *Escherichia coli*
J. G. Frye, L. M. Hiott, J. B. Barrett, L. M. Glenn, M. D. Englen, C. R. Jackson; USDA, Athens, GA.

1086 Deletion of the *ramR* induces Low Level of Resistance to Ciprofloxacin and Tigecycline by Inducing Expression of ramA and Efflux Genes and Repressing Influx Genes
T. Akiyama, A. A. Khan; Natl. Ctr. for Toxicological Res., Jefferson, AR.

1087 Genome-wide Identification of Ampicillin Resistance Determinants in *Enterococcus faecium*
X. Zhang, R. J. L. Willems, D. Bierschenk, A. Kuipers, F. L. Paganelli, M. J. M. Bonten, W. van Schaik; Univ. Med. Ctr. Utrecht, Utrecht, NETHERLANDS.

1088 Novel Beta-Lactamase CTX-M-116 Gene is Example of Recombination between Left and Right Parts of blaCTX-M Genes
N. K. Fursova[1], S. D. Pryamchuk[1], A. N. Kruglov[2], I. V. Abaev[1], E. I. Pecherskikh[1], N. A. Shishkova[1], O. V. Korobova[1], N. N. Kartsev[1], E. A. Svetoch[1], I. A. Dyatlov[1]; [1]The State Res. Ctr. for Applied Microbiol. &Biotechnology, Obolensk, RUSSIAN FEDERATION, [2]The Natl. Agency for Clinical Pharmacology and Pharmacy, Moscow, RUSSIAN FEDERATION.

1089 Influence of Sterilized Human Fecal Extract on the Sensitivity of *Salmonella enterica* ATCC 13076 and *Listeria monocytogenes* ATCC 15313 to enrofloxacin
Y. Ahn, R. Stuckey, K. Sung, F. Rafii, C. E. Cerniglia; NCTR/US FDA, Jefferson, AR.

1090 Chromosomal Determinants of Aminoglycoside Resistance in *Pseudomonas aeruginosa*
T. Krahn, J. Tilak, C. Gilmour, S. Fraud, C. Lau, K. Poole; Queen's Univ., Kingston, ON, CANADA.

1091 Novel Quinolone Resistance Gene Found in Produce
H. Berman[1], E. Raphael[2], O. Marjanovic[1], L. Riley[1]; [1]Univ. of California, Berkeley, Berkeley, CA, [2]Emory University, Atlanta, GA.

1092 Unraveling Gentamicin Resistance Genes in Forest Soil Metagenomics
F. X. Ferrer-Gonzalez[1], C. Rios-Velazquez[2]; [1]UPR-M, Mayaguez, PR, [2]Biology Dept. at UPR-M, Mayaguez, PR.

1093 Poultry-associated Esbl-positive *E. coli* Grow in an ex vivo Gut Flora System without Antibiotic Pressure
G. M. Voets[1], J. Brunner[2], J. Scharringa[1], J. Cohen Stuart[1], M. A. Leverstein - van Hall[1,3], F. H. J. Schuren[2], A. C. Fluit[1]; [1]Univ. Med. Ctr. Utrecht, Utrecht, NETHERLANDS, [2]Dutch Organization for Applied Scientific Res., Zeist, NETHERLANDS, [3]Natl. Inst. for Publ. Hlth.and the Environment, Bilthoven, NETHERLANDS.

1094 Heterogeneous CTX-M-15-producing *Klebsiella pneumoniae* Isolates of Different Phylogenetic Lineages from Southwest Nigeria
B. Ghebremedhin[1], I. Aibinu[2], T. Odugbemi[2], **W. König**[1]; [1]Clinical Microbiol., Magdeburg, GERMANY, [2]Med. Microbiol. & Parasitol., Lagos, NIGERIA.

1095 Characteristics of the Novel Beta-Lactamase SHV-141
M. Pannell, A. King, T. Davies, R. Lee, **K. Bush**; Indiana Univ., Bloomington, IN.

1096 Tat Pathway-Mediated Translocation of the Sec-Pathway Substrate Protein, OprM, an Outer Membrane Subunit of the MexAB-OprM Xenobiotic Extrusion Pump in *Pseudomonas aeruginosa*
H. Yoneyama[1], K. Akiba[1], T. Ando[1], T. Nakae[2], E. Isogai[1]; [1]Graduate Sch. of Agricultural Sci., Tohoku Univ., Sendai, JAPAN, [2]Kitasato Univ., Sagamihara, JAPAN.

1097 Antibiotic Induced RNAIII Expression Confers a Fitness Cost in *Staphylococcus aureus* Giving a Selective Growth Advantage to agr Negative Isolates
W. Paulander; Univ. of Copenhagen, Copenhagen, DENMARK.

1098 Co-resistance to Polymyxin B in *blaKPC-positive Enterobacteriaceae* Strains: Spread of a Major Clone of *Klebsiella pneumoniae* in Several Hospitals in Brasília, Brazil
C. Faria-Junior[1], A. C. Vieira[1], Z. G. Silva[1], A. L. Pereira[2,3], KPC Study Group; [1]Bacteriology Section, Central Lab. of Publ. Hlth.(LACEN-DF), Brasilia, BRAZIL, [2]Lab. of Microbiol., Dept. of Cell Biology, Univ. of Brasília, Brasilia, BRAZIL, [3]Coll. of Ceilândia, Univ. of Brasília, Brasília, BRAZIL.

1099 Investigation of the Effects of Subtherapeutic Cephalosporin Treatment on the Fitness of *bla*$_{CMY-2}$—Positive *Salmonella*
P. Deike, J. Gray, H. Hulsebus; Des Moines Univ., Des Moines, IA.

1100 Discovery of Genes in *E. coli* Conferring Resistance to Ethylhexylglycerin, an Antimicrobial Sensitizing Agent Through a Combinatorial Approach
H. J. Kim[1], D. Mitra[1], S. R. Kim[2], Y. S. Jin[2], B. F. Brehm-Stecher[1]; [1]Iowa State Univ., Ames, IA, [2]Univ. of Illinois at Urbana-Champaign, Urbana, IL.

1101 Peristaltic Drug Export Mechanism of the AcrB Multidrug Efflux Pump
S. Yamasaki[1,2], K. Nishino[1], R. Nakashima[1], K. Sakurai[1], A. Yamaguchi[1,2]; [1]ISIR, Osaka Univ., Osaka, JAPAN, [2]Grad. Sch. of Pharm. Sci., Osaka Univ., Osaka, JAPAN.

1102 Regulation of *mexT*-Mediated *mexEF*-oprN Expression and *mexAB*-oprM Depression by an Upper Regulator *mexS* in *Pseudomonas aeruginosa*
M. Uwate[1], Y-k. Ichise[1], A. Shirai[1], T. Omasa[1], T. Nakae[2], H. Maseda[1]; [1]Technology and Sci., The Univ. of Tokushima Graduate Sch., Tokushima, JAPAN, [2]Lab. for Antimicrobial Agents, Kitasato Inst. for Life Sci., Kitasato Univ., Tokyo, JAPAN.

1103 The Evolution of Colistin Resistance in *Pseudomonas aeruginosa*
N. Jochumsen[1], R. L. Marvig[1], S. Damkiær[1], R. L. Jensen[2], M. O. A. Sommer[1], S. Molin[1], A. Folkesson[1]; [1]Ctr. for Systems Microbiol., DTU-Systems Biology, Technical Univ. of Denmark, Kgs. Lyngby, DENMARK, [2]Novozymes AS, Bagsværd, DENMARK.

1104 Genetic Properties of an ESBL-producing *Proteus mirabilis* Strains Isolated from the Same Patient within a Short Period of Time
A. Kanayama[1], M. Hasegawa[1], U. Uchino[2], H. Aoki[2], N. Hiruta[2], F. Ikeda[3], A. Kaneko[3], I. Kobayashi[1]; [1]Toho Univ., Faculty of Nursing, Dept. of Infection Control and Prevention, Tokyo, JAPAN, [2]Toho Univ., Sakura Med. Ctr., Chiba, JAPAN, [3]Tokai Univ., Kanagawa, JAPAN.

1105 Comparative Analysis of Incompatibility Group FIB Plasmids from Multidrug Resistant *Salmonella enterica* Serotype Heidelberg Isolates
J. Han[1], A. Lynne[2,3], D. David[3], H. Tang[4], R. Nayak[1], S. Foley[1,3]; [1]NCTR/FDA, Jefferson, AR, [2]Sam Houston State Univ., Huntsville, TX, [3]Marshfield Clinic Res. Fndn., Marshfield, WI, [4]Z-Tech Corp./NCTR/FDA, Jefferson, AR.

1106 The Primary Promoter of *bla*$_{KPC}$ is Responsible for the Level of Expression Resulting in β-Lactam Resistance
A. L. Roth, P. D. Lister, N. D. Hanson; Creighton Univ., Omaha, NE.

098 Regulation of Virulence III (Division B)

10:45 a.m. – 12:30 p.m.; Poster Hall

1107 Dual Regulation of CRP on *Vibrio vulnificus* cytotoxins
Y. Kim[1], S. Lee[2], B. Kim[1], H. Choy[2], J. Rhee[2]; [1]Dongshin Univ., Naju, KOREA, REPUBLIC OF, [2]Chonnam Natl. Univ., Gwangju, KOREA, REPUBLIC OF.

1108 Molecular Characterization of ToxR Activity and Stability in *Vibrio cholerae*
V. H. I. Fengler, E. C. Boritsch, S. Tutz, A. Seper, S. Roier, S. Schild, J. Reidl; Univ. of Graz, Graz, AUSTRIA.

1109 In *Staphylococcus aureus*, the Two Auxiliary Proteins, SaeP and SaeQ, of the SaeRS Two Component System Negatively Control the sae-Signaling by Activating the Phosphatase Activity of the Sensor Kinase SaeS
T. Bae[1], D-W. Jeong[1], M. B. Jones[2], K. Shatzkes[2], H. Cho[1], F. Sun[3], Q. Ji[3], C. Li[1], S. N. Peterson[2], C. He[3]; [1]Indiana Univ. Sch. of Med.-Northwest, Gary, IN, [2]J. Craig Venter Inst., Rockville, MD, [3]The Univ. of Chicago, Chicago, IL.

1110 Role of the ClpXP Protease in the Susceptibility of *Bacillus anthracis* to Antimicrobial Agents
C. Evans, S. Flanigan, S. McGillivray; Texas Christian Univ., Fort Worth, TX.

1111 Linkage of Temperature- and Cell Contact-Dependent Expression of the Major Virulence Regulator LcrF in Yersinia *Pseudotuberculosis*
R. Steinmann[1], W. Opitz[1], K. Böhme[1], J. Kortmann[2], F. Narberhaus[2], H. Wolf-Watz[3], P. Dersch[1]; [1]Helmholtz Ctr. for Infection Res., Braunschweig, GERMANY, [2]Ruhr-Univ. Bochum, Bochum, GERMANY, [3]Umeå Univ., Umeå, SWEDEN.

1112 Cation Ion Transport in Type III Secretion and Pathogenesis of *Salmonella*
Y. Liu, K. Ho, J. Su, **S. Lu**; Univ. of California, Berkeley, CA.

1113 An ABC-type Efflux Pump, *MacA*B, Is Involved in Protection of *Salmonella enterica* ser. Typhimurium Against an Oxidative Stress
L. M. Bogomolnaya, K. D. Andrews, M. Talamantes, A. Maple, Y. Ragoza, H. L. Andrews-Polymenis; Texas A&M Hlth.Sci. Ctr., College Station, TX.

1114 Pat and CobB Regulate *Salmonella* Invasion Gene Expression *Via* HilD and Lon Protease
C-C. Hung, C. Altier; Cornell Univ., Ithaca, NY.

1115 Regulation of *Clostridium difficile* Toxin Production by a Quorum Signaling System
C. Darkoh[1,2], H. B. Kaplan[3,4], H. L. DuPont[3,5,6]; [1]Univ. of Texas Hlth.Sci. Ctr., Grauduate Sch. of BioMed. Sci., Houston, TX, [2]Ctr. For Infectious Diseases, Univ. of Texas Sch. of Publ. Hlth., Houston, TX, [3]Univ. of Texas Hlth.Sci. Ctr., Graduate Sch. of BioMed. Sci., Houston, TX, [4]Univ. of Texas Med. Sch., Houston, TX, [5]Univ. of Texas Sch. of Publ. Hlth., Ctr. For Infectious Diseases, Houston, TX, [6]Baylor Coll. of Med., Houston, TX.

1116 Induction of Exopolymeric Substance in *Campylobacter jejuni*
W. Jowiya[1], H. Hussain[1], J. Wade[2], K. Homer[3], N. Dorrell[4], E. Allan[1]; [1]Univ. Coll. London, London, UNITED KINGDOM, [2]King's Coll. Hosp. NHS Fndn. Trust, London, UNITED KINGDOM, [3]King's Coll. London Dental Inst., London, UNITED KINGDOM, [4]London Sch. of Hygiene and Tropical Med., London, UNITED KINGDOM.

1117 Regulated Intramembrane Proteolysis of the Virulence Activator TcpP in *Vibrio cholerae*
W. Teoh, J. S. Matson, V. J. DiRita; Univ. of Michigan, Ann Arbor, MI.

1118 Role of Porins OmpD and OmpW in the Infection of Macrophages Raw264.7 and Balb/c Mice
F. Ipinza[1], D. Monsalva[1], F. Gil[1], I. Calderón[1], V. Bustamante[2], E. Calva[2], C. Saavedra[1]; [1]Univ. Andrés Bello, Santiago, CHILE, [2]Univ. Autónoma de México, Cuernavaca, MEXICO.

1119 Investigation of *Moraxella catarrhalis* Transcriptional Regulator DnrD and its Involvement in Regulation of *M. catarrhalis* Virulence
S. Small, M. Durham-Colleran, W. Wang; FDA, Bethesda, MD.

1120 IscR Regulates Survival and Pathogenesis of *Vibrio vulnificus* by Activating Genes Involved in Motility, Oxidative Stress Defense, epithelial Attachment, and Hemolysis
J. Lim, S. Kil, S. Choi; Seoul Natl. Univ., Seoul, KOREA, REPUBLIC OF.

1121 Characterization of the GerAA Germinant Receptor in *Clostridium perfringens* Non-Food-Borne Isolate F4969
S. S. Banawas[1], D. Paredes-Sabja[2], M. R. Sarker[1]; [1]Oregon State Univ., Corvallis, OR, [2]Univ. Andrés Bello, Santiago, CHILE.

1122 *Bordetella fhaB* Sequences Affect bvgAS Autoregulation and BvgAS Modulation *in vivo*
E. Mason, M. W. Henderson, P. A. Cotter; Univ. of North Carolina, Chapel Hill, NC.

1123 Role of Spore Proteins in the Germination of Epidemic and Non-epidemic Strains of *Clostridium difficile*
K. Lewis[1], M. Mallozzi[1,2], V. K. Viswanathan[1], G. Vedantam[1,2]; [1]Univ. of Arizona, Tucson, AZ, [2]Southern Arizona VA Hlth.care System, Tucson, AZ.

1124 Alteration of Dna Topology Leads to Changes in Flagella Gene Expression in *Campylobacter jejuni*
C. Shortt[1,2], E. Scanlan[2], B. Bourke[1,3], T. Ó Cróinín[1,2]; [1]The Childrens Res. Ctr., Our Lady's Hosp. for Sick Children Crumlin, Dublin, IRELAND, [2]Sch. of Biomolecular and BioMed. Sci., Univ. Coll. Dublin, Dublin, IRELAND, [3]Sch. of Med. and Med. Sci., Univ. Coll. Dublin, Dublin, IRELAND.

1125 Temperature Regulates Iron Acquisition Genes in Pathogenic *Escherichia coli*
C. A. Dehner, P. A. Cote, C. A. White-Ziegler; Smith Coll., Northampton, MA.

1126 A Small Non-coding RNA Confers Lysozyme Resistance to the Intracellular Bacterial Pathogen *Listeria monocytogenes*
T. P. Burke, J. Zemansky, A. Loukitcheva, D. A. Portnoy; UC Berkeley, Berkeley, CA.

1127 A High-Throughput Screen for Small Molecule Inhibitors of the ToxR/TcpP Regulatory Pathway in *Vibrio cholerae*
R. Anthouard, M. Larsen, V. DiRita; Univ. of Michigan, Ann Arbor, MI.

1128 The Initial Characterization of RpoS-Mediated Oxidative Stress Resistance During Urinary Tract Infection by *Escherichia coli* CFT073
A. J. Hryckowian, R. A. Welch; Univ. of Wisconsin-Madison, Madison, WI.

1129 Investigating the Role of the Toxin-encoding Bacteriophage and Host Background on the Expression of Stx2 In *Escherichia coli* O157:H7
E. G. Dudley, C. Chen, K. Goswami; Penn State Univ., University Park, PA.

1130 Both Oxidative and Non-oxidative Neutrophil Pathways Induce *P. aeruginosa* DNA Damage and DinB-Dependent Mucoid Conversion
D. H. Limoli[1], K. M. Host[1], A. B. Rockel[2], D. J. Wozniak[1]; [1]The Ohio State Univ., Columbus, OH, [2]Wake Forrest Univ., Winston-Salem, NC.

1131 The Origin and Genetic Evolution of *Shigella flexneri* Serotype 1c Enteric Bacterium
S-S. TANG[1,2], N. VERMA[1]; [1]Australian Natl. Univ., Canberra, AUSTRALIA, [2]Univ. of Malaya, Kuala Lumpur, MALAYSIA.

099 Secretion Systems, Toxins, and other Secreted Products I (Division B)

10:45 a.m. – 12:30 p.m.; Poster Hall

1132 Pectobacterium carotovorum Pathogenesis on Potato, the Role of the Bacterial T^{3}SS Effector DspE
C. Hogan, H-S. Kim, A. Charkowski; Univ. of Wisconsin, Madison, WI.

1133 Confirmation of the Function of a Putative Hyaluronidase Gene in *Aeromonas hydrophila* by Cloning and Expression in *E. coli*, and Site-Directed Gene Inactivation
S. L. Witcher, A. A. Rice, D. J. McGarey; Kennesaw State Univ., Kennesaw, GA.

1134 Epitope Variation of TcdB from a Hypervirulent Strain of *Clostridium difficile*
J. M. Lanis, L. Heinlen, L. Hightower, J. D. Ballard; Univ. of Oklahoma Hlth.Sci. Ctr., Oklahoma City, OK.

1135 Martx and Hemolysin Play an Essential Role in Tissue Damage and Primary Growth of *Vibrio vulnificus* in Host Gastrointestinal Tract
H. Jeong, K. J. F. Satchell; Dept. of Microbiol.-Immunology, Feinberg Sch. of Med., Northwestern Univ., Chicago, IL.

1136 The Role of H35A Toxoid in Inhibiting Bacterial Adhesion and Invasion
J. Yang, X. Liang, Y. Ji; Univ. of Minnesota, St. Paul, MN.

1137 Identification of the Autotransporter Toxin Pet in *Proteus mirabilis* Strains Isolated from Patients with Urinary Tract Infections
L. Gutiérrez-Lucas, J. Bustos-Martínez, A. Hamdan-Partida, **T. Sainz-Espuñes de Net**; Univ. Autonoma Metropolitana-Xochimilco, Mexico City, MEXICO.

1138 Identification of the Mechanism that Mediates Heme Scavenging from Hemoglobin by the Anthrax Hemophore, IsdX2
E. S. Honsa[1], M. Fabian[2], J. S. Olson[2], A. W. Maresso[1]; [1]Baylor Coll. of Med., Houston, TX, [2]Rice Univ., Houston, TX.

1139 Extracellular Pathogenesis and Autophagy: *Helicobacter pylori* VacA-dependent Autophagic Signaling in Gastric Epithelial Cells
I-J. Kim, P. Jain, S. R. Blanke; Univ. of Illinois at Urbana-Champaign, Urbana, IL.

1140 Functional Analysis of Recombinant Fibroblast-activating Factor of *Porphyromonas gingivalis* on Human Gingival Fibroblasts
K. Y. How[1], P. F. Ong[2], K. P. Song[1]; [1]Monash Univ., Sunway Campus, MALAYSIA, [2]Natl. Univ. of Singapore, SINGAPORE.

1141 Development of a Single-Gene, Signature-Tag-Based Approach in Combination with Alanine Mutagenesis to Identify Listeriolysin O Residues Critical for the *in vivo* Survival of *Listeria monocytogenes*
J. A. Melton-Witt[1], **S. L. McKay**[2], D. A. Portnoy[2]; [1]Novartis Vaccines and Diagnostics, Inc., Emeryville, CA, [2]U.C. Berkeley, Berkeley, CA.

1142 Members of Cytokeratin Family Are Used as Receptor for Pet Toxin Endocytosis During Infection of Epithelial Cells by Enteroaggregative *Escherichia coli*
R. Nava-Acosta, F. Navarro-Garcia; Cinvestav-IPN, Mexico City, MEXICO.

1143 Identification of the Receptors for the *Pseudomonas aeruginosa* Pyocins S4 and S5
A. El-Farash, Q. Wei, **P. E. Cornelis**; Vrije Univ.it Brussel, Brussels, BELGIUM.

1144 Comparative Secretome Analysis of a Food and a Clinical Isolate of *Enterococcus faecalis*
I. Hartmann[1], S. Giubergia[1,2], A. Pessione[2], E. Pessione[2], K. Riedel[1,3]; [1]Microbial Proteomics, Helmholtz-Ctr. for Infection Res., Braunschweig, GERMANY, [2]Dept. of Human and Animal Biology, Università degli Studi di Torino, Turin, ITALY, [3]Inst. of Microbiol., Ernst-Moritz-Arndt Univ. of Greifswald, Greifswald, GERMANY.

1145 Enhanced Virulence of the *Escherichia coli* O157:H7 Spinach-Associated Outbreak Strain in Two Animal Models
T. Zangari[1], A. R. Melton-Celsa[1], A. Panda[2], M. A. Smith[1], I. Taratov[2], M. M. Lipsky[2], L. DeTolla[2], A. D. O'Brien[1]; [1]USUHS, Bethesda, MD, [2]UMD Sch. of Med., Baltimore, MD.

1146 Novel Activities of Isolated Domains Suggest a New Model of Pilus Assembly by the Usher PapC
E. Volkan, B. Ford, K. Dodson, J. Pinkner, S. Hultgren; Washington Univ. Sch. of Med., Saint Louis, MO.

1147 Characterization of the Cell Death Induced by Pet and EspC, Two Autotransporters Secreted by Diarrheagenic *Escherichia coli*
A. Serapio-Palacios, F. Navarro-Garcia; CINVESTAV IPN, Distrito Federal, MEXICO.

1148 Proteomic Analysis of Atypical Y. pestis Strains Isolated from Natural Foci in Georgia
R. Solomonia[1], M. Nozadze[1], E. Mikeladze[2], E. Zhgenti[3], G. Chanturia[3], M. kekeklidze[3], R. J. OBISO, Jr[4], S. Francesconi[5], L. Bakanidze[3]; [1]Life Sci. Res. Ctr. & Ilia State Univ., Tbilisi, GEORGIA, [2]L, Tbilisi, GEORGIA, [3]Natl. Ctr. for Disease Control and Publ. Hlth., Tbilisi, GEORGIA, [4]The Microbe Company, CHRISTIANSBURG, VA, [5]Naval Med. Res. Ctr., Frederick, MD.

1149 *Vibrio vulnificus* Hemolysin Associates with Detergent-Resistant Membranes, But This Localization Is Not Essential for Its Cytotoxicity
T. Kashimoto[1], H. Sugiyama[1], S. Ueno[1], T. Kodama[2], T. Iida[2], N. Susa[1]; [1]Kitasato Univ., Towada, JAPAN, [2]Res. Inst. for Microbial Diseases, Osaka Univ., Osaka, JAPAN.

1150 *Shigella flexneri* Encode Chromosomal and Virulence Plasmid Toxins that Increase Intestinal Secretion in an Ex Vivo Mouse Model
J. M. Harper[1], C. S. Faherty[1], J. P. Nataro[2], A. Fasano[1]; [1]Univ. of Maryland Sch. of Med., Baltimore, MD, [2]Univ. of Virginia Sch. of Med., Charlottesville, VA.

1151 Immunity to *Staphylococcus aureus* Secreted Proteins Protects Rabbits from Serious Illnesses
A. R. Spaulding[1,2], Y-C. Lin[3,2], J. A. Merriman[1,2], A. J. Brosnahan[2], M. L. Peterson[2], P. M. Schlievert[1,2]; [1]Univ. of Iowa, Iowa City, IA, [2]Univ. of Minnesota, Minneapolis, MN, [3]Kaohsiung Med. Univ., Kaohsiung, TAIWAN.

1152 ´Drugs from Bugs´: Bacterial Cell-Penetrating YopM Exploits Endocytic Pathways for Intracellular Targeting
J. Scharnert[1], L. Greune[1], D. Zeuschner[2], M-L. Lubos[1], **M. A. SCHMIDT**[1], C. Rüter[1]; [1]Univ. Münster, Münster, GERMANY, [2]Max-Planck-Inst. für Molekulare Biomedizin, Münster, GERMANY.

1153 Contributions of Three Hemolysins from Uropathogenic *Escherichia coli* Strain CP9 *in vitro* and *in vivo*
R. A. Weingarten, M. A. Smith, C. L. Ventura, A. D. O'Brien; USUHS, Bethesda, MD.

1154 A Novel Cytotoxin Requiring both Type I and Type III Secretion Systems for Intracellular Delivery
D. Neeld, C. Bichsel, J. Jia, S. Jin; Univ. of Florida, Gainesville, FL.

1155 Ultrastructural Analysis of IpaD Docked at the Tip of the *Shigella flexneri* Type III Secretion Apparatus Needle
C. R. Epler[1], N. E. Dickenson[1], E. Bullitt[2], W. L. Picking[1]; [1]Oklahoma State Univ., Stillwater, OK, [2]Boston Univ. Sch. of Med., Boston, MA.

1156 Cellular Analysis of Yersinia Protein Kinase A Autophosphorylation Sites in the Cell and Identification of a Substrate Binding Domain
K. Pha, M. E. Wright, A. I. Aronov, C. C. Heu, M. L. Ma, L. Navarro; Univ. of California, Davis, Davis, CA.

1157 SifB Protein Forms High Molecular Weight Complexes that are Surface-associated in *Salmonella enterica* Serovar Typhimurium
C. P. Santiago, J. W. Wilson; Villanova Univ., Villanova, PA.

1158 Characterization of the Role of EspF Motifs on the Pedestal-like Structure Maturation Induced by EPEC on Epithelial Cells
P. Ugalde-Silva, J. Zuñiga, F. Navarro-García; CINVESTAV, México, MEXICO.

1159 Ricin Causes Minimal Pathology During Gut Transcytosis and Dissemination but Causes Mortality as a Result of Shock in Mice
A. Flora, J. F. Sinclair, L. D. Teel, A. D. O'Brien; Uniformed Services Univ. of the Hlth.Sci., MD.

100 Diagnostic Bacteriology: Molecular Identification of Gram Positive Organisms (Division C)

10:45 a.m. – 12:30 p.m.; Poster Hall

1160 Identification of DNA Signatures Suitable for Developing into Real-Time PCR assays by Whole Genome Sequence Approaches: Using *Streptococcus pyogenes* as a Pilot Study
G-C. Hung, K. Nagamine, B. Li, S-C. Lo; FDA, Bethesda, MD.

1161 Evaluation of Rapid Diagnostic Methods Used for Identification of *Staphylococcus* species in Blood Culture Samples
R. Dhar, W. Al Fouzan; Farwania Hosp., KUWAIT.

1162 Combination of Culture and PCR with Pyrosequencing Permits Early Detection of Bloodstream Infections from Incubating Blood Culture Bottles
J. A. Jordan, M. S. Moore, C. D. McCann, J. Pietrusz, L. May, G. L. Simon; The George Washington Univ., Washington, DC.

1163 Evaluation of the Verigene Gram-Positive Blood Culture Test (BC-GP)
C. J. Anderson, K. Kaul, B. Voss, R. B. Thomson; NorthShore Univ. Hlth.System, Evanston, IL.

1164 Detection of Group A *Streptococcus* from Throat Swabs by PCR using Roche and Focus ASRs
J. Uhl, F. Cockerill, III, R. Patel; Mayo Clinic, Rochester, MN.

1165 Utility of Broad-range PCR and DNA Sequencing Targeting the Chaperonin-60 Gene (*cpn60*) for the Identification of Medically-Important Bacteria
W. Probert, Z. Berrada, S. Kleinstein, J. Ely, J. Hacker; California Dept. of Publ. Hlth., Richmond, CA.

1166 Polymerase Chain Reaction (PCR) Based Identification of VanA and VanB Genes for the Detection of Vancomycin Resistant *Enterococci* (VRE) from Rectal Samples in a Long Term Rehabilitation Hospital
T. Ranke[1], M. Lee[1], G. Robinson[1], T. Karchmer[2], J. K. Johnson[1]; [1]Univ. of Maryland, Baltimore, Baltimore, MD, [2]BD Diagnostics, Sparks, MD.

1167 Real-time MRSA PCR Assay on the Sample-to-Result BD MAX Platform Reduces Hands-on-Time Considerably Compared to the SmartCycler Platform
C. M. Moloney[1], J. T. Welle[1], M. B. Campbell[1], K. A. Heath[1], I. L. Thomas[1], T. B. T. Nu[1], D. Fuller[2], M. Oethinger[1]; [1]Providence Lab. Services, Portland, OR, [2]Wishard Hlth.Services-Indiana Univ. Sch. of Med., Indianapolis, IN.

1168 Variations in *Staphylococcus aureus*-specific *nuc* Gene Can Potentially Lead to Misidentification of MRSA
S. V. Hoegh, M. N. Skov, T. G. Jensen, M. Kemp; Dept. of Clinical Microbiol., Odense Univ. Hosp., Odense, DENMARK.

1169 Isothermal amplification and detection of Group A *Streptococci* from Throat Swabs
K. Kozak[1], R. Ponaka[1], V. Slepnev[1], E. Beckman[1], S. Coyne[1], A. Hindupur[1], J. Wince[1], J. Mortensen[2], D. Mayne[3]; [1]Meridian BioSci., Cincinnati, OH, [2]Cincinnati Children's Hosp. Med. Ctr., Cincinnati, OH, [3]Sacred Heart Hosp., Pensacola, FL.

1170 Evaluation of the *Illumigene*® Group B *Streptococcus* Molecular Assay Using Strep B Carrot Broth™ Enrichment Cultures
L. P. DiPersio[1], J. R. DiPersio[1], T. Kress[2], L. Gray[2]; [1]Summa Hlth. System, Akron, OH, [2]Bethesda North/Good Samaritan Hosp., Cincinnati, OH.

1171 Multisite Comparison of the Smartcycler and Xpert GBS Assays for the Detection of Group B *Streptococcus* from Direct Swab and Broth-Enriched Specimens
B. W. Buchan[1,2], **N. W. Anderson**[1], K. A. Vaughan[3], T. E. Davis[4], D. Fuller[4], D. Mayne[5], N. A. Ledeboer[1,2]; [1]Med. Coll. of Wisconsin, Milwaukee, WI, [2]Dynacare Lab., Milwaukee, WI, [3]Dyncare Lab., Milwaukee, WI, [4]Wishard Mem. Hosp., Indianapolis, IN, [5]Sacred Heart Hosp., Pensacola, FL.

1172 Multicenter Clinical Evaluation of the Sample-to-Result BD MAX MRSA System for the Rapid Detection of MRSA Directly from Nasal Swabs
B. W. Buchan[1,2], **D. S. Podzorski**[2], G. C. Reymann[2], E. A. Herman[2], L. L. Steed[3], J. Pennington[3], D. Fuller[4], J. Talbott[4], M. Oethinger[5], C. M. Moloney[5], N. A. Ledeboer[1,2]; [1]Med. Coll. of Wisconsin, Milwaukee, WI, [2]Dynacare Lab., Milwaukee, WI, [3]Med. Univ. of South Carolina, Charleston, SC, [4]Wishard Hlth.Services - Indiana Univ. Sch. of Med., Indianapolis, IN, [5]Providence Portland Med. Ctr., Portland, OR.

1173 Enhanced Detection of Group B *Streptococcus* Colonization in Pregnant Women Using the PCR-based BD MAX™ GBS Assay
S. Whittier, R. Huard, P. Della-Latta; Columbia Univ. Med Ctr, New York, NY.

1174 Rapid Real Time PCR Assay for the Detection of Group B *Streptococcus* (GBS) in Lim Broth Cultures
B. A. Brown, A. McCaffrey, L. Lee, A. Mokkapati, L. Western; Cepheid, Sunnyvale, CA.

1175 Evaluation of Potential Inhibitory Effects of Biological and Chemical Materials on the BD MAX Cdiff Assay a New Automated Molecular Assay
N. Paquette, R. Therrien, S. Matte, C. Roger-Dalbert; BD Diagnostics-Infectious Disease, Quebec, QC, CANADA.

1176 Molecular vs. Culture: Detection of Group B *Streptococcus* (GBS) Colonization in Pregnancy
C. Young, **J. Houseman**, M. Garrasi, D. Newton, W. LeBar; Univ. of MI Hlth.System, Ann Arbor, MI.

1177 IMS/ATP Isolation and Detection of Gram-positive Organisms in Blood with PCR Confirmation of *Staphylococcus aureus*/MRSA
D. M. Hunter, D. V. Lim; Univ. of South Florida, Tampa, FL.

1178 Comparison of the IMDx™ VanR for Abbott m2000™ Assay to Culture for Vancomycin Resistant *Enterococcus* (VRE)
C. Young, M. Garrasi, W. LeBar, D. Newton; Univ. of MI Hlth.System, Ann Arbor, MI.

1179 Molecular Typing of PVL Positive *Staphylococcus aureus* Using High Resolution Melting Analysis
K. Otokunefor, A. Cockayne, R. James; Univ. of Nottingham, Nottingham, UNITED KINGDOM.

1180 Development and Evaluation of a High-throughput Custom ABI OpenArray Providing Simultaneous Detection of 26 Genetic Markers to Characterize *Staphylococcus aureus*
E. Nazarian, L. Mingle, A. Chiefari, M. Dickinson, L. Thompson, T. Passaretti, D. Kohlerschmidt, C. Egan, N. Dumas, K. Musser; Wadsworth Ctr., Albany, NY.

1181 Performance of Cepheid Xpert® SA Nasal Complete PCR Assay Compared to Cultures for Detection of Methicillin-Sensitive *Staphylococcus aureus* and Methicillin-Resistant *Staphylococcus aureus* Colonization
P. A. Patel, K. Peterson, A. Grayes, D. Schora, S. Boehm, K. Schora, L. R. Peterson; NorthShore Univ. Hlth.System, Evanston, IL.

1182 Comparison of Two Molecular Group B *Streptococcus* Screen Assays to Culture
D. Mayne, J. McVay, M. Tubban; Sacred Heart Hosp., Pensacola, FL.

1183 Laboratory Evaluation of the Focus DX Group A *Streptococcus* ASR in a Sample to Answer Format
E. Vendrone, S. Silbert, V. Healer, **R. Widen**; Tampa Gen. Hosp., Tampa, FL.

1184 Detection of *Streptococcus agalactiae* (Group B *Streptococcus*, GBS) in Genital Specimens Using Direct Xpert GBS Realtime PCR vs. *Illumigene* Group B *Streptococcus* (GBS) with LIM Broth Compared to Bacterial Culture
L. Zhang[1], C. Russell[2], C. Kou[2], C. Ying[2], T. Koyamatsu[2], W. Kim[2,3], **M. J. BANKOWSKI**[2,3]; [1]Univ. of Hawaii, Honolulu, HI, [2]DLS and The Queen's Med. Ctr., Aiea, HI, [3]John A. Burns Sch. of Med., Dept. of Pathology, Honolulu, HI.

1185 Automated Ribotyping for Identification of Coagulase-Negative Staphylococci Isolated from Patients with Conjunctivitis
F. O. Wegerhoff, R. D. Jackson, K. L. Booe; Covance Central Lab. Services, Indianapolis, IN.

1186 Characterization of Urease-Producing Strains of *Corynebacterium propinquum*
K. A. Bernard, A. L. Pacheco, T. Burdz, D. Wiebe; Natl. Microbiol. Lab., Winnipeg, MB, CANADA.

1187 Beyond the SCCmec Assay: Detecting and Distinguishing MRSA and MRCNS in Clinical Specimens
E. M. Driebe[1], J. R. Bowers[1], B. R. Wojack[2], A. Knadler[1], M. Saubolle[2], D. M. Englethaler[1], P. S. Keim[1]; [1]The Translational Genomics Res. Inst., Flagstaff, AZ, [2]Lab. Sci. of Arizona, Res. Dept., Tempe, AZ.

1188 Detection of Genes for Enterotoxins, Exfoliative Toxins, and Toxic Shock Syndrome Toxin-1 in Methicillin-resistant *Staphylococcus aureus* Clinical Isolates Found in Karachi
Y. Taj[1], F. E. Abdullah[2], S. W. Ali[3], **S. U. Kazmi**[1]; [1]Dept. of Microbiol. - Univ. of Karachi, Karachi, PAKISTAN, [2]Dept. of Pathology - SMC - Dow Univ. of Hlth.Sci. Karachi, Karachi, PAKISTAN, [3]Ziaudding Univ. Hosp., Karachi, PAKISTAN.

1189 Evaluation and Use of the BD GeneOhm™ Staph SR Assay for the Rapid Identification of Methicillin-Sensitive *Staphylococcus aureus* and Methicillin-Resistant *Staphylococcus aureus* from Nasal Swabs in Total Hip Replacement and Total Knee Replacement Patients in an Australian Tertiary Teaching Hospital
J. Morgan[1], N. Stingemore[2], I. Kay[1], W. Calnan[2], D. McGechie[2]; [1]Pathwest Lab. Med., Perth, AUSTRALIA, [2]Pathwest Lab. Med., Fremantle, AUSTRALIA.

101 Diagnostic Mycobacteriology and Parasitology (Division C)

10:45 a.m. – 12:30 p.m.; Poster Hall

1190 Validation of the MALDI Biotyper for Identification of Acid Fast Bacilli from Solid Media and Broth Culture Using Two Processing Methods
K. M. Riebe[1], B. W. Buchan[2,1], M. Timke[3], M. Kostrzewa[3], **N. A. Ledeboer**[2,1]; [1]Dynacare Lab., Milwaukee, WI, [2]Med. Coll. of Wisconsin, Milwaukee, WI, [3]Bruker Daltonic GmbH, Bremen, GERMANY.

1191 Use of Pyrosequencing for Rapid Identification of Acid Fast Bacilli
R. Voorhies[1], I. Ratkiewicz[2], P. Hamilton[1], **J. Aslanzadeh**[3]; [1]Clinical Lab. Partners, Newington, CT, [2]Clinnical Lab. Partners, Newington, CT, [3]Hartford Hosp., Hartford, CT.

1192 Determination of Resistance Levels to Rifabutin and Rifampin in Clinical Isolates of *Mycobacterium tuberculosis* with Various *rpoB* mutations
Z. L. Berrada[1], S-Y. Lin[1], D. Nguyen[1], G. F. Schecter[1], J. M. Janda[1], W. Elmaraachli[2], A. Catanzaro[2], E. Desmond[1]; [1]California Dept. of Publ. Hlth., Richmond, CA, [2]Univ. of California, San Diego, San Diego, CA.

1193 Pyrosequencing Is an Efficient Tool for Rapid Detection of Extensively Drug Resistant Tuberculosis
S-Y. G. Lin[1], D. Nguyen[1], F. Arroyo[1], J. Kaping[2], C. Rodrigues[3], G. Coetzee[4], T. Victor[5], V. Crudu[6], T. Gler[7], R. Garfein[2], A. Catanzaro[2], E. Desmond[1]; [1]CDPH, Richmond, CA, [2]UCSD, San Diego, CA, [3]Hinduja Natl. Hosp., Mumbai, INDIA, [4]Natl. Hlth.Lab. Sevices, Johannesburg, SOUTH AFRICA, [5]Stellenbosch Univ., SOUTH AFRICA, [6]Inst. of Phthisiopneumology, Chisinau, MOLDOVA, REPUBLIC OF, [7]Makati Med. Ctr., Makati City, PHILIPPINES.

1194 Evaluation of the Sensititre® SLOMYCO Plate for Antimicrobial Susceptibility Testing of Slowly-Growing, Nontuberculous Mycobacteria
S. M. Deml[1], K. R. Klein[2], S. L. Wohlfiel[1], B. A. Brown-Elliott[2], R. J. Wallace, Jr.[2], N. L. Wengenack, Ph.D.[1]; [1]Mayo Clinic, Rochester, MN, [2]The Univ. of Texas Hlth.Sci. Ctr., Tyler, TX.

1195 Differentiation of the Species in the *Mycobacterium tuberculosis* complex using Matrix Assisted Laser Desorption Ionization Time of Flight
A. P. Barker[1,2], S. H. Siady[2], S. E. Slechta[2], S. Cohen[2], K. E. Hanson[1,2]; [1]Univ. of Utah, Salt Lake City, UT, [2]ARUP Lab., Salt Lake City, UT.

1196 Extraction of DNA from *Mycobacteria* Using the Akonni TruTip®
K. DIONNE, M. Romagnoli, K. Carroll, N. Parrish; Johns Hopkins Med. Inst.s, Baltimore, MD.

1197 Improved Pyrazinamide Broth Susceptibility Testing for *Mycobacterium tuberculosis* Complex
L. Hall[1], **B. C. Lucas**[1], J. Sotos[2], S. L. Wohlfiel[1], N. M. Sullivan[3], N. L. Wengenack[1]; [1]Mayo Clinic, Rochester, MN, [2]Thermo Fisher Scientific, Sun Prairie, WI, [3]Mayo Clinic, Sun Prairie, WI.

1198 Multi-Center Evaluation of Time-to-Negative Broth Cultures for *Mycobacterium tuberculosis* Complex
F. C. Tyrrell, A. M. Starks, Members of the CDC TB Laboratory Project Workgroup; CDC, Atlanta, GA.

1199 Direct Acid-Fast Bacteria (AFB) Detection and Identification from Paraffin-Embedded Tissues Using a Pyrosequencing Method
J. R. Bao, R. B. Clark, R. N. Master, B. G. Poselero, E. J. Belardo, M. C. Belardo, P. R. Tummala, A. E. Piscitelli, J. J. Wright; Quest Diagnostics Nichols Inst., VA.

1200 Rapid Detection of Isoniazid Resistance in *Mycobacterium tuberculosis* by Loop-Mediated Isothermal Amplification in the Presence of DNA Mismatch Repair Protein mutS
G. Seyrig, R. D. Stedtfeld, M. Kronlein, S. A. Hashsham; Michigan State Univ., EAST LANSING, MI.

1201 Comparison of Microsporidia Detection by Modified Trichrome Stain and Direct Fluorescent Antibody
T. A. Harris[1], R. J. Durrant[1], M. R. Couturier[1,2], M. A. Fisher[1,2]; [1]Associated Regional and Univ. Pathologists Lab., Inc., Salt Lake City, UT, [2]Univ. of Utah Sch. of Med., Salt Lake City, UT.

1202 Survey of Reliability of the Malaria Parasitological Diagnosis in Mbujimayi (DR Congo)
T. G. Disashi, E. K. Tshibangu, N. K. Kayiba, J. N. Nsenda; Univ. of Mbuji-Mayi, Mbuji-Mayi, CONGO, DEMOCRATIC REPUBLIC OF THE.

1203 Evaluation of a Real-Time PCR Assay for Detection of *Pneumocystis jirovecii* in Bronchoalveolar Lavage and Sputum Specimens
S. B. Selvaraju, A. Bombach, D. Vicino, D. J. Hardy; Univ. of Rochester Med. Ctr., Rochester, NY.

1204 Use of the Rapid BinaxNOW Malaria Test in a 24-Hour Laboratory with Microbiology Technologists and Clinical Laboratory Generalists Decreased Malaria Testing Turnaround Times in a Non-Endemic, Pediatric Setting
K. V. Ota[1,2], D. Blecker-Shelly[1], K. L. McGowan[1,2]; [1]The Children's Hosp. of Philadelphia, Philadelphia, PA, [2]Perelman Sch. of Med., Univ. of Pennsylvania, Philadelphia, PA.

1205 Epidemiologic Surveillance of *Blastocystis hominis* Isolates from Madigan Healthcare System Patients in 2011
A. R. Jones, S. T. Demons, S. D. Mahlen; Madigan Hlth.care System, Tacoma, WA.

1206 Multiplex Real Time PCR Detection of Five *Plasmodium* Species Known to Infect Humans
B. Couturier[1], B. Alabyev[2], M. Schwarz[1], B. Taggart[1], R. She[3,1], R. Schlaberg[3,1], D. Hillyard[3,1], M. Fisher[3,1]; [1]ARUP Inst. of Clinical and Experimental Pathology, Salt Lake City, UT, [2]Epoch BioSci., Bothell, WA, [3]Univ. of Utah, Sch. of Med., Salt Lake City, UT.

1207 Fluorescent In-Situ Hybridizations Assays (P-Genus and PFV- FISH) for Detection and Differentiation of *Plasmodium* Species Directly on Blood Smears
J. S. SHAH[1], O. Mark[1], H. Weltman[1], N. Barcelo[1], M. York[1], P. Obare[2], S. Omar[3], S. Venkatesh[4], R. Sinha[5], S. Lee[1], E. Caoili[6], N. S. Harris[1]; [1]ID-FISH Technology Inc., PALO ALTO, CA, [2]Kenya Med. Res. Inst., Kisumu, KENYA, [3]Kenya Med. Res. Inst., Kilifi, KENYA, [4]Manipal Univ., Manipal, INDIA, [5]Kasturba Med. Coll., Mangalore, INDIA, [6]IGeneX Inc., PALO ALTO, CA.

102 Diagnostic Mycology: All Methods and Susceptibility Testing (Division C)

10:45 a.m. – 12:30 p.m.; Poster Hall

1208 Comparison of Slide KOH Digestion and Tube KOH Digestion for the Microscopic Detection of Fungal Elements in Nail Specimens
R. Podzorski, M. Mesa, S. Feitel, S. Rockteacher, A. Sabourin, L. Hartzel, K. Leidinger, M. Jozwiak, J. Mayhew, H. Graves, B. Moerschel, M. Schlosser; Waukesha Mem. Hosp., Waukesha, WI.

1209 Evaluation and Comparison of Antifungal Susceptibility Methods against Medically Important Non Dermatophyte Filamentous Fungi
P. Gupta[1], V. Khare[2], M. Singh[1]; [1]Chatrapati Shahuji Maharaj Med. Univ., Lucknow, INDIA, [2]Hind Inst. of Med. Sci., Lucknow, INDIA.

1210 *Candida famata* as a Cause of Invasive Candidiasis: Misidentification in Two Global Surveillance Systems
M. Castanheira[1], L. N. Woosley[1], R. Prochaska[1], S. A. Messer[1], D. J. Diekema[2], R. N. Jones[1], **M. A. Pfaller**[2]; [1]JMI Lab., North Liberty, IA, [2]Univ. of Iowa, Iowa City, IA.

1211 Evaluating the Impact of the Peptide Nucleic Acid Fluorescent In-Situ Hybridization (PNA FISH) Yeast Traffic Light Assay for the Management of Candidemia
J. C. Davis[1], D. C. Reynolds[2], M. R. Wallace[2], V. J. Hoover[2], **C. A. DeRyke**[2]; [1]Univ. of Florida, Orlando, FL, [2]Orlando Regional Med. Ctr., Orlando, FL.

1212 Evaluation of a Newly Developed Lateral Flow and Enzyme-linked Immunoassay for the Detection of Cryptococcal Antigen
J. Hansen[1], A. Barker[2], B. Neary[3], S. Johnson[1], E. S. Slechta[1], S. Bauman[3], K. E. Hanson[2]; [1]ARUP Lab., Salt Lake City, UT, [2]Univ. of Utah, Salt Lake City, UT, [3]Immuno-Mycologics, Inc., Norman, OK.

1213 Evaluation of the BioTyperTM (BRBT) and the Vitek MS (VTMS) for Rapid Identification (ID) of *Candida* species using Matrix-Assisted Laser Desorption Ionization-Time of Flight (MALDI-TOF)
B. M. Willey[1,2], P. Lo[1,2], J. Fuller[3], S. M. Poutanen[1,2,4]; [1]Mount Sinai Hosp., Toronto, ON, CANADA, [2]Univ. Hlth.Network, Toronto, ON, CANADA, [3]Univ. of Alberta Hosp., Edmonton, AB, CANADA, [4]Univ. of Toronto, Toronto, ON, CANADA.

1214 Bacterial Contamination and the Elimination of Blood BHI Agar from the Fungal Media Battery
S. Parshall, S. Schindler, G. Procop; Cleveland Clinic, Cleveland, OH.

1215 Comparative Methods of Speciation of *Candida* Isolated from Patients with Vulvovaginitis in Ekpoma and Environs, Nigeria
N. J. Inyang[1], **I. B. Enweani**[2], F. I. Esumeh[3], E. Agwu[4], J. A. Olaboye[1], J. O. Ikheloa[1]; [1]Irrua Specialist/Teaching Hosp., Irrua, NIGERIA, [2]Nnamdi Azikiwe Univ., Nnewi Campus, NIGERIA, [3]Ambrose Ali Univ., Ekpoma, NIGERIA, [4]Kampala Intl. Univ., Western Campus, UGANDA.

1216 Time to Detection of Yeasts from Positive Blood Cultures for Different *Candida* Species by the BACT/Alert™ Microbial System: Potential for Inappropriate Empiric Antifungal Therapy
S. Choudhury, P. U. Krishnan; Tan Tock Seng Hosp., SINGAPORE.

1217 Evaluation of a New Chromogenic Agar for Isolation and Identification of *Candida* species
J. D. Perry[1], S. Ghirardi[2], L. Barbaux[2], M. Cellier[2], E. Courbière[2], M-C. Saccomani[2], S. Orenga[2]; [1]Freeman Hosp., Newcastle upon Tyne, UNITED KINGDOM, [2]bioMerieux, FRANCE.

1218 Comparison of Two Matrix-Assisted Laser Desorption Ionization-Time of Flight (MALDI-TOF) Mass Spectrometry (MS) Platforms for the Identification of Yeast Using a Direct On-Plate Extraction Method
E. S. Theel[1], L. Hall[1], J. Hyman[2], N. L. Wengenack[1]; [1]Mayo Clinic, Rochester, MN, [2]bioMerieux Inc., Durham, NC.

1219 Molecular Identification of *Fusarium spp.* Isolated from Fungal Keratitis Samples
L. X. Xin, Z. Min, S. X. Rong, S. X. Guang, W. Z. Qun, W. Mei, H. Y. Fei, S. Y. Feng; Beijing Tongren Hosp., Capital Med. Univ., Beijing, CHINA.

1220 Comparative Evaluation of the BD Phoenix YEAST ID Panel and the Vitek2Colorimetric Yeast Identification Card for Identification of yeast isolated from Clinical Samples
M. Morgan; Cedars Sinai Med. Ctr., Los Angeles, CA.

1221 Evaluation of the Phoenix™ YEAST ID for the Automated Identification of Yeast Isolates
M. Majors, A. Robinson; PAML and Providence Sacred Heart Med. Ctr., SPOKANE, WA.

1222 Identification of Bacteria and Yeast with a MALDI-TOF System
K. Van Horn[1], Z. Woodward[1], J. Fernandez[1], R. Clark[2], F. Yohannes[2], B. Eshete[2], D. Schwab[3], K. Azad[3], J. Hong[4], P. Cerwinka[5], R. Cammarata[5]; [1]Focus Diagnostics, Cypress, CA, [2]Quest Diagnostics, Chantilly, VA, [3]Quest Diagnostics, San Juan Capistrano, CA, [4]Quest Diagnostics, Baltimore, MD, [5]Quest Diagnostics, Collegeville, PA.

1223 Evaluation of a Temperature-Modified Germ Tube Test to Differentiate *Candida albicans* from *Candida dubliniensis*
G. Lehman, G. Tan, M. Do, T. Hua, E. M. Peterson; Univ. of California Irvine Med. Ctr., Orange, CA.

1224 Spectrum of Fungal Rhino-sinusitis: Indian Perspective
M. Singh[1], P. Gupta[1], S. Prateek[1], V. Khare[2]; [1]Chhatrapati Shahuji Maharaj Med. Univ., Lucknow, INDIA, [2]Hind Inst. of Med. Sci., Lucknow, INDIA.

1225 Clinical *Aspergillus* Isolates; Species Distribution and Antifungal Susceptibility in a Tertiary Hospital, Turkey
Y. Oz[1], **F. Aksit**[1], M. Aslan[1], N. Kasifoglu[1], N. Kiraz[2]; [1]Eskisehir Osmangazi Univ. Faculty of Med., Dept. of Microbiol., Eskisehir, TURKEY, [2]Istanbul Univ. Cerrahpasa Med. Faculty, Dept. of Microbiol., Istanbul, TURKEY.

1226 Development of a Molecular Assay to Identify Fungi to the Species Level from Culture, Fresh-Frozen or Formalin Fixed Paraffin Embedded Tissue within 12 hours
D. Nowak, L. Samuel, **R. J. TIBBETTS**; Henry Ford Hlth.System, Detroit, MI.

1227 The Development and Analytical Assessment of a *P. boydii* complex PCR
H. B. Desai, G. W. Procop; Cleveland Clinic Fndn., Cleveland, OH.

1228 Detection and Identification of Fungal Pathogens in Bronchoalveolar Lavage Specimens using Multilocus PCR-Electrospray Ionization/Mass Spectrometry
J-H. Shin[1,2], R. Randken[3], S. E. Sefers[2], R. Lovari[3], C. D. Quinn[2], S. Meng[2], H. Carolan[3], D. Toleno[3], H. Li[2], J. N. Lee[1], C. W. Stratton[2], C. Massire[3], **Y-W. Tang**[4,2]; [1]Inje Univ. Coll. of Med., Busan, KOREA, REPUBLIC OF, [2]Vanderbilt Univ. Med. Ctr., Nashville, TN, [3]Ibis BioSci.s, Carlsbad, CA, [4]Mem. Sloan-Kettering Cancer Ctr., New York, NY.

1229 Use of Matrix Assisted Laser Desorption Ionization-Time of Flight (MALDI-tof) for Identification of Yeast
D. A. Wilson, **G. W. Procop**; Cleveland Clinic, Cleveland, OH.

1230 Rapid Identification of *Candida parapsilosis* with Loop-mediated Isothermal Amplification
D-X. Shen, K. Wang, C. Liu, R. Chen; Gen. Hosp. of Chinese PLA, Beijing, CHINA.

103 Identification of Bacteria by MALDI-TOF and Other New Molecular Methods (Division C)

10:45 a.m. – 12:30 p.m.; Poster Hall

1231 Detection of Challenging Organisms by Using MALDI-TOF Mass Spectrometry and Pyrosequencing
L. Chandramohan[1], V. Kasinathan[2], P. Revell[1], A. Fothergill[2], Y. F. Wang[2,3]; [1]Baylor Coll. of Med. Texas Children's Hosp., Houston, TX, [2]Emory Univ. Sch. of Med., Atlanta, GA, [3]Grady Mem. Hosp., Atlanta, GA.

1232 Identification of Clinical Isolates by Using MALDI-TOF Mass Spectrometry
D. Halstead[1], A. Fothergill[2], M. Kobayashi[2], L. Han[2], J. Abid[1], Y. F. Wang[2]; [1]Baptist Med. Centr., Jacksonville, FL, [2]Emory Univ. Sch. of Med., Atlanta, GA.

1233 Comparison of Two MALDI-TOF Systems for Microbial Identification
K. Alby[1], M. C. Jones[1], M. B. Miller[2]; [1]Univ. of North Carolina Hlth.care, Chapel Hill, NC, [2]Univ. of North Carolina Sch. of Med., Chapel Hill, NC.

1234 Identification of Mycobacterial Species from Clinical Isolates using Matrix-Assisted Laser Desorption Time-of-Flight Mass Spectrometry
M. Kobayashi[1], C. S. Williams[2], Y. F. Wang[1,2]; [1]Emory Univ. Sch. of Med., Atlanta, GA, [2]Grady Mem. Hosp., Atlanta, GA.

1235 Identification of Gram-negative Rods Isolated in a Brazilian Hospital using MALDI-TOF
M. D. Martino, F. Camargo, T. Fornabaio, P. Koga, I. Siqueira, J. Pasternak; Hosp. Albert Einstein, São Paulo, BRAZIL.

1236 Rapid Identification of Bacteria and Yeasts from Positive Blood Culture Bottles by Using Lysis-Filtration Method and MALDI-TOF Mass Spectrum Analysis with SARAMIS Database
V. Kasinathan[1], **A. Fothergill**[1], J. Hyman[2], J. Walsh[2], X. Huang[3], E. M. Burd[1], T. Drake[3], Y. F. Wang[1,3]; [1]Emory Univ. Sch. of Med., Atlanta, GA, [2]bioMerieux, Durham, NC, [3]Grady Mem. Hosp., Atlanta, GA.

1237 Multicenter Evaluation of the Sepsityper Extraction Kit and MALDI-TOF MS for Direct Identification of Positive Blood Isolates Using the BD BACTEC FX and TREK Diagnostic Blood Culture Systems
K. M. Schieffer[1], P. D. Stamper[2], A. Somogyi[3], S. B. Andrea[4], K. Tan[2], T. Wakefield[1], K. C. Chapin[4,5], D. M. Wolk[3], K. C. Carroll[1,2]; [1]Johns Hopkins Hosp., Baltimore, MD, [2]Johns Hopkins Univ., Baltimore, MD, [3]Univ. of Arizona, Tucson, AZ, [4]Lifespan Rhode Island Hosp., Providence, RI, [5]Brown Univ., Providence, RI.

1238 Evaluation of a Centrifugation-Wash Sample Preparation Method for Positive Blood Culture Rapid Identification by MALDI-TOF MS
T. Ohshiro[1,2], K. Ohkusu[2], C. Miyagi[1], Y. Tamaki[1], C. Goeku[1], J. Kawakami[1], T. Ezaki[2]; [1]Clinical Lab., Naha City Hosp., Naha, Okinawa, JAPAN, [2]Dept. of Microbiol., Gifu Univ. Graduate Sch. of Med., Gifu, JAPAN.

1239 Rapid Automated Multiplex PCR Diagnostics for Blood Pathogens; On-Site Testing in Clinical Microbiology Laboratories
I. M. Ota[1], E. Barker[1], A. Hemmert[1], B. Baarda[1], O. Cham[1], C. Heyrend[1], B. Barrett[1], N. Garrone[1], S. Thatcher[1], R. Crisp[1], P. Lephart[2], S. Silbert[3], C. Kubasek[3], A. J. Blaschke[4], J. Daly[5], H. Salimnia[2,6], R. H. Widen[3], K. Ririe[1]; [1]Idaho Technology, Inc., Salt Lake City, UT, [2]Detroit Med. Ctr. Univ. Lab. (DMCUL), Detroit, MI, [3]Tampa Gen. Hosp. (TGH) Clinical Lab., Tampa, FL, [4]Univ. of Utah Sch. of Med., Salt Lake City, UT, [5]Primary Children's Med. Ctr. (PCMC), Salt Lake City, UT, [6]Wayne State Univ. Sch. of Med., Detroit, MI.

1240 Evaluation of Matrix Assisted Laser Desorption Ionization-Time of Flight (MALDI-TOF) Mass Spectrometry for the Identification of *Corynebacterium* species
D. A. Wilson, G. S. Hall, G. W. Procop, S. S. Richter; Cleveland Clinic, Cleveland, OH.

1241 Matrix Assisted Laser Desorption Ionization-Time of Flight (MALDI-TOF) Mass Spectrometry Identification of Gram-Positive Bacilli (non-*Corynebacterium* sp)
G. S. Hall, D. A. Wilson, G. W. Procop, S. S. Richter; Cleveland Clinic, Cleveland, OH.

1242 Comparison of the Integrated MALDI-Trace System to Manual Specimen Accessioning in Preparation of Specimens for MALDI-TOF Analysis
B. W. Buchan[1,2], **G. C. Reymann**[2], T-L. A. Mackey[2], S. Gnacinski[2], J. A. Rashel[2], N. A. Ledeboer[1,2]; [1]Med. Coll. of Wisconsin, Milwaukee, WI, [2]Dynacare Lab., Milwaukee, WI.

1243 Direct diagnosis of 4 Respiratory Tract Infection Pathogens from Clinical Specimens by Multiplex Polymerase Chain Reaction—all in One Assay
Z. Samra, S. Rosenberg; Rabin Med. Ctr., Petach Tiqva, ISRAEL.

1244 Comparison of the Bruker Biotyper and Vitek MS™ MALDI-TOF Mass Spectrometry Systems for Identification of Gram-Negative and Gram-Positive Aerobic Bacteria
S. A. Cunningham, J. Mandrekar, R. T. Saffert, A. A. Alatoom, R. Patel; Mayo Clinic, Rochester, MN.

1245 Effects of Media Types, Age of Colony, and Direct Extraction Methods on the Accuracy of Organism Identification Utilizing MALDI-TOF Mass Spectrometry
S. Sharp, **K. Weber**, L. Ruden, G. Schoof, S. Rousett; Kaiser Permanente - Northwest, Portland, OR.

1246 Direct Identification of Bacteria Causing Urinary Tract Infections by Matrix-Assisted Laser Desorption Ionization-Time of Flight Mass Spectrometry
W. X. Hua, L. X. Xin, F. Y. Yan, Z. Min; Beijing Tongren Hosp., Capital Med. Univ., Beijing, CHINA.

1247 Classification Models for the Discrimination Between *Streptococci* of Pneumoniae/mitis/oralis Group Based on Their Mass Spectra
L. Ikryannikova[1], A. Filimonova[1], M. Malakhova[1], E. Ilina[1], T. Savinova[2], V. Dubovickaya[2], S. Sidorenko[2], **M. Kostrzewa**[3], V. Govorun[1]; [1]Res. Inst. for Physical-Chemical Med., Moscow, RUSSIAN FEDERATION, [2]Natl. Agency for Clinical Pharmacology and Pharmacy, Moscow, RUSSIAN FEDERATION, [3]Bruker Daltonik GmbH, Bremen, GERMANY.

1248 Pilot Clinical Evaluation of the JBAIDS Scrub Typhus and Rickettsia Detection Kits
K. M. Bourzac[1], W. Watthanaworawit[2], P. Turner[2], S. Blacksell[3], J. Jiang[4], A. L. Richards[4], J. C. Dabisch[5], B. Lingenfelter[1]; [1]Idaho Technology, Inc., Salt Lake City, UT, [2]Shoklo Malaria Res. Unit, Mae Sot, THAILAND, [3]Mahidol-Oxford Res. Unit, Bangkok, THAILAND, [4]Naval Med. Res. Ctr., Silver Spring, MD, [5]Joint Project Management Office for Chemical, Biological Med. Systems – Biosurveillance, Frederick, MD.

1249 Optimization of Laboratory Methods for Identification of Clinically Relevant Gram Positive Organisms Using the Bruker Biotyper MALDI-TOF MS System
E. McElvania TeKippe[1], S. D. Shuey[2], D. W. Winkler[2], M. A. Butler[2], C-A. D. Burnham[1]; [1]Washington Univ. Sch. of Med., St Louis, MO, [2]St. Louis Children's Hosp., St Louis, MO.

1250 Prospective Evaluation of a MALDI-TOF MS System in a Hospital Clinical Microbiology Laboratory for the Identification of Bacteria and Yeasts: a Bench-by-Bench Study to Assess the Impact on Cost-Effectiveness, Turn-Around-Time, and Accuracy
K. Tan[1], B. Ellis[2], R. Lee[2], P. Stamper[1], S. Zhang[1,2], K. Carroll[1,2]; [1]Johns Hopkins Univ., Baltimore, MD, [2]Johns Hopkins Hosp., Baltimore, MD.

1251 Use of VITEK-MS for the Routine Identification of Bacteria and Yeast in the Clinical Microbiology Laboratory
V. Tesic, S. Boonlayangoor, C. Bethel, S. Matushek, S. Nguyen, K. Frank; Univ. of Chicago, Chicago, IL.

1252 Assessment of the Diagnostic Accuracy of Recently Introduced DNA Stool Screening Test
B. A. Gingras[1], S. B. Duncan[1], N. J. Schueller[1], **P. C. Schreckenberger**[2]; [1]IIT Res. Inst., Chicago, IL, [2]Loyola Univ. Med. Ctr., Maywood, IL.

1253 Isolation of Live Bacteria from Clinical Blood Samples Negative by Blood Culture (BC)
S. A. Dryga[1], L-J. Clarizia[1], E. W. Adams[1], T. H. Ung[1], D. E. Standridge[1], S. M. Springer[1], A. A. Rashid[1], J. R. Underwood[1], S. A. Young[2], C. W. Dykes[1], V. C. Esch[1]; [1]nanoMR, Inc, Albuquerque, NM, [2]Tricore Reference Lab., Albuquerque, NM.

1254 MALDI-TOF MS is a Valuable Tool for Detecting Urinary Tract Pathogens from Urine Samples
A. Nakamura[1], E. Yamada[1], K. Nakazawa[1], E. Kotera[1], K. Abe[1], Y. Matsushima[1], O. Ueda[2], Y. Matsuyama[3], H. Wada[1], T. Nobori[1]; [1]Mie Universitiy Hosp., Tsu, Mie, JAPAN, [2]Siemens Hlth.care Diagnostics, Tokyo, JAPAN, [3]Bruker Daltonics, Kanagawa, JAPAN.

1255 Loop-Mediated Isothermal Amplification (LAMP) Method Targeting the cpn60 Gene for Sensitive and Specific Detection of *Streptococcus suis*
Y. Kumagai[1,2], C. Boonthimat[2], N. Kishishita[1,2], M. Gottschalk[3], M. Osaki[4], D. Takamatsu[4], M. Okura[4], A. Kerdsin[5], S. Dejsirilert[5], S. Hamada[1,2]; [1]Osaka Univ., Suita, JAPAN, [2]Thailand-Japan Res. Collaboration Ctr. on Emerging and Re-emerging Infections, Nonthaburi, THAILAND, [3]Université de Montréal, St-Hyacinthe, QC, CANADA, [4]Natl. Inst. for Animal Hlth., Tsukuba, JAPAN, [5]NIH, Nonthaburi, THAILAND.

104 Models and Studies of Host-Pathogen Interactions I (Division D)

10:45 a.m. – 12:30 p.m.; Poster Hall

1256 Phagocytic Superoxide Production of Vaccinated Pigs against Different *Salmonella* Serovars
C. Chu, J-N. Hou, C-P. Wu, L-T. Chin, B-C. Weng, S-H. Wang; Natl. Chiayi Univ., Chiayi, TAIWAN.

1257 *Salmonella enterica* Serovar Typhi Impairment of Epithelial Barrier Integrity: Effects of Wild-Type and Vaccine Strains
M. R. Fiorentino, K. M. Lammers, M. B. Sztein, A. Fasano; Univ. of Maryland, Baltimore, MD.

1258 Interspecies relationship between *Pseudomonas aeruginosa* and *Staphylococcus aureus* in a wound-like environment
A. Clinton, S. DeLeon, K. Rumbaugh; Texas Tech Univ. Hlth.Sci. Ctr., Lubbock, TX.

1259 The role of the T3SS in *P. aeruginosa* Traversal of Multilayered Epithelium within Vital Tissue
A. B. Sullivan[1], C. K. P. Tam[1], D. J. Evans[2,1], S. M. J. Fleiszig[1]; [1]UC Berkeley, Berkeley, CA, [2]Touro Univ.-California, Vallejo, CA.

1260 Identification of Virulence Factors Required for the Nematode Lethality of an Environmental Isolate of *Pseudomonas* chlororaphis
S. S. Strand; The Coll. of Wooster, Wooster, OH.

1261 Identification of Alternative Macrophage Genome Splicing Events from Exposure to Closely Related *Pseudomonas* Strains
P. S. Shwed, J. Crosthwait; Hlth.Canada, Ottawa, ON, CANADA.

1262 Anti-*Pseudomonas* Igy Antibodies Augment the Bactericidal Activity of Human Polymorph Nuclear Neutrophils against *Pseudomonas aeruginosa*
K. Thomsen[1], L. Christophersen[1], T. Bjarnsholt[1], P. Ø. Jensen[1], C. Moser[1], E. Nilsson[2], N. Høiby[1]; [1]RigsHosp.et, Copenhagen Univ. Hosp., Copenhagen, DENMARK, [2]Uppsala Univ., Uppsala, SWEDEN.

1263 Select-Agent Excluded *Burkholderia pseudomallei* Strains and Cell Infection Model Systems for Research in BSL-2 Laboratories
N. H. Michael, A. Bluhm, Y. Kang, J. Zarzycki-Siek, Z. Sun, T. T. Hoang; Univ. of Hawaii at Manoa, Honolulu, HI.

1264 A Correlative Analysis of Epidemiologic and Molecular Characteristics of Methicillin Resistant *Staphylococcus aureus* (MRSA) Clones from Diverse Geographic Locations with Virulence Measured by a *Caernohabitus elegans* Host Model
K. Wu[1,2], K. Zhang[1,2], J. McClure[1,2], J. Zhang[1], J. Schrenzel[3], P. Francois[3], S. Harbarth[3], J. Conly[1,2]; [1]Univ. of Calgary, Calgary, AB, CANADA, [2]Alberta Hlth.Services, Calgary, AB, CANADA, [3]Univ. of Geneva Hosp. and Med. Sch., Geneva, SWITZERLAND.

1265 Oral Administration of Viable and Heat-Killed *Streptococcus bovis* HC5 Cells to a Murine Model
A. D. Paiva, K. M. Fernandes, R. S. Dias, A. S. Rocha, L. L. Oliveira, C. A. Neves, S. O. de Paula, **H. C. Mantovani**; Federal Univ. of Viçosa, Viçosa - MG, BRAZIL.

1266 Role of Th17 Cells and Icam-1 Expression in Virulence and Immunity to *Staphylococcus aureus* Corneal Infection
T. H. Zaidi[1], T. S. Zaidi[1], G. P. Priebe[2], G. B. Pier[1]; [1]Brigham & Womens Hosp., Harvard Med. Sch., Boston, MA, [2]Brigham & Womens Hosp., Harvard Med. Sch., Children's Hosp. Boston, Boston, MA.

1267 Investigation of Transcriptional Changes During Long-Term Adaptation of *Staphylococcus aureus* in the Airways of Cystic Fibrosis Patients
N. Neumann[1], A. Witten[2], B. Kahl[3], A. Mellmann[1]; [1]Inst. Hygiene, Univ. Hosp. Muenster, Münster, GERMANY, [2]Leibniz Inst. Arteriosclerosis, Münster, GERMANY, [3]Inst. Med. Microbiol., Univ. Hosp. Muenster, Münster, GERMANY.

1268 Live Group B *Streptococcus* is Associated with Lung Interstitial Apoptosis
D. E. Kling, D. S. Newburg; Boston Coll., Chestnut Hill, MA.

1269 Group A *Streptococcus* Utilizes Surface Acquired Plasmin Activity to Resist Killing by Cathelicidin Antimicrobial Peptides
A. Hollands[1], D. Gonzalez[1], E. Leire[1,2], M. Sanderson-Smith[3], P. Dorrestein[1], V. Nizet[1]; [1]UCSD, La Jolla, CA, [2]Univ. of Copenhagen, DENMARK, [3]Univ. of Wollongong, AUSTRALIA.

1270 Transcriptome Profile of Genetically Similar *Staphylococcus aureus* Strains in Human Blood
C. H. E. Boel[1], N. J. P. ten Broeke-Smits[1], M. J. Jonker[2], M. D. Jansen[1], F. R. Wittink[2], A. C. Fluit[1]; [1]UMC Utrecht, Utrecht, NETHERLANDS, [2]Univ. of Amsterdam, Amsterdam, NETHERLANDS.

1271 The Host Immune Response to Intrauterine Group A *Streptococcus* Infection is Altered by Prostaglandins
K. L. Mason, T. Bani-Hashemi, E. Burke, L. M. Rogers, D. M. Aronoff; Univ. of Michigan, Ann Arbor, MI.

1272 *Staphylococcus aureus* and Chronic Wound Pathogenesis
A. Tankersley[1], B. Frank[2], R. Brennan[1]; [1]Unviersity of Central Oklahoma, Edmond, OK, [2]Oklahoma Med. Res. Fndn., Oklahoma City, OK.

1273 Anti-Pneumococcal Surface Protein C (PspC) Antibodies: Cross-reactivity with Different Strains and Evaluation of Inhibition of Binding of Human Complement Factor H (FH) and Secretory IgA (sIgA)
A. T. Moreno[1], M. S. Oliveira[1], P. L. Ho[1], C. F. M. Vadesilho[1], G. M. P. Palma[1], J. M. C. Ferreira, Jr[2], D. M. Ferreira[3], S. R. Santos[4], M. B. Martinez[4], **E. N. Miyaji**[1]; [1]Centro de Biotecnologia - Inst. Butantan, Sao Paulo, BRAZIL, [2]Laboratorio de Imunoquimica - Inst. Butantan, Sao Paulo, BRAZIL, [3]Liverpool Sch. of Tropical Med., Liverpool, UNITED KINGDOM, [4]Univ. Hosp. - Univ. of Sao Paulo, Sao Paulo, BRAZIL.

1274 Immunogencity Analysis of *Staphylococcus aureus* Clumping Factor A (ClfA) Genetic Variants
R. A. Brady[1], C. P. Mocca[1], B. Meade[2], D. L. Burns[1]; [1]Ctr. for Biologics Evaluation and Res., Food and Drug Admin., Bethesda, MD, [2]Meade Biologics LLC, Hillsborough, NC.

1275 Protection from *Staphylococcus aureus* Nasal Carriage by Cross-Reactive Antibody to a Pneumococcal Dehydrogenase
R. S. Lijek[1], S. L. Luque[1], D. Parker[2], T. Bae[3], J. N. Weiser[1]; [1]Univ. of Pennsylvania Sch. of Med., Philadelphia, PA, [2]Columbia Univ., New York, NY, [3]Indiana Univ. Sch. of Med.-Northwest, Gary, IN.

1276 Aggregation Substance (AS) Positive *Enterococcus faecalis* Mounts a Profound Neutrophil Effector Response Following Burn Injury
A. Shelip, H. Wang, N. Fazal; Chicago State Univ., Chicago, IL.

1277 Malaria Parasite-Induced IL-10 Contributes to Non-typhoid *Salmonella* Bacteremia
K. L. Lokken, J. P. Mooney, B. P. Butler, M. N. Xavier, N. Schaltenberg, J. Y. Chau, S. Luckhart, R. M. Tsolis; Univ. of California at Davis, Davis, CA.

1278 Mitis Group *Streptococci* are Virulent, and Enhance the Virulence of *Porphyromonas gingivalis* in a Drosop*Hila* melanogaster Model
C. O. Igboin, A. L. Griffen, E. J. Leys; Ohio State Univ., Columbus, OH.

1279 Quantification of the Host Stress Response and its Impact on *Yersinia pestis* Deposition in an Inhalational Rat Model of Pneumonic Plague
K. N. Peters, S. T. Gater, D. M. Bland, D. M. Anderson, P. E. Anderson; Univ. of Missouri-Columbia, Columbia, MO.

1280 The Role of Host Components in Regulation of Virulence in *Staphylococcus aureus*
O. W. Zurek, K. B. Pallister, J. M. Voyich; Montana State Univ., Bozeman, MT.

1281 Characterization of Antimicrobial Peptides and Inflammatory Responses to Acute and Persistent *Mycoplasma genitalium* Infection of the Human Endocervix
C. L. McGowin[1], R. S. Annan[1], A. Radtke[2], D. H. Martin[1], **M. M. Herbst-Kralovetz**[2]; [1]Louisiana State Univ. Hlth.Sci. Ctr., New Orleans, LA, [2]Univ. of Arizona, Coll. of Med.-Phoenix, Phoenix, AZ.

105 Genes, Gene Structure, Transposons, and Plasmids (Division H)

10:45 a.m. – 12:30 p.m.; Poster Hall

1282 Alternansucrase Gene Structure from *Leuconostoc* B-1498
S. M. Holt; Western Illinois Univ., Macomb, IL.

1283 GalR Mediated Inter-segmental Chromosomal Connections in *Escherichia coli*
Z. Qian[1], E. Dimitriadis[1], R. Edgar[2], P. Eswara Moorthy[1], S. Adhya[1]; [1]NIH, Bethesda, MD, [2]the Tel Aviv Sourasky Med. Ctr., Tel Aviv, ISRAEL.

1284 Sequence Vatiations of Genes for Ornithine Decarboxylase, Luciferase A, Tox R and Hemolysib Distinguish Type Strains of V. harveyi and V. campbellii
C. T. Hedreyda; Univ. of the Philippines Diliman, Quezon City, PHILIPPINES.

1285 Analysis of the Baboon Cytomegalovirus Genome, Strain OCOM4-37
E. L. Blewett, B. J. Reddig, S. R. Neubauer; Oklahoma State Univ. - Ctr. for Hlth.Sci., Tulsa, OK.

1286 A Biological Map of Sequenced Prokaryotes Derived from their Metadata Using Association Networks
T. Karpinets, B. Park, C. Schadt, M. Doktycz, E. Uberbacher; ORNL, Oak Ridge, TN.

1287 High-resolution Melting Analysis for Yersinia *Pseudotuberculosis* Genotyping
R. A. Souza, J. P. Falcão; Faculdade de Ciências Farmacêuticas de Ribeirão Preto/USP, Ribeirao Preto, BRAZIL.

1288 RNAs Binding to the Nucleoid Protein HU in *Escherichia coli*
M. Macvanin[1], R. Edgar[2], S. Adhya[1]; [1]NIH, Bethesda, MD, [2]The Tel Aviv Sourasky Med. Ctr., Tel Aviv, ISRAEL.

1289 Sequence Analysis of the Full-Length *luxA* Gene of Type Strain *Vibrio campbellii* NBRC 15631 Provides the Molecular Basis for the Non-Luminescent Phenotype of Type Strain *Vibrio campbellii*
WITHDRAWN

1290 Comparative Analysis of the *Streptococcus parauberis* Whole Genome Sequence in Olive Flounder (Paralichthys olivaceus)
S. Nho, J-i. Hikima, I. Cha, S. Park, H-B. Jang, T. Aoki, T-S. Jung; Coll. of Vet. Med., JinJu, KOREA, REPUBLIC OF.

1291 Characterization of a σ32-dependent antisense RNA in *Escherichia coli*
D. M. Fitzgerald[1], R. P. Bonocora[2], J. T. Wade[1,2]; [1]Dept. of BioMed. Sci., Univ. at Albany, SUNY, Albany, NY, [2]Wadsworth Ctr., New York State Dept. of Hlth., Albany, NY.

1292 Whole Genome Sequencing of *Campylobacter fetus* Subspecies
L. van der Graaf-van Bloois[1,2], W. G. Miller[3], E. Yee[3], B. Duim[1,2], J. A. Wagenaar[1,2,4]; [1]Utrecht Univ., Utrecht, NETHERLANDS, [2]WHO Collaborating Ctr. for Campylobacter / OIE Reference Lab. for Campylobacteriosis, NETHERLANDS, [3]Produce Safety and Microbiol. Res. Unit, Agricultural Res. Service, Albany, CA, [4]Central Vet. Inst. of Wageningen UR, Lelystad, NETHERLANDS.

1293 Toxin-Antitoxin Systems Encoded in an Integrative Conjugative Element from the Biomining Bacterium *AcidithioBacillus ferrooxidans*
P. Bustamante[1,2], G. Levicán[2], R. Quatrini[3], D. S. Holmes[3], O. Orellana[1]; [1]Programa de Biología Celular y Molecular, ICBM, Facultad de Med., Univ. de Chile, Santiago, CHILE, [2]Facultad de Química y Biología, Univ. de Santiago de Chile, Santiago, CHILE, [3]Ctr. for Bioinformatics and Genome Biology, Fundación Ciencias para la Vida and Departamento de Ciencias Biológicas, Facultad de Ciencias de la Salud, Univ. Andrés Bello, Santiago, CHILE.

1294 Genome-wide Analysis of HNS-mediated Regulatory Architecture in the *Escherichia coli* Genome at Single-nucleotide Resolution
J. Kim, J. Kim, B. Cho; KAIST, Daejoen, KOREA, REPUBLIC OF.

1295 Cloning and Expression of *LactoBacillus paracasei* W2 Lactate dehydrogenase in *Escherichia coli*
L. Wang[1], B. Qi[1], T. Zhao[2], L. Zhen[1], L. Zhou[1]; [1]The Key Lab. of Suzhou Food and Biotechnology, Sch. of Biotechnology and Food Engineering, Changshu Inst. of Technology, changshu, CHINA, [2]Sch. of Biology and Basic Med. Sci., Suzhou, CHINA.

1296 Detection of Aflatoxinogenic forms of *Aspergillus flavus* and *A. parasiticus* in Georgia Peanuts using Multiplex PCR
P. N. Achar[1], M. Sreenivasa[2]; [1]Kennesaw State Univ., Kennesaw, GA, [2]Mysore Univ., Mysore, INDIA.

1297 Novel Biosynthetic Gene Cluster Encoding NRPS, PKS I and PKS III in Cyanobacterium Microcystis
M. Shirai[1], Y. Yamazaki[1], A. Futamura[1], C. Li[1], A. Takanezawa[1], A. Nishizawa[1], T. Nishizawa[1], K-i. Harada[2], M. Asayama[1]; [1]Ibaraki Univ., Ibaraki, JAPAN, [2]Meijyo Univ., Nagoya, JAPAN.

1298 Characterization of a Multiple Drug Resistant *Pseudomonas* strain Resulting from a Potentially Novel Gene Transfer of *Salmonella* Genomic Island 1
A. Springer[1], W-J. Lin[1], P. Vaishampayan[2]; [1]California State Polytechnic Univ. of Pomona, Pomona, CA, [2]Jet Propulsion Lab., Pasadena, CA.

1299 Antimicrobial Susceptibility and Plasmid Profile of *Escherichia coli* from HIV Patients
D. Cardenas, Q. Rascon, S. Arevalo, F. Solis, B. Rivera; Univ. Autonoma de Chihuahua, Chihuahua, MEXICO.

1300 A Partition System of *Bacillus anthracis* Plasmid pXO1
A. P. Pomerantsev, Z. Chang, S. H. Leppla; NIH/NIAID, Bethesda, MD.

1301 Genetic Analysis of the Plasmid Partition System by a Sole Non-Coding DNA
H. Hayashi[1], Y. Kurusu[2]; [1]Tokyo Univ. of Agriculture and Technology, Tokyo, JAPAN, [2]Coll. of Agriculture, Ibaraki Univ., Ibaraki, JAPAN.

106 Gene Expression III (Division H)

10:45 a.m. – 12:30 p.m.; Poster Hall

1302 Characterization of TetR/AcrR Family Transcriptional Repressor Genes Involved in Regulation of Cellular Differentiation in Cyanobacterium Nostoc punctiforme
A. Yazdani, M. Summers; CSU Northridge, Northridge, CA.

1303 Reversed Allostery in the Xanthomonas axonopodis Clp (CRP-like protein)
W. Menefee, S. Dasari, A. Nevarez, H. Youn; California State Univ., Fresno, Fresno, CA.

1304 Characterization of Putative ECF Sigma Factor and Anti-Sigma Factor in Nostoc punctiforme
N. J. Cassel[1], H. Medina[1], K. Legrand[2], M. L. Summers[1]; [1]California State Univ., Northridge, Northridge, CA, [2]Univ. of California, Davis, Davis, CA.

1305 Does a Nostoc Punctiforme RNA Helicase Regulate Expression of NpF2889 and NpR0438?
J. Lee, J. Polin, M. L. Summers; Calif. State Univ. Northridge, Northridge, CA.

1306 Role of *Salmonella* Small Non-coding RNA IsrM in Bacterial Virulence and Pathogenesis
H. Gong, Y-C. Chen, G-P. Vu, E. Yang, Y. Bai, E. Chan, R. Wu, **F. LIU**, S. Lu; Univ. of California-Berkeley, BERKELEY, CA.

1307 Cross Complementation of CRP and Vfr
S. Grover, **S. Gunasekara**, H. Youn; California State Univ., Fresno, Fresno, CA.

1308 Enhanced Display of Heterologous Proteins Onto Bacterial Magnetic Particles Using Lon Deletion Mutant in *Magnetospirillum Magneticum* AMB-1
Y. Kanetsuki, T. Yoshino, T. Matsunaga; Tokyo Univ. of Agriculture and Technology, Tokyo, JAPAN.

1309 Is the Putative RNA Helicase NpF6355 Involved in Global Gene Regulation During Vegetative Growth and Differentiation in Nostoc Punctiforme?
J. B. Polin, M. L. Summers; California State Univ., Northridge, Northridge, CA.

1310 Synthetic, Versatile, C-di-GMP-based Module for Light-activated Gene Regulation *in vivo*
M-H. Ryu, J. Siltberg-Liberles, M. Gomelsky; Univ. of Wyoming, Laramie, WY.

1311 Gene Regulation in *Klebsiella pneumoniae*: Biochemical Characterization of the Fur Transcription Factor
A. Galbraith, W. S. Ellis, A. Madl, **J. Hernandez**; Midwestern Univ., Glendale, AZ.

1312 Cloning and expression of amylosucrase, a glucan-synthesizing enzyme, from *Arthrobacter chlorophenolicus* A6
D-h. Seo[1], J-H. Jong-Hyun[1], S-J. Ha[1], S-H. Yoo[2], C-S. Park[1]; [1]Graduate Sch. of Biotechnology and Inst. of Life Sci. & Resources, KyungHee Univ., YoungIn, KOREA, REPUBLIC OF, [2]Dept. of Food Sci. and Technology, and Carbohydrate Bioproduct Res. Ctr., Sejong Univ., Seoul, KOREA, REPUBLIC OF.

1313 Analysis of *Batrachochytrium dendrobatidis* Gene Expression in Planktonic Versus Biofilm Life Cycle Stages
S. D. Silva[1], N. L. Carty[2], U. Qaisar[3], A. N. Hamood[3], M. J. San Francisco[1,3]; [1]Texas Tech Univ., Lubbock, TX, [2]Lake Erie Coll. of Osteopathic Med., Erie, PA, [3]Texas Tech Univ. Hlth.Sci. Ctr., Lubbock, TX.

1314 Expression of Hyaluronidase in *Staphylococcus aureus* UAMS-1 Is Regulated by SarA
H. Hu, M. E. Hart; Natl. Ctr. for Toxicological Res., Jefferson, AR.

1315 Expression Profile of Porphromonas gingivalis sRNA in Response to Environmental Cues Identified Using Illumina's High-Throughput Sequencing Technology
P. L. Phillips, A. Progulske-Fox, N. A. Grieshaber; Univ. of Florida, Gainesville, FL.

1316 Alternative Targets of *C. trachomatis* Small Non-coding RNA IhtA
J. Runac, J. S. Tattersall, S. S. Grieshaber, N. A. Grieshaber; Univ. of Florida, Gainesville, FL.

1317 Identification of sRNA Genes in the Dissimilatory Metal-reducing Bacterium *Shewanella oneidensis*
M. Goulet[1], C. Brennan[1], C. D'Agostino[1], B. Tjaden[2], B. Pellock[1]; [1]Providence Coll., Providence, RI, [2]Wellesley Coll., Wellesley, MA.

1318 Efficient Production of Larvicidal Proteins in Flavobacteria Isolated from the Natural Larval Habitats of the Eastern Tree Hole Mosquito, *Aedes Triseriatus*
S. Chen[1], M. G. Kaufman[2], E. D. Walker[1]; [1]Dept. of Microbiol. and Molecular Genetics, Michigan State Univ., East Lansing, MI, [2]Dept. of Entomology, Michigan State Univ., East Lansing, MI.

1319 Calcium-regulated Gene Expression in *Vibrio parahaemolyticus*
L. Swanson[1], M. Thompson[1], E. Voelschow[1], L. Hieb[1], M. Cannon[1], A. Villard[1], A. Roos[1], J. Allen[1], L. McCarter[2], J. Enos-Berlage[1]; [1]Luther Coll., Decorah, IA, [2]Univ. of Iowa, Iowa City, IA.

1320 Differential Regulations of Il-8 Gene Expression by Deoxynivalenol, Verrucarin A and Ochratoxin A in Human Monocytes
J. Liu[1], S. O. Simons[2], **R. Pei**[1]; [1]Univ. of Texas at San Antonio, San Antonio, TX, [2]US EPA, Rsearch Traingle Park, NC.

1321 Involvement of a Nudix Hydrolase in Thermoregulation of Syringafactin Expression in *Pseudomonas syringae*
K. L. Hockett, S. E. Lindow; Univ. of California, Berkeley, Berkeley, CA.

1322 MicroRNA Expression in Naïve vs. Ebola Virus-infected Cynomolgus *MacAques*
A. M. Rosa[1], A. Carrillo[1], M. Elsheikh[1], K. Schreiber[1], S. Mohammadi[1], A. Power[1], L. Bentley-Tammero[1], R. Mudhasani[2], S. Bavari[2], P. Naraghi-arani[1]; [1]Lawrence Livermore Natl. Lab, Livermore, CA, [2]United States Army Med. Res. Inst. for Infection Diseases, Frederick, MD.

1323 An Extracellular Protease is Essential for Mutacin Production in *Streptococcus mutans* UA159
M. S. Hossain, I. Biswas; Dept. of Microbiol.,Molecular Genetics & Immunology, Univ. of Kansas Med. Ctr., Kansas CITY, KS.

1324 Desiccation during Development Enhances Survivorship and Virulence of the Entomopathogenic Nematode *Steinernema websteri*
A. M. Binnebose, S. Bornstein-Forst; Marian Univ., Fond du lac, WI.

1325 Dynamic Changes in Protein-Protein Interactions during Activation of the *Yersinia enterocolitica* Phage Shock Protein System
S. Yamaguchi, A. J. Darwin; New York Univ. Sch. of Med., New York, NY.

1326 The Identification of Genes Regulated by Paralogous Spx Proteins in *Bacillus anthracis*
S. M. Barendt[1], H. Lee[2], M. B. Jones[3], C. Birch[1], P. Zuber[1]; [1]Oregon Hlth.and Sci. Univ., Beaverton, OR, [2]Univ. of Illinois at Chicago, IL, [3]J. Craig Venter Inst. (JCVI), Rockville, MD.

1327 Isolation and Characterization of a Hyper-Virulent Mutant of the Soft Rot Pathogen, Pectobacterium carotovorum
C. M. Kersey, **C. Dumenyo**; Tennessee State Univ., Nashville, TN.

1328 Study on Relation Between Autoinducer Synthesis Genes and Virulence Genes of Bacteria Related in Quorum Sensing Mechanism in the Catheter
H-j. Kim[1], Y-H. Cho[2], J-Y. Lee[2], S-J. Lee[2], K-R. Peck[3], S-S. Lee[1]; [1]Dept. of Biological Engineering, Kyonggi Univ. of Korea, Suwon-si, KOREA, REPUBLIC OF, [2]Dept. of Urology, Sch. of Med., The Catholic Univ. of Korea, KOREA, REPUBLIC OF, [3]Div. of Infectious Diseases, Sungkyunkwan Univ. Sch. of Med., Korea, KOREA, REPUBLIC OF.

107 Symbiosis (Division I)

10:45 a.m. – 12:30 p.m.; Poster Hall

1329 Xenorhabdus nematop*Hila* Requires a CRISPR-like RNA for Colonization of Symbiotic Host Nematodes
J. Veesenmeyer, A. Andersen, H. Goodrich-Blair; Univ. of Wisconsin, Madison, Madison, WI.

1330 Specificity Between *Xenorhabdus bovienii* Bacterial Strains and Steinernema feltiae Nematodes
K. E. Murfin[1], A. C. Whooley[1], P. Stock[2], S. Forst[3], H. Goodrich-Blair[1]; [1]Univ. of Wisconsin, Madison, WI, [2]Univ. of Arizona, Tucson, AZ, [3]Univ. of Wisconsin, Milwaukee, WI.

1331 Symbiotic Bacterial Diversity within the Accessory Nidamental Gland of the Squid *Euprymna scolopes*
A. J. Collins[1], B. A. LaBarre[2], B. W. Won[1], J. S. Correa[3], M. V. Shaw[1], S. Heng[1], M. H. Choudhury[1], S. A. Hadar[1], S. V. Nyholm[1]; [1]Univ. of Connecticut, Storrs, CT, [2]Cornell Univ., Ithaca, NY, [3]Univ. of Puerto Rico-Mayaguez, Mayaguez, PR.

1332 Transcription of a Putative Antimicrobial Peptide is Highly Regulated in the Squid-Vibrio Association
A. A. Gillette, E. A. C. Heath-Heckman, M. J. McFall-Ngai; Univ. of Wisconsin-Madison, Madison, WI.

1333 Proteomic Analyses of a Squid/*Vibrio* Symbiosis
T. R. Schleicher, S. V. Nyholm; Univ. of Connecticut, Storrs, CT.

1334 Role of Rhizobial Amino Acid Metabolism in Plant-Bacteria Interactions
F. Jimenez Otero[1], A. C. Rodrigues[1], F. J. de Bruijn[2], S. Rossbach[1]; [1]Western Michigan Univ., Kalamazoo, MI, [2]Lab. of Plant-Microbe Interactions, Castanet-Tolosan, FRANCE.

1335 Stable Genetic Manipulation of the Nitrogen-Fixing Actinobacterium *Frankia* sp
J. Beaudin, **N. Allard**, M. G. Ghinet, R. Brzezinski, S. Roy; Ctr. d'étude et de valorisation de la diversité microbienne, Univ Sherbrooke, Sherbrooke, QC, CANADA.

1336 Microscopic Characterization and Transcriptomic Analysis of Reproductive Torulose Hyphae Morphogenesis in *Frankia* sp. ACN14a
A. Bernèche-D'Amours, C. Lafond-Lambert, S. Rodrigue, S. Roy; Ctr. d'étude et de valorisation de la diversité microbienne, Univ. de Sherbrooke, Sherbrooke, QC, CANADA.

1337 Distribution of the Alder Endophyte *Frankia* sp. and Phylogenetic Analysis of Soil Microbial Populations in Greenland
M-M. Corbeil[1], J. Beaudin[1], R. H. Jørgensen[2], C. W. Greer[3], S. Roy[1]; [1]Ctr. d'Etude et de Valorisation de la Diversité Microbienne, Université de Sherbrooke, Sherbrooke, QC, CANADA, [2]Dept. of Agriculture and Ecology, Copenhagen Univ., Frederiksberg, DENMARK, [3]Natl. Res. Council Canada, Biotechnology Res. Inst., Montreal, QC, CANADA.

1338 *Sinorhizobium meliloti* Exopolysaccharides are Capable of Protecting Cells from Reactive Oxygen Species-Dependent Death
A. P. Lehman, S. R. Long; Stanford Univ., Stanford, CA.

1339 Characterization of the *Sodalis glossinidius Achromobactin Siderophore*System
C. L. Smith[1], B. Weiss[2], S. Aksoy[2], L. J. Runyen-Janecky[1]; [1]Univ. of Richmond, Richmond, VA, [2]Yale Univ., New Haven, CT.

1340 Actinomycetes Associated with Lepidopteran Pupae from Costa Rica
J. A. Guevara[1], M. Fernandez[1], G. Vargas[1], L. Zhang[2], Y. Huang[2], A. Pinto[1]; [1]Univ. de Costa Rica, San Pedro, COSTA RICA, [2]Inst. of Microbiol. Chinese Academy of Sci., Beijing, CHINA.

1341 Diversity, Antagonistic and Growth Promotion Ability of Xylem Residing Bacteria Isolated from Eggplant and Chilli
G. A. Achari, R. Ramesh, S. Gaitonde; ICAR Res. Complex for Goa, Old Goa, Goa 403402, INDIA.

1342 Endosymbiotic Bacteria, Temperature and Sex Ratio in the Coffee Berry Borer *Hypothenemus hampei*
Y. A. Marino Cardenas, M. I. Cruz Morales, M. Trifilio Martinez, P. Bayman Gupta; Univ. of Puerto Rico, San Juan, PR.

1343 Genetic Analysis of *Enterococcus faecalis* in its Roles as Commensal and Pathogen of Manduca sexta
J. F. Holt[1,2], J. Du[2], K. L. Frank[3], G. M. Dunny[3], J. Handelsman[2]; [1]Univ. of Wisconsin-Madison, Madison, WI, [2]Yale Univ., New Haven, CT, [3]Univ. of Minnesota, Minneapolis, MN.

1344 Diversity of Actinobacteria Associated to *Nasutitermes costalis* Termites in Puerto Rico
E. Mendez-Morales, M. J. Cafaro; Univ. of Puerto Rico, Mayagüez Campus, Mayagüez, PUERTO RICO.

1345 Culturing 1000 Rumen Anaerobes
S. J. Noel[1], G. T. Attwood[1], D. Li[1], J. Rakonjac[2], P. H. Janssen[1]; [1]AgRes., Palmerston North, NEW ZEALAND, [2]Massey Univ., Palmerston North, NEW ZEALAND.

1346 Isolation and Characterisation of a Pederin Producing Bacterium from the Paederus Beetle in the North of Iran
M. Mohseni, M. J. Chaichi; Univ. of Mazandaran, Babolsar, IRAN, ISLAMIC REPUBLIC OF.

108 Genetic and Biochemical Regulation of Metabolic Pathways (Division K)

10:45 a.m. – 12:30 p.m.; Poster Hall

1347 Preferential Utilization of Mannitol Over Lactose Is Not Determined by the Phosphorylation State of Enzyme IIA^{Glc} in *Escherichia coli*.
C. mangyu[1], Y. Park[1], S. Park[1], Y. Seok[2]; [1]Dept. of Biological Sci. and Inst. of Microbiol., Seoul Natl. Univ., Korea, South, Seoul, KOREA, REPUBLIC OF, [2]Dept. of Biological Sci. and Inst. of Microbiol., Seoul Natl. Univ., Korea, South, Dept. of Biophysics and Chemical Biology, Seoul Natl. Univ., Seoul, KOREA, REPUBLIC OF.

1348 Altered *Escherichia coli bio* Operon Regulation in Mutants of the BirA Biotin-Protein Ligase
V. Chakravartty, J. E. Cronan; Univ. of Illinois Urbana-Champaign, Urbana, IL.

1349 Ages Secreted by Bacteria are Involved in the Inflammatory Response
I. Cohen-Or, C. Katz, E. Ron; Tel Aviv Univ., Tel-Aviv, ISRAEL.

1350 A GCN5-type Acetyltransferase Acetylates Acetoacetyl-CoA Synthetase in *Streptomyces lividans*
A. C. Tucker, J. C. Escalante-Semerena; Univ. of Wisconsin, Madison, WI.

1351 A Genetic Approach to Study Utilization of N-Acetyl-D-Galactosamine and D-Galactosamine in *Escherichia coli* strains O157:H7 and C
Z. Hu, **A. Mukherjee**; US Food and Drug Admin., Laurel, MD.

1352 Characterization of AhpR, a New OxyR-Type Transcriptional Regulator, that Controls Expression of *Vibrio vulnificus* AhpC2
S. Kim[1], D. Kim[1], T. Kim[2], S. Choi[1]; [1]Dept. of Agricultural Biotechnology, Ctr. for Food Safety and Toxicology, and Res. Inst. for Agriculture and Life Sci., Seoul Natl. Univ., Seoul 151-921, Seoul, KOREA, REPUBLIC OF, [2]Sch. of Life Sci. and Biotechnology, Korea Univ., Seoul 136-701, KOREA, REPUBLIC OF.

1353 The Essential Protein, Gcp, Impedes the Biosynthesis of Branched Chain Amino Acids in *Staphylococcus aureus*
T. Lei[1], J. Yang[1], L. Zheng[1], L. Wang[2], C. Chen[2], Y. Ji[1]; [1]Dept. of Vet. and BioMed. Sci., Unviersity of Minnesota, Saint Paul, MN, [2]Dept. of Food Sci. and Nutrition, Unviersity of Minnesota, Saint Paul, MN.

1354 Regulation of the PEP-phosphotransferase systems in *Listeria monocytogenes* is dependent on alternative sigma factors σ^H and σ^L
S. Wang, R. H. Orsi, M. Wiedmann, K. J. Boor; Cornell Univ., Ithaca, NY.

1355 13C-Assisted Metabolite Flux Analysis of Rhizopus oryzae
L. You[1], X. Wang[2], Y. Tang[1], Y. Liu[2]; [1]Washington Univ. in Saint Louis, Saint Louis, MO, [2]Michigan State Univ., East Lansing, MI.

1356 Functional Diversification of the cbb3 *Cytochrome c* Oxidase by Subunit Shuffling in *Pseudomonas aeruginosa*
H. Arai, T. Osamura, M. Ishii, Y. Igarashi; Univ. of Tokyo, Tokyo, JAPAN.

1357 Physiological Roles of Phosphotransacetylase and Acetate Kinase in *Streptococcus mutans*
J. N. Kim, S-J. Ahn, R. A. Burne; Oral Biology, Coll. of Dentistry, Univ. of Florida, Gainesville, FL.

1358 Role of AbgR in Regulating Expression of the *abg* Region of *E. coli*
J. M. Green, L. Pitstick, E. Park, S. Ozhog, K. Gulati; Midwestern Univ., Downers Grove, IL.

1359 Benzoyl-CoA Pathway-Mediated Degradation of *meta*-Hydroxy Aromatic Acids in *RhodoPseudomonas palustris*
D. L. Gall[1,2], J. Ralph[3,2], T. J. Donohue[4,2], D. R. Noguera[1,2]; [1]Dept. of Civil & Environmental Engineering, Univ. of Wisconsin, Madison, WI, [2]Dept. of Energy Great Lakes Bioenergy Res. Ctr., Univ. of Wisconsin, Madison, WI, [3]Dept. of Biochemistry, Univ. of Wisconsin, Madison, WI, [4]Dept. of Bacteriology, Univ. of Wisconsin, Madison, WI.

1360 Some Like it Sweet: Novel Pathways of Sugar Catabolism in Thermotogales
I. A. Rodionova[1], X. Li[1], V. Portnoy[2], A. Osterman[1], D. Rodionov[1]; [1]Sanford-Burnham Med. Res. Inst., La Jolla, CA, [2]Univ. of California San Diego, La Jolla, CA.

1361 Cyclic Amp Receptor Protein Regulates Metabolic Enzyme Acetylation in *E. coli*
A. J. Walker-Peddakotla[1], M. Kuhn[2], S. Pshenychnyi[2], B. K. Chi[3], D. Becher[3], K. Gronau[3], H. Antelmann[3], W. F. Anderson[2], A. J. Wolfe[1]; [1]Loyola Univ. Chicago, Stritch Sch. of Med., Maywood, IL, [2]Ctr. for Structural Genomics of Infectious Diseases, Dept. of Molecular Pharmacology and Biological Chemistry, Northwestern Univ. Feinberg Sch. of Med., Chicago, IL, [3]Inst. for Microbiol., Ernst-Moritz-Arndt-Univ. of Greifswald, Greifswald, GERMANY.

1362 Role of the Plasmid hik31 Operon in Regulating Carbohydrate Metabolism in the Dark in Synechocystis Sp. Strain Pcc 6803
S. Nagaraian, L. Sherman; Purdue Univ., West Lafayette, IN.

1363 Isolation and Characterization of a Gene Encoding Oxidation Reaction of *trans*-Anethole to *para*-Anisaldehyde by *Pseudomonas putida* JYR-1
D. Han, J-Y. Ryu, H-G. Hur; Gwangju Inst. of Sci. and Technology, Gwangju, KOREA, REPUBLIC OF.

1364 The Standby Switch of *E. coli*: A Metabolic Regulatory Cascade Controls the Physiology of Persister Cells
G. Bokinsky[1], E. Baidoo[1], H. Burd[1], D. Juminaga[1], J. Keasling[2]; [1]Lawrence Berkeley Natl. Lab., Berkeley, CA, [2]Univ. of California, Berkeley, CA.

1365 The *S. meliloti* Phosphotransferase System Regulates Succinate-Mediated Catabolite Repression by Detecting Cellular Levels of Nitrogen and Carbon
R. Goodwin, D. Gage; Univ. of Connecticut, Storrs, CT.

1366 Characterization of the Sodium-Translocating NADH-Ubiquinone Oxidoreductase (NQR) on *Vibrio cholerae* Metabolism and Virulence Gene Regulation
S. R. Fassio, Y. Minato, M. J. Quinn, C. C. Häse; Oregon State Univ., Corvallis, OR.

1367 Decreased Content of Ubiquinone Results in Higher Alginate Levels in Azotobacter vinelandii
C. Nuñez[1], C. Peña[1], W. Kloeckner[2], A. E. Hernández[1], A. V. Bogachev[3], J. Guzmán[1], S. Moreno[1], J. Büchs[2], G. Espín[1]; [1]Inst. de Biotecnología, UNAM, Cuernavaca, Morelos, MEXICO, [2]AVT.Biochemical Engineering, RWTH Aachen Univ., Aachen, GERMANY, [3]A.N. Belozersky Inst. of Physico-Chemical Biology, Moscow, RUSSIAN FEDERATION.

1368 Elucidating Transcriptional Regulation of Terpene Production in S. cerevisiae
S. Rodriguez, J. Keasling; UC Berkeley, Berkeley, CA.

1369 Genomic and Metabolic Reconstruction of the Terrestrial cyanobacterium *Microcoleus vaginatus* from Soil Crusts
N. Klitgord[1], N. Jose[2], K. Sondhi[2], D. Soendjojo[2], D. B. Nyer[3], U. Nunes da Rocha[1], L. Rajeev[1], N. Bouskill[1], A. Johnson[1], P. Shih[1], S. Axen[1], B. Bowen[1], C. Kerfeld[1,4], A. Mukhopadhyay[1], E. Brodie[1], F. Garcia-Pichel[1,3], T. Northen[1]; [1]Lawrence Berkeley Labs, Berkeley, CA, [2]Univ. of California, Berkeley, Berkeley, CA, [3]Sch. of Life Sci., Arizona State Univ., Tempe, AZ, [4]Joint Genome Inst., Walnut Creek, CA.

1370 Regulation of Arsenic Metabolism in *Shewanella sp.* ANA-3
R. P. Watson, C. W. Saltikov; Univ. of California Santa Cruz, Santa Cruz, CA.

109 Biogeochemistry and Geomicrobiology (Division N)

10:45 a.m. – 12:30 p.m.; Poster Hall

1371 Diverse Aquifer Bacterial Isolates Implicated in Both Direct Cr(VI) Reduction and Linked Fe(III) and Cr(VI) reduction
R. Han, J. Cabugao, U. Karaoz, H. Lim, E. L. Brodie, C. Varadharajan, P. S. Nico, L. Yang, H. R. Beller; Lawrence Berkeley Natl. Lab, Berkeley, CA.

1372 Dissimilatory Microbiological Sb Reduction in Anoxic Freshwater Sediments
T. R. Kulp[1], L. G. Miller[2], J. S. Blum[2], S. M. Webb[3], B. D. Kocar[3], R. S. Oremland[2]; [1]Binghamton Univ., Binghamton, NY, [2]U. S. Geological Survey, Menlo Park, CA, [3]Stanford Synchrotron Radiation Lightsource, Menlo Park, CA.

1373 The Role of ArxA in Photosynthesis-Linked Arsenite Oxidation
A. T. Conrad[1], S. E. Hoeft[2], L. G. Miller[2], R. S. Oremland[2], M. R. Rosen[3], C. W. Saltikov[1]; [1]Univ. of California, Santa Cruz, Santa Cruz, CA, [2]United States Geological Survey, Menlo Park, CA, CA, [3]United States Geological Survey, Carson City, NV.

1374 Microbial Arsenic and Antimony Oxidation Associated with Soil from Antimony Mine Tailings
N. Hamamura, T. Itai; Ehime Univ., Matsuyama, Ehime, JAPAN.

1375 Candidatus *Desulfonatronovibrio arsenovorans* sp. nov., an extremely halophilic sulfate- and arsenate-respiring bacterium from Searles Lake, California
J. S. Blum[1], T. R. Kulp[1], S. Han[2], B. Lanoil[2], C. W. Saltikov[3], J. F. Stolz[4], L. G. Miller[1], R. S. Oremland[1]; [1]US Geological Survey, Menlo Park, CA, [2]Univ. of Alberta, Edmonton, AB, CANADA, [3]Univ. of California, Santa Cruz, CA, [4]Duquesne Univ., Pittsburgh, PA.

1376 Identification of the Mn(II) Oxidases and Accessory Proteins Involved in Mn(II) Oxidation in *Pseudomonas putida* GB-1
K. Geszvain[1], J. K. McCarthy[2], J. Buzzo[1], B. M. Tebo[1]; [1]Oregon Hlth.& Sci. Univ., Beaverton, OR, [2]J. Craig Venter Inst., West, San Diego, CA.

1377 *Shewanella oneidensis* Respiratory Mutants Selected for Their Inability to Reduce Soluble Mn(iii) Retain the Ability to Reduce Soluble (but Not Solid) Forms of Fe(iii)
N. Szeinbaum, T. DiChristina; Georgia Inst. of Technology, Atlanta, GA.

1378 Response of Dominant Freshwater Neutrophilic Iron-oxidizing Bacterial Blooms to Dissolved Organic Carbon
E. J. Fleming[1], I. Cetinic[2], D. W. King[3], D. Emerson[1]; [1]Bigelow Lab. for Ocean Sci., W Boothbay Habor, ME, [2]Univ. of Maine, Darling Marine Ctr., Walpole, ME, [3]Colby Coll., Waterville, ME.

1379 Taking the Geo out of Geomicrobiology: Electrochemical Cultivation of Microbes from the Soudan Iron Mine
Z. M. Summers[1], D. Emerson[2], D. R. Bond[1], J. A. Gralnick[1]; [1]Univ. of Minnesota, Saint Paul, MN, [2]Bigelow Lab. for Ocean Sci., West Boothbay Harbor, ME.

1380 Differentiating Codenitrification, Denitrification and Anammox in Agricultural Soils Using Stable Isotope Analysis with Antibiotic Inhibition Treatments
A. Long[1], R. Phillips[2], C. Tobias[3], J. Heitman[4], B. Song[1]; [1]Univ. of North Carolina Wilmington, Wilmington, NC, [22]USDA-ARS Northern Great Plains Res. Lab., Mandan, ND, [3]Univ. of Connecticut, Groton, CT, [4]North Carolina State Univ., Raleigh, NC.

1381 Developing a High-latitude Soil Carbon and Nitrogen Cycle Model with a Focus on Trait-based Modeling of the Biological Nitrogen Cycle
N. J. Bouskill, J. Tang, W. J. Riley, E. L. Brodie; Lawrence Berkeley Natl. Lab., Berkeley, CA.

1382 Methanogenic Community and Kinetics of Methane Production from Acetate in Contrasting Ecosystems
H. Cadillo-Quiroz[1], S. Maguffin[2], S. Bridgham[2], B. Bohannan[2], Q. Jin[2]; [1]Arizona State Univ., Tempe, AZ, [2]Univ. of Oregon, Eugene, OR.

1383 Microscale Sulfur Cycling in a Phototrophic Consortium: The Ecophysiology of Pink "Berries" of the Sippewissett Salt Marsh
E. G. Wilbanks[1], U. Jaekel[2], V. Salman[3], P. Humphrey[4], J. A. Eisen[1], D. H. Buckley[5], S. H. Zinder[5], M. T. Facciotti[1], V. J. Orphan[6]; [1]Univ. of California, Davis, Davis, CA, [2]Harvard Univ., Boston, MA, [3]Max Planck Inst. for Marine Microbiol., Bremen, GERMANY, [4]Univ. of Arizona, AZ, [5]Cornell Univ., Ithaca, NY, [6]California Insitute of Technology, Pasadena, CA.

1384 Effect of Phosphate on a Microbial Community of a Mine Water Treatment Plant
J. Kipry, C. Wiacek, M. Schlömann; TU Bergakademie Freiberg, Freiberg, GERMANY.

1385 Role of Outer Membrane c-type Cytochromes in the Reduction of Elemental Sulfur in *Geobacter sulfurreducens*
S. A. Dar, P-L. Tremblay, D. Lovley; Univ. of Massachusetts, Amherst, MA.

1386 Characterization and Modeling of Microbial Carbon Metabolism in Thawing Permafrost
D. E. Graham, M. Shakya, X. Xu, P. E. Thornton, T. J. Phelps, D. A. Elias; Oak Ridge Natl. Lab., Oak Ridge, TN.

1387 Evidence for the Role of Humics-reducing Bacteria in Groundwater Arsenic Mobilization
T. M. Legg[1], Y. Zheng[2], B. Simone[1], N. Mladenov[1,3], J. Ebert[1], M. M. Rahman[2], K. M. Ahmed[4], D. McKnight[1], D. Nemergut[1]; [1]Univ. of Colorado/INSTAAR, Boulder, CO, [2]Queens Coll.- CUNY, Flushing, NY, [3]Kansas State Univ., Manhattan, KS, [4]Dhaka Univ., Dhaka, BANGLADESH.

1388 Assessing the Role of Anammox in a Nitrogen Contaminated Aquifer
J. B. Taylor[1], R. L. Smith[2], C. R. Tobias[3], J. F. Böhlke[4], B. Song[1]; [1]Univ. of North Carolina Wilmington, Wilmington, NC, [2]United States Geological Survey, Boulder, CO, [3]Univ. of Connecticut, Groton, CT, [4]United States Geological Survey, Reston, VA.

1389 Environ Analysis of a Nitrogen Mass Balance Network Model to Quantify Microbial Interactions in an Estuarine Nitrogen Cycle
D. E. Hines[1], J. A. Lisa[1], B. Song[1], C. R. Tobias[2], S. R. Borrett[1]; [1]Univ. of North Carolina Wilmington, Wilmington, NC, [2]Univ. of Connecticut, Storrs, CT.

1390 Investigation of Genes Involved in Anaerobic, Nitrate-dependent Fe(II) Oxidation in *ThioBacillus denitrificans*
P. Zhou[1,2], H. R. Beller[1]; [1]Lawrence Berkeley Natl. Lab., Berkeley, CA, [2]Univ. of California, Merced, CA.

1391 Community Analysis of a Sulfate-Reducing Bioreactor Treating Coal Generated Acid-Mine Drainage
C. W. Pugh, A. S. Burns, P. T. Behum, L. L. Lefticariu, K. S. Bender; Southern Illinois Univ., Carbondale, IL.

1392 A Single Cell Approach to the Determination of Relative N2 Fixation Activity of Delta Proteobacteria and Cyanobacteria in Microbial Mats from Guerrero Negro, Mexico
D. Woebken[1,2], L. Luke Burow[1,2], L. Prufert-Bebout[1], T. Hoehler[1], J. Pett-Ridge[3], S. W. Singer[4], A. Spormann[2], P. Weber[3], **B. Bebout**[1]; [1]NASA Ames Res. Ctr., Moffett Field, CA, [2]Dept.s of Chemical and of Civil and Environmental Engineering, Stanford Univ., Stanford, CA, [3]Physical and Life Sci. Directorate, Lawrence Livermore Natl. Lab., Livermore, CA, [4]Earth Sci. Div., Lawrence Berkeley Natl. Lab., Berkeley, CA.

1393 Biofilm Formation of *Shewanella oneidensis* Wild-type and luxs Mutant Strains Under Anaerobic Growth Conditions
R. E. Cooper, T. J. DiChristina; Georgia Inst. of Technology, Atlanta, GA.

1394 Outer Surface Cytochromes, Not Pili, are the Primary Conduit for U(VI) Reduction in *Geobacter sulfurreducens*
R. A. Orellana[1], J. J. Leavitt[2], L. R. Comolli[3], C. Leang[1], A. S. Gray[1], D. R. Lovley[1]; [1]Univ. of Massachusetts-Amherst, Amherst, MA, [2]Univ. of New Mexico, NM, [3]Lawrence Berkeley Natl. Lab., Berkeley, CA.

1395 C-type Cytochromes Important for Fe (III) Oxide Reduction in *Geobacter metallireducens*
J. A. Smith, P-L. Tremblay, D. R. Lovley; Univ. of Massachusetts Amherst, Amherst, MA.

1396 Biologically Controllable Synthesis of Uniformed Goethite Nanowires by *Shewanella* sp. HN-41
S. Jiang, H-G. Hur; Gwangju Inst. of Sci. and Technology, Gwangju, KOREA, REPUBLIC OF.

1397 Extracellular Electron Transfer Through Microbial Reduction of Naturally Occurring Disulfide Compounds
S. Wee, T. J. DiChristina; Georgia Inst. of Technology, Atlanta, GA.

1398 Microbial Lipid and C Isotopic Biosignatures of a Unique Community at Grand Prismatic Spring, Yellowstone National Park
L. Jahnke[1], N. Parenteau[1,2], J. Farmer[3]; [1]NASA Ames Res. Ctr., Moffett Field, CA, [2]SETI Inst., CA, [3]Arizona State Univ., Tempe, AZ.

110 Marine and Aquatic Microbiology I (Division N)

10:45 a.m. – 12:30 p.m.; Poster Hall

1399 Using PhyloChip™ G3 Microarrays to Compare Bacterial-Community Shifts Between Healthy and Diseased Corals
C. A. Kellogg[1], Y. M. Piceno[2], L. M. Tom[2], T. Z. DeSantis[3], D. G. Zawada[1], G. L. Andersen[2]; [1]US Geological Survey, St. Petersburg, FL, [2]Lawrence Berkeley Natl. Lab., Berkeley, CA, [3]Second Genome, Inc., San Bruno, CA.

1400 Phylogenetic Study to Identify Vibrios from Seawater Samples at Ubatuba, São Paulo State, Brazil
L. C. Lavezzo, F. A. Cardozo, C. P. Souza, I. N. G. Rivera; Univ. of São Paulo, São Paulo, BRAZIL.

1401 B-Vitamin Metabolism of '*Candidatus* Pelagibacter ubique' HTCC1062
P. Carini[1], S. A. Sañudo-Wilhelmy[2], S. J. Giovannoni[1]; [1]Oregon State Univ., Corvallis, OR, [2]Univ. of Southern California, Los Angeles, CA.

1402 Elucidating the Role of Indigoidine Biosynthesis by *Phaeobacter daeponensis* strain Y4I in Competitive Surface Colonization
W. N. Cude, M. K. Hadden, C. A. Gulvik, A. Buchan; Univ. of Tennessee, Knoxville, TN.

1403 Heterotrophic vs. Autotrophic Potential of a Hot, Acidic Lake Microbial Community in Lassen Volcanic National Park (California, USA)
C. B. Fitzhugh[1], P. Siering[1], G. Wolfe[2], M. Wilson[1]; [1]Humboldt State Univ., Arcata, CA, [2]Chico State Univ., Chico, CA.

1404 Characterization of Prokaryotes in a Saline Spring near the Salton Sea, California
S. Bolivar, M. Rodela, J. G. Dillon; CSULB, Long Beach, CA.

1405 Preliminary Characterization of Detritus-degrading Bacteria from a Salt Marsh in Coastal Mississippi
Y. Deng, S. Y. Wang; The Univ. of Southern Mississippi, Hattiesburg, MS.

1406 DNA-based Investigation on the Methane-Oxidizing Bacterial Abundance and Diversity in North Temperate Lakes
J. K. Choi, J. J. Coloso, L. C. Fechtner, S. E. Jones; Univ. of Notre Dame, South Bend, IN.

1407 Survey of Bloom-forming Cyanobacteria and Phytoplankton in Northern New Jersey Freshwater Lakes
M. J. Rienzo, T-C. Chu; Seton Hall Univ., South Orange, NJ.

1408 Metagenomics Coupled with Culture Techniques Gives Insight to Freshwater Bacterial Community Function
K. Knox, A. Domask, M. Giese, B. Hartnell, B. Fechter, E. Johnson, D. Hundt, N. Marquardt, B. Mazibrada, H. Ozanich, J. Porter, D. Shapiro, S. R. Mueller-Spitz; UW-Oshkosh, Oshkosh, WI.

1409 Poles Apart: Genome Characteristics of Octadecabacter arcticus and O. antarcticus
J. Vollmers[1], S. Voget[1], T. Brinkhoff[2], M. Simon[2], **R. Daniel**[1]; [1]Univ. of Goettingen, Goettingen, GERMANY, [2]ICBM, Carl-von-Ossietzky Univ., Oldenburg, GERMANY.

1410 Influence of Ammonium Concentration on *amoA* mRNA Levels of Ammonia-Oxidizing Archaea within Sand of an Eelgrass Zone
T. Nakagawa, Y. Ando, R. Takahashi; Nihon Univ., Kanagawa, JAPAN.

1411 Diversity and Abundance of Ammonia Oxidizers in Aquarium Biofilters
K. F. C. Ng, Z. Y. Shen, X. Y. Lu, **P. K. H. Lee**; City Univ. of Hong Kong, Hong Kong, HONG KONG.

1412 Comparative study of cholera dynamics in Bakergonj and Mathbaria in Bangladesh (2004-2007)
W. M. H. H. Elnemr; Univ. of Maryland, College Park, MD.

1413 Change in the Symbiotic Host Range of *Photobacterium leiognathi* After Horizontal Transfer of the lux-rib Operon
H. Urbanczyk, T. Furukawa, Y. Iwatsuki; Univ. of Miyazaki, Miyazaki, JAPAN.

1414 Cultivation of Heterotrophic Marine Bacteria Along the Pacific Coast of North America
M. M. Ortiz, L. Rojas, E. Schaadt, J. Dillon; California State Univ., Long Beach, Long Beach, CA.

1415 Characterization of Antimicrobial Substances Produced by Sponge-Associated Bacteria Collected in Brazilian Coast
O. C. S. Santos, F. L. S. Machado, P. V. M. Pontes, G. Muricy, L. M. Sigiliano, A. R. Soares, M. Giambiagi-deMarval, **M. S. Laport**; Univ.e Federal do Rio de Janeiro, Rio de Janeiro, BRAZIL.

1416 Phylogenetic Analysis of Members of the Genus *Aeromonas* Based on Sequences of Housekeeping Genes
F. A. Cardozo, C. P. Souza, L. C. Lavezzo, I. N. Rivera; Univ. of São Paulo, São Paulo, BRAZIL.

1417 Distinct Methanogen Populations in the Water Column of Humic Lakes
R. J. Whitaker, N. Youngblut, M. Dell'Aringa; Univ. of Illinois, Urbana, IL.

1418 Simultaneous Catabolism of Lignin-Derived Aromatic Compounds by a Marine Roseobacter
C. A. Gulvik, A. Buchan; The Univ. of Tennessee, TN.

1419 Diversity of Alkane Oxidizers and Alkane Hydroxylases in Deep-sea Hydrothermal Vents
R. Keddis, C. Vetriani; Rutgers Univ., New Brunswick, NJ.

1420 Diversity, Distribution and Expression of Diazotrophs (nifh) in Oxygen Deficient Waters of the Arabian Sea
A. Jayakumar[1], M. M. D. Al-Rshaidat[2], B. B. Ward[1], M. R. Mulholland[3]; [1]Princeton Univ., Princeton, NJ, [2]The Univ. of Jordan-Aqaba, Aqaba, JORDAN, [3]Old Dominion Univ., Norfolk, VA.

1421 Characterization of Halotolerant Bacteria Cultured from Seawater along the Pacific Coast of North America
E. C. Schaadt, J. Dillon; California State Univ., Long Beach, Long Beach, CA.

1422 Algal Stimulation of Microbially Mediated Plant Litter Decomposition
R. H. Findlay[1], K. A. Kuehn[2], S. N. Francoeur[3]; [1]Univ. of Alabama, Tuscaloosa, AL, [2]Univ. of Southern Mississippi, Hattiesburg, MS, [3]Eastern Michigan Univ., Ypsilanti, MI.

1423 The Contribution of Bacterial Pollution by Algal Mats in Recreational Freshwater
P. Kc, I. Haider, H. Opalko, D. Spacht, **S. A. Mauro**; Mercyhurst Coll., Erie, PA.

1424 Isolation and Physiology of Marine Microorganisms Associated with a Spring Phytoplankton Bloom in Shallow Coastal Seawater at Helgoland
R. Hahnke, A. Mann, H. Teeling, C. Bennke, B. Fuchs, R. Amann, J. Harder; Max Planck Inst. for Marine Microbiol., Bremen, GERMANY.

1425 Algal Species Identity Influences the Development of Denitrifying Bacterial Communities in Periphytic Biofilms
M. Rojas[1], K. N. Kalscheur[2], K. A. Gray[2], C. G. Peterson[1], J. J. Kelly[1]; [1]Loyola Univ. Chicago, Chicago, IL, [2]Northwestern Univ., Evanston, IL.

111 Molecular Microbiology Ecology: Communities and Organisms I (Division N)

10:45 a.m. – 12:30 p.m.; Poster Hall

1426 Viability Assessment of Microbial Communities Using State-of-the-Art Molecular Techniques
P. Vaishampayan[1], A. Probst[2], M. La Duc[1], E. Bargoma[1], J. Benardini[1], G. Andersen[3], K. Venkateswaran[1]; [1]California Inst. of Technology, Jet Propulsion Lab., Pasadena, CA, [2]Univ. of Regensburg, GERMANY, [3]Lawrence Berkeley Natl. Lab., CA.

1427 Continental and Global Maps of Terrestrial and Marine Bacterial Diversity
J. Ladau[1], T. J. Sharpton[1], G. Jospin[2], S. W. Kembel[3], J. O'Dwyer[4], A. F. Koeppel[5], N. Fierer[6], J. L. Green[3], K. S. Pollard[7]; [1]Gladstone Inst.s, San Francisco, CA, [2]Dept. of Evolution and Ecology, Univ. of California Davis, Davis, CA, [3]Ctr. for Ecology and Evolutionary Biology, Univ. of Oregon, Eugene, OR, [4]Santa Fe Inst., Santa Fe, NM, [5]Dept. of Biology, Univ. of Virginia, Charlottesville, VA, [6]Cooperative Inst. for Res. in Environmental Sci. and Dept. of Ecology and Evolutionary Biology, Univ. of Colorado, Boulder, CO, [7]Gladstone Inst.s and Div. of Biostatistics and Inst. for Human Genetics, Univ. of California San Francisco, San Francisco, CA.

1428 The Kombucha Biofilm: A Model System for Microbial Ecology
A. Shade[1,2], D. H. Buckley[3,2], S. H. Zinder[3,2]; [1]Yale Univ., New Haven, CT, [2]Marine Biological Lab., Woods Hole, MA, [3]Cornell Univ., Ithaca, NY.

1429 Microbial Biogeography: Diversity and Ecology of Magnetotactic Bacteria as a Model
W. Lin[1,2], Y. Wang[1,2], Y. Pan[1,2]; [1]Inst. of Geology and Geophysics, Chinese Academy of Sci., Beijing, CHINA, [2]France-China Bio-Mineralization and Nano-Structures Lab., Chinese Academy of Sci., Beijing, CHINA.

1430 Phylogenetic Groups Associated to Antibiotic Resistance and Virulence-Associated Factors in *Escherichia coli* Isolated from Feces of Healthy Animals
G. Zanzini[1], C. P. S. Sales[1], F. A. Cardozo[1], N. C. A. Vargas[1], T. A. T. Gomes[2], M. A. M. Vieira[2], I. N. G. Rivera[1]; [1]Univ. of São Paulo, São Paulo, BRAZIL, [2]Federal Univ. of São Paulo, São Paulo, BRAZIL.

1431 Analyses of Methanogenic Archaea Populations in Swine Feces and Stored Swine Manure Using 16S rDNA and *mcr*A PCR and Pure Culture Isolation
T. R. Whitehead, C. Spence, M. A. Cotta; Natl. Ctr. for Agricultural Utilization Res., USDA/ARS, Peoria, IL.

1432 PhyloChip G3 Analysis of Novel Icelandic Hot Springs reveals Archaea being Biotic Indicators for changes in pH and temperature
A. Probst[1], P. Vaishampayan[2], J. Krebs[2], **L. M. Tom**[3], G. L. Andersen[3], K. Venkateswaran[2]; [1]Dept. for Microbiol. and Archaea Ctr., Univ. of Regensburg, GERMANY, [2]Biotechnology and Planetary Protection Group, Jet Propulsion Lab., California Inst. of Technology, Pasadena, CA, [3]Dept. of Ecology, Earth Sci. Div., Lawrence Berkeley Natl. Lab., Berkeley, CA.

1433 Molecular and Geochemical Evidence for Ammonia Oxidation by Thaumarchaeota in Columbia River Sediments
M. Xu, J. Nurmi, P. Tratnyek, H. Simon; Oregon Hlth.and Sci. Univ., Beaverton, OR.

1434 Novel High-rank Phylogenetic Lineages within a Sulfur Spring (zodletone Spring, Oklahoma, USA) Revealed Using a Combined Pyrosequencing/sanger Approach
N. H. Youssef, B. L. Steidley, M. S. Elshahed; Oklahoma State Univ., Stillwater, OK.

1435 Phenotypic, Phylogenetic, and Functional Gene Characterization of *Methylobacterium* Isolates
J. Kist, R. L. Tate, III; Rutgers Univ., New Brunswick, NJ.

1436 The Methanol Dehydrogenase Gene, mxaF, as a Functional and Phylogenetic Marker for Methanotrophic Bacteria in Natural Environments
E. Lau[1,2], M. C. Fisher[2], P. A. Steudler[3], C. M. Cavanaugh[2]; [1]West Liberty Univ., West Liberty, WV, [2]Harvard Univ., Cambridge, MA, [3]Marine Biological Lab., Woods Hole, MA.

1437 Virulence Gene Expression of *Legionella pneumophila* Exposure to CuO-Nanoparticles
J. Lu[1], I. Struewing[2], H. Buse[1], N. J. Ashbolt[1]; [1]US EPA, Cincinnati, OH, [2]Dynamac Incoporation, Cincinnati, OH.

1438 Determination of the Influence of Chromium on Microbial Community Structure and Function
J. J. Mosher[1], T. J. Phelps[1], M. Podar[1], S. D. Brown[1], T. C. Hazen[1], A. P. Arkin[2], B. A. Faybishenko[2], A. V. Palumbo[1], **D. A. Elias**[1]; [1]Oak Ridge Natl. Lab., Oak Ridge, TN, [2]Lawrence Berkeley Natl. Lab., Berkeley, CA.

1439 Host-associated versus Environmental SR1 Bacteria
A. Caldwell, **S. Ghotra**, A. Lindsey, S. Nystrom, C. Ouverney; San Jose State Univ., San Jose, CA.

1440 The Role of Immune Response in Structuring the Skin Microbiome of Mice
B. D. Badgley[1], F. Scholz[2], D. H. Kaplan[2], M. J. Sadowsky[1]; [1]Univ. of Minnesota, St Paul, MN, [2]Univ. of Minnesota, Minneapolis, MN.

1441 Responses of Gut Microbiota to Sterculic Oil Supplemented Diet in Lean and Obese Mice
S. Ghosh[1], J. W. Perfield, II[2], P. Saikaly[3], D. B. Oerther[1]; [1]Missouri Univ. of Sci. & Technology, Rolla, MO, [2]Univ. of Missouri, Columbia, MO, [3]King Abdullah Univ. of Sci. & Technology, SAUDI ARABIA.

1442 Variation in Microbiota Diversity between Beef and Dairy Cattle
P. Singh[1,2], K. Jernigan[1,2], C. Radek[2], R. Britton[2], C. Venegas[3], S. Rust[4], P. Bartlett[3], D. Grooms[3], S. D. Manning[1,2]; [1]Microbial Evolution and Epidemiology Lab., Michigan State Univ., East Lansing, MI, [2]Dept. of Microbiol. and Molecular Genetics, Michigan State Univ., East Lansing, MI, [3]Dept. of Large Animal Clinical Sci., Michigan State Univ., East Lansing, MI, [4]Dept. of Animal Sci., Michigan State Univ., East Lansing, MI.

1443 From Forage to Feedlot: Community Structures of Rumen Epithelial Bacteria in Cattle
R. M. Petri[1,2], T. Schwaiger[1], K. A. Beauchemin[2,1], R. J. Forster[2], J. J. McKinnon[1], T. A. McAllister[2,1]; [1]Univ. of Saskatchewan, Saskatoon, SK, CANADA, [2]Agriculture and Agri-Food Canada, Lethbridge, AB, CANADA.

1444 Patterns of Phylogenetic and Functional Diversity in a Salt Marsh Microbial Mat
D. W. Armitage[1], D. H. Buckley[2], S. H. Zinder[2]; [1]Univ. of California, Berkeley, Berkeley, CA, [2]Cornell Univ., Ithaca, NY.

1445 Responses of Microbial Communities to Elevated CO2 and Increased Temperature in the Northern Mixed-Grass Prairie Revealed by GeoChip Analysis
L. Wu[1], **H. Yu**[1], J. Van Nostrand[1], Z. He[1], Y. Deng[1], E. Pendall[2], M. Wallenstein[3], J. Zhou[1]; [1]Univ. of Oklahoma, Norman, OK, [2]Univ. of Wyoming, Laramie, WY, [3]Colorado State Univ., Fort Collins, CO.

1446 Climate Warming Induced Permafrost Thaw Changes Soil Microbial Communities
M. M. Yuan[1], J. Zhang[1], L. Wu[1], K. Xue[1], L. Cheng[1], Y. Deng[1], T. Yuan[1], J. D. Van Nostrand[1], Z. He[1], E. A. G. Schuur[2], Y. Luo[1], J. M. Tiedje[3], J. Zhou[1]; [1]Inst. for Environmental Genomics and Dept. of Botany and Microbiol., Univ. of Oklahoma, Norman, OK, [2]Dept. of Biology, Univ. of Florida, Gainesville, FL, [3]Ctr. for Microbial Ecology, Michigan State Univ., East Lansing, MI.

1447 Microbial Community Shifts in Grassland Soil under Long-term Warming Conditions Revealed by Multiplex Pyrosequencing
L. Wu, Y. Qin, Y. Deng, Q. Tu, J. Xie, Y. Luo, J. Van Nostrand, R. A. Rebecca, Z. He, J. Zhou; Univ. of Oklahoma, Norman, OK.

1448 Changes in Dynamics of Soilborne Plant Pathogens Under Warming
Y. Lee, L. Cheng, J. W. Voordeckers, Z. Shi, T. Yuan, J. D. Van Nostrand, K. Xue, Z. He, L. Wu, J. Zhou; Univ. of Oklahoma, Norman, OK.

1449 Organic vs. Integrated Farm Management—Differences in the Allergenic Potential of Fungal Communities Inhabiting Soil and Decaying Straw
F. C. Weikl[1], V. Radl[2], J. C. Munch[1], K. Pritsch[1]; [1]Helmholtz Zentrum München, Inst. of Soil Ecology, München, GERMANY, [2]Helmholtz Zentrum München, Res. Unit Environmental Genomics, München, GERMANY.

1450 Differences in Bacterial Communities in the Rhizosphere of Living and Dead Eastern Hemlock (Tsuga canadensis)
K. L. Fuller, S. P. O'Connell; Western Carolina Univ., Cullowhee, NC.

1451 Habitat-Specific Adaptations and Ecological Significance of *Lactococcus lactis* in Plant Systems
B. L. Golomb, M. L. Marco; UC Davis, Davis, CA.

1452 Microbial Diversity Revealed by 16S 454 Pyrotag Depends on the Primers and Regions
L. Cai, T. Zhang, L. Ye, A. H. Y. Tong, S. Lok; The Univ. of Hong Kong, Hong Kong, HONG KONG.

1453 Evaluation of Commercial DNA Extraction Kits on Activated Sludge Samples for High Throughput Sequencing
F. Guo, T. Zhang; The Univ. of Hong Kong, Hong Kong, HONG KONG.

112 New Biotechnology (Division O)

10:45 a.m. – 12:30 p.m.; Poster Hall

1454 Isolation of *Bacillus* subtilis Endospores at High Purity and Great Performance in Recovery Yields: Optimization of Growth Conditions and Purification Method
W. B. Luiz, M. Tavarez, R. Souza, C. Casaroli, R. Cavalcante, R. Ferreira, L. C. Ferreira, L. C. Ferreira, L. C. Ferreira; Univ. of São Paulo, São Paulo, BRAZIL.

1455 Optimization of Bacterial Bioluminescence (lux) Expression in Mammalian Cells and its Application as a Bioreporter
T. Xu[1,2], D. M. Close[3,4], S. A. Ripp[1,2,4], G. S. Sayler[1,2,3,4]; [1]Ctr. for Environmental Biotechnology, Univ. of Tennessee, Knoxville, TN, [2]Dept. of Microbiol., Univ. of Tennessee, Knoxville, TN, [3]The Joint Inst. for Biological Sci., Oak Ridge Natl. Lab., Oak Ridge, TN, 4490 BioTech Inc., Knoxville, TN.

1456 Tracking Human Cell Exposure to *E. coli* O157:H7 Using an Autobioluminescent Cell Line Expressing the Bacterial Luciferase Gene Cassette
D. Close[1,2], S. Ripp[3,2], G. Sayler[1,2,3]; [1]Joint Inst. for Biological Sci., The Univ. of Tennessee, Knoxville, TN, 2490 BioTech, Inc., Knoxville, TN, [3]Ctr. for Environmental Biotechnology, The Univ. of Tennessee, Knoxville, TN.

1457 Studies on the Tissue-carbon Nanofiber Scaffolds Adhesion and Cytotoxicity Properties in Human Mesenchymal Stem Cells
H. Wu, Z. Welcome, N. Elijah, K. Wekesa, R. Villafane, K. Scissum-Gunn; Alabama State Univ., Montgomery, AL.

1458 Application of Targeted Proteomics to Metabolically Engineered Pathways in *Escherichia coli*
P. Singh[1], T. S. Batth[1], D. Juminaga[1], R. H. Dahl[1], H. Ji[2], S. B. del Cardayre[2], J. D. Keasling[1], P. D. Adams[1], C. J. Petzold[1]; [1]Joint BioEnergy Inst., Lawrence Berkeley Natl. Lab., Berkeley, CA, [2]LS9 Inc., South San Fransico, CA.

1459 Rapid Ultrasensitive Method for Endotoxin Detection Utilizing T2MR and LAL Test Reagents
V. Papkov, T. Lowery; T[2]Biosystems, Lexington, MA.

1460 Efficacy of a Novel Colorimetric Bioassay for Perchlorate Detection in Groundwater
A. C. FRAZER, J. D. Coates; Univ. California Berkeley, Berkeley, CA.

1461 Insight into the Mechanism of Solubility Enhancement by *E. coli* Maltose-Binding Protein
D. S. Waugh, S. Rarran Kurrusi; Natl. Cancer Inst. at Frederick, Frederick, MD.

1462 Rapid Identification of Shiga Toxin 2 Variants from *Escherichia coli* O157 and non-O157 serotypes Using MALDI-TOF-TOF-MS/MS and Top-down Proteomics
C. K. Fagerquist, O. Sultan, B. Quinones, N. Woo, M. Swimley, M. B. Cooley, R. E. Mandrell; USDA, Albany, CA.

1463 Display of Peptide Ligand on Yeast Plasma Membrane for Activation of GPCR Signaling
K. Kuroda, K. Hara, M. Ueda; Graduate Sch. of Agriculture, Kyoto Univ., Kyoto, JAPAN.

1464 Introduction of iFA Plus and iFN Plus Neutralizing Media for BacT/ALERT® 3D Systems
C. Beres[1], M. Anheuser[1], J. Spontak[2], M. Adamik[2], B. McNamara[2], **G. Devulder**[1]; [1]bioMerieux, Inc, Hazelwood, MO, [2]bioMerieux, Inc, Durham, NC.

1465 Evaluation of Two Methods for Non-Targeted Detection of Bacteria
S. D. Leskinen[1], E. A. Kearns[1], S. Deshpande[2], D. A. Cremers[3], R. A. Multari[3], D. V. Lim[1]; [1]Univ. of South Florida, Tampa, FL, [2]Scientific and Technology Corp., Edgewood, MD, [3]Applied Res. Associates, Inc., Albuquerque, NM.

1466 Enzymes from Extremophilic Microorganisms; Tools to Reduce Energy Consumption in Industrial Processes
J. K. Vester, M. A. Glaring, P. Stougaard; Univ. of Copenhagen, DENMARK.

1467 Construction of pShuffle: A Plasmid for *in vitro* Evolution of Styrene Monooxygenases
D. Tischler, P. Zwicker, R. Schwabe, J. A. D. Gröning, S. R. Kaschabek, M. Schlömann; TU Bergakademie Freiberg, Interdisciplinary Ecological Ctr., Freiberg, GERMANY.

1468 Reduced-genome *Escherichia coli* Undergoes Adaptive Evolution to Achieve the Optimal Growth on a Laboratory Timescale
J. Kim, J. Kim, S. Kim, B-K. Cho; KAIST, KOREA, REPUBLIC OF.

1469 Screening of Environmental Metagenomes and Purified Proteins for Polylactate Depolymerase Activity
M. Hajighasemi[1], A. Tchigvintsev[1], W. Wu[2], C. S. Criddle[2], E. A. Edwards[1], A. F. Yakunin[1]; [1]Univ. of Toronto, Toronto, ON, CANADA, [2]Stanford Univ., Stanford, CA.

1470 Molecular Typing Analysis of Six Local Wine Strains of *Saccharomyces Cerevisiae*
Z. A. Guiamal, C. T. Hedreyda; Natl. Inst. of Molecular Biology and Biotechnology, Quezon City, PHILIPPINES.

1471 Optimization of Recombinant Protein Production in *Pseudomonas fluorescens* Utilizing a High-throughput, Parallel Processing Approach
R. Coleman, H. Jin, G. Cantin, S. Maki, L. Chew, D. Retallack, J. Allen; Pfenex Inc., San Diego, CA.

1472 Biochemical Characterization of the Invertase Inv3a from *Candida lactis-condensi* and Comparison with its Deglycosilated Form
M. A. Plascencia Espinosa[1,2], A. Santiago Hernández[2], M. E. Hidalgo Lara[2]; [1]CIBA – IPN, Tlaxcala, MEXICO, [2]CINVESTAV-IPN, Mexico, MEXICO.

1473 Broad-Spectrum Identification of Environmental Microorganisms Using Genome Sequence Scanning
R. H. Meltzer, D. B. Cameron, S. J. Gerrin, J. W. Griffis, J. A. Symonds, G. Malkin, E. Protozanova, R. Gilmanshin; PathoGenetix, Woburn, MA.

113 Biodegradation of Alkanes and Aromatics (Division Q)

10:45 a.m. – 12:30 p.m.; Poster Hall

1474 Alkane Hydroxylase Diversity of a Historically Contaminated Tidal Marsh in the Great Bay Estuary of NH
J. L. Miller[1], J. P. Trethewey[1], S. M. Ní Chadhain[2], L. A. Launen[1]; [1]Keene State Coll., Keene, NH, [2]Univ. of South Alabama, Mobile, AL.

1475 Copper-dependent Membrane Integrated Butane Monooxygenase in the Alkane-oxidizing Gram-negative Strain *Haematobacter sp.* ALK200
D. Salamanca Velandia, S. Helbich, N. Strunk, K-H. Engesser; Univ. of Stuttgart, Stuttgart, GERMANY.

1476 Analysis of LadA-related long-chain alkane monooxygenase in an extremely thermophilic *GeoBacillus thermoleovorans* B23
C. Boonmak[1], Y. Takahashi[1], M. Honma[2], M. Morikawa[2]; [1]Div. of BioSci., Graduate Sch. of Environmental Sci., Hokkaido Univ., JAPAN, [2]Div. of BioSci., Faculty of Environmental Earth Sci., Hokkaido Univ., JAPAN.

1477 Bacterial Prospects for Aliphatic Alkane Degradation in Neotropical Soils
Y. Bernier-Casillas, S. A. Cantrell, J. R. Pérez-Jiménez; Univ. del Turabo, Gurabo, PR.

1478 Evaluation of Removal of Petroleum Aliphatic Hydrocarbons Using a Consortium "*Pseudomonas aeruginosa*" and "scedosporium Apiospermum"
C. J. Sandoval, M. Vives; Univ. de los Andes, Bogota, COLOMBIA.

1479 Alkane Hydroxylase Gene Diversity in the Northern Gulf of Mexico Water Column
C. B. Smith[1], B. Tolar[2], J. T. Hollibaugh[2], G. M. King[1]; [1]Louisiana State Univ., Baton Rouge, LA, [2]Univ. of Georgia, Athens, GA.

1480 Microbial Community Response to the Deepwater Horizon Oil Spill, a Functional Gene Approach
S. M. NI CHADHAIN, J. B. Finley, N. Ortell Cumbaa, L. Wang, A. C. Ortmann; Univ. of South Alabama, Mobile, AL.

1481 Optimization of Petroleum Hydrocarbon Biodegradation by a Yeast Strain, Using Soya Bean
B. O. Amechi[1], R. Ohenhen[2], T. M. Kayode-Isola[3]; [1]Federal Med. centre, Umuahia, Abia St, NIGERIA, [2]Ambrose Alli Univ., Ekpoma, Edo State, NIGERIA, [3]Adeniran Ogunsanya Colledge of Ed., Festac Town, Lagos State., NIGERIA.

1482 Isolation and Identification of Thermophilic Bacteria with Putative Genes Implicated in Bioremediation from Oil Sludge Waste
J. A. Dominguez, K. G. Rosal, C. T. Hedreyda; Natl. Inst. of Molecular Biology and Biotechnology, Univ. of the Philippines Diliman, Quezon City, PHILIPPINES.

1483 The Metabolic Potential of *Frankia* Strains Ccl3 and Eul1c for Degradation and Resistance to Aromatic Compounds
E. Baker[1], M. Rehan[2,1], L. Tisa[1]; [1]Univ. of New Hampshire, Durham, NH, [2]Kafrelsheihk Univ., EGYPT.

1484 Anaerobic Microbial Transformation and Degradation of Bisphenol A (BPA)
J. Im[1], A. May[1], S. R. Campagna[1], F. E. Loeffler[1,2]; [1]Univ. of Tennessee, Knoxville, TN, [2]Oak Ridge Natl. Lab., Oak Ridge, TN.

1485 Development and Application of Functional Biomarkers to Indicate Potential Biodegradation of 1,4-Dioxane
P. B. Gedalanga, P. Pornwongthong, **S. Mahendra**; Univ. of California, Los Angeles, Los Angeles, CA.

1486 Aerobic and Anaerobic Biodegradation of Benzene in Hypersaline Conditions at Rozel Point, Great Salt Lake, Utah
S. Dalvi[1], L. Christian[1], D. Aktas[2], M. Patrauchan[1], B. Fathepure[1]; [1]Oklahoma State Univ., Stillwater, OK, [2]Univ. of Oklahoma, Norman, OK.

1487 Anaerobic Benzene Oxidation *Via* Phenol in Geobacter metallireducens
T. Zhang, A. K. Chaurasia, P-L. Tremblay, J. A. Smith, T. S. Bain, D. R. Lovley; Univ. of Massachusetts, Amherst, MA.

1488 Genomic and Proteomic Analysis of Lignin Degradation by Bacteria
M. Prabhakaran, K. D. Ramachandriya, F. Segato, P. Ayoubi-Canaan, R. Prade, B. Fathepure; Oklahoma State Univ., Stillwater, OK.

1489 PAH Degradation Potential and Diversity of Microbial Communities from Tsunami Sediments in Miyagi, Japan after the Great East Japan Earthquake
H. P. Bacosa, C. Inoue; Graduate Sch. of Environmental Studies, Tohoku Univ., Sendai, JAPAN.

1490 Megaplasmid Possessed *nid*A in Pyrene/Phenanthrene-degrading *Novosphingobium* sp. PCY
W. Wongwongsee, A. Pinyakong; Dept. of Microbiol., Faculty of Sci., Chulalongkorn Univ., Bangkok, THAILAND.

1491 Function of a PdoA2 Ring-Hydroxylating Oxygenase in the Polycyclic Aromatic Hydrocarbon-Metabolic Network in *Mycobacterium vanbaalenii* PYR-1
O. Kweon, S-J. Kim, D. Kim, S. Ryou, C. E. Cerniglia; NCTR/US FDA, Jefferson, AR.

1492 Functional Robustness of a Polycyclic Aromatic Hydrocarbon Metabolic Network Examined in a nidA Aromatic Ring Hydroxylating Oxygenase Mutant of *Mycobacterium vanbaalenii* PYR-1
S-J. Kim[1], J. Song[2], O. Kweon[1], R. D. Holland[1], D-W. Kim[1], L-R. Yu[1], C. E. Cerniglia[1]; [1]NCTR/US FDA, Jefferson, AR, [2]Rural Dev. Admin., Suwon, KOREA, REPUBLIC OF.

1493 Screening a Natural Asphalt Seep for Biosurfactant Producing Bacteria
R. W. Belcher, K. V. Huynh, T. V. Hoang, D. E. Crowley; Univ. of California Riverside, Riverside, CA.

1494 Decolorization Ability of the Bacterial Laccase Lac15
Y. Xiao, W. Fang, F. Chang, Z. Fang, X. Zhang; Sch. of Life Sci., Anhui Univ., Hefei, CHINA.

1495 Characterization of the Norfloxacin N-Acetylation Activity of Glutamine Synthetase from *Microbacterium* sp. Strain 4N2-2
D-W. Kim, J. Feng, H. Chen, O. Kweon, Y. Gao, L-R. Yu, V. J. Burrowes, **J. B. Sutherland**; Nat. Ctr. Toxicol. Res., U. S. FDA, Jefferson, AR.

1496 Isolation of Sphingomonads that Degrade Triclosan, Bisphenol-A, Ibuprofen, 17β-Estradiol and Gemfibrozil with Potential Implications for Wastewater Bioaugmentation
N. A. Zhou, A. C. Lutovsky, G. L. Andaker, H. L. Gough, J. F. Ferguson; Univ. of Washington, Seattle, WA.

1497 Growth of Marine Bacteria on the Natural Organophosphate (S)-Cinnamoylphosphoramide
S. F. Nishino, J. C. Spain; Georgia Inst. of Technology, Atlanta, GA.

1498 Functional Characterization of a Cold-Active Catechol 2,3- Dioxygenase from an Antarctic *Pseudomonas* Strain
E. Ahn[1], D. Kim[2], B. Kang[3], G. J. Zylstra[4], E. Kim[1]; [1]Yonsei Univ., Seoul, KOREA, REPUBLIC OF, [2]Korea Polar Res. Inst., Incheon, KOREA, REPUBLIC OF, [3]Kyungpook Natl. Univ., Daegu, KOREA, REPUBLIC OF, [4]Rutgers Univ., New Brunswick, NJ.

1499 Investigation of a Microbial Community Exposed to Potentially Genotoxic Pollutants During Growth on a Defined Hydrocarbon NAPL
R. A. Kanaly[1], N. Hamamura[2]; [1]Yokohama City Univ., Yokohama, JAPAN, [2]Ehime Univ., Matsuyama, JAPAN.

1500 Draft Genome of *Rhodococcus* opacus strain M213 Shows a Diverse Catabolic Potential
A. Pathak[1], S. Green[1], A. Ogram[2], A. Chauhan[1]; [1]Florida A&M Univ., Tallahassee, FL, [2]Univ. of Florida, Gainesville, FL.

1501 Exploring the Lignocellulose Degrading Bacterial Community in the Fungus-Growing Termite Gut
Y. Jia-Cih, G. M. Mathew, C-C. Huang; Natl. Chung Hsing Univ., Taichung, TAIWAN.

114 Disinfection, Sanitation and Hygiene (Division Q)

10:45 a.m. – 12:30 p.m.; Poster Hall

1502 Enteric Pathogens in Community Source Water, Household Stored Water, and on Hands in Tanzania
M. M. Mattioli, A. J. Pickering, J. Davis, A. B. Boehm; Stanford Univ., Stanford, CA.

1503 The Effect of Disinfecting Wipes on Bacterial Transfer
K. A. Reynolds, G. U. Lopez; The Univ. of Arizona, Tucson, AZ.

1504 Microbial Hotspots and Diversity in Common Household Surfaces
R. Saha[1], C. E. Farrance[2], N. Saha[3], S. Wheeler[1], B. Verghese[2], S. Hong[2], L. L. Bestervelt[1], R. S. Donofrio[1]; [1]NSF Intl., Ann Arbor, MI, [2]Accugenix, Newark, DE, [3]Univ. of Calcutta, Kolkata, INDIA.

1505 A Review of the Role of Clothing and Household Linens in the Spread of Community-based *S. aureus* (including MRSA) Infections
E. Scott[1], S. F. Bloomfield[2]; [1]Simmons Coll. and Intl. Forum on Home Hygiene, Boston, MA, [2]London Sch. of Hygiene & Tropical Med. and Intl. Forum on Home Hygiene, London, UNITED KINGDOM.

1506 Evaluation of Hospital Grade Disinfectants used with Reusable Hospital Cleaning Towels
L. Y. Sifuentes[1], C. P. Gerba[1], K. Engelbrecht[2], D. W. Koenig[2], I. Weart[3]; [1]Univ. of Arizona, Tucson, AZ, [2]Kimberly-Clark Corp., Neenah, WI, [3]Kimberly-Clark Corp., Roswell, GA.

1507 Survival of a Surrogate Virus on N95 Respirators for Healthcare Use
B. Waka, **L. M. Casanova**; Georgia State Univ., Atlanta, GA.

1508 Bacteria in House Dust: Influence of Mold and Other Environmental Factors
E. M. Kettleson[1], S. Kumar[1], T. Reponen[1], S. Vesper[2], A. Adhikari[1]; [1]Univ. of Cincinnati, Cincinnati, OH, [2]U.S. Environmental Protection Agency, Cincinnati, OH.

1509 A Comparison of the Surface Disinfection Capabilities of Two Different Peroxide Based Disinfectants Used in an Automated Fogging Machine in a 45 Cubic Meter Room
G. Chang, H. Chan-Myers; Advanced Sterilization Products, Irvine, CA.

1510 Differential Effects of Heat-Shocking *Bacillus subtilis*, *Clostridium sporogenes*, and Virulent *Bacillus anthracis* Spores Following Disinfectant Treatment
J. K. March, M. D. Pratt, G. B. Schaalje, C-W. Lowe, A. B. Bunnell, K. L. O'Neill, R. A. Robison; Brigham Young Univ., Provo, UT.

1511 Extraction, Thermal Stability and Antimicrobial Activity of Purified Biosurfactant Extract Obtained from *Bacillus atrophaeus* ATCC 9372
L. C. M. Das Neves[1], V. S. Costa Jr.[1], L. F. S. Lourencini[1], M. Ishii[1], T. C. Vessoni Penna[1], I. C. Roberto[2]; [1]Univ. of São Paulo, São Paulo, BRAZIL, [2]Univ. of São Paulo, Lorena, BRAZIL.

1512 Evaluation of Genetically Modified *Bacillus* Spores to Monitor Thermal Processes
A. C. Oliveira, L. F. S. Lourencini, L. C. M. Das Neves, T. C. Vessoni Penna, **M. Ishii**; Univ. of São Paulo, São Paulo, BRAZIL.

1513 Enhanced Inactivation of *Bacillus subtilis* Spores *Via* in Situ Photochemical Activation of Free Chlorine to Hydroxyl Radical
J. E. Forsyth, Q. Mao, N. K. Beck, J. S. Meschke, M. C. Dodd; Univ. of Washington, Seattle, WA.

1514 The Effects of Environmental Conditions on Persistence and Inactivation of *Brucella suis* on Environmental Surfaces
M. W. Calfee[1], M. Wendling[2]; [1]US EPA, RTP, NC, [2]Battelle Mem. Inst., Columbus, OH.

115 Persistence of Enteric Microbes in the Environment (Division Q)

10:45 a.m. – 12:30 p.m.; Poster Hall

1515 Association of *Clostridium botulinum* with the macroalga Cladophora in the Great Lakes
C. Chun[1], U. Ochsner[1], M. N. Byappanahalli[2], R. W. Whitman[2], **M. J. Sadowsky**[1]; [1]Univ. of Minnesota, Minneapolis, MN, [2]U.S. Geological Survey, Indiana Dune Natl. Lakeshore, Porter, IN.

1516 Population Structure and Density Variation of *E. coli* Along Chicago Beaches Suggest Common, Non-point Origins
M. B. Nevers[1], M. N. Byappanahalli[1], C. Breitenbach[2], A. M. Spoljaric[1], D. A. Shively[1], K. J. Przybyla-Kelly[1], R. L. Whitman[1]; [1]US Geological Survey, Porter, IN, [2]Chicago Park District, Chicago, IL.

1517 Influence of Moisture and Temperature on the Persistence of Molecular Marker Genes to Detect Fecal Pollution in Sand and Sediment
J. J. Eichmiller[1], M. J. Sadowsky[1], R. E. Hicks[2]; [1]Univ. of Minnesota, Saint Paul, MN, [2]Univ. of Minnesota, Duluth, MN.

1518 The Effect of Motility and Predation on the Persistence of *E. coli*, *Salmonella* and *Enterococci* Strains in Outdoor Mesocosms
P. W. Wanjugi, V. J. Harwood; Univ. of South Florida, Tampa, FL.

1519 Effects of Temperature and Salinity on the Survival of Faecal *Bacteroides* and Persistence of PCR Recovery under Environmental Conditions
K. R. Hussein, G. Bradley and G. Glegg; Univ. of Plymouth, Plymouth, UNITED KINGDOM.

1520 Seasonal Variation in the Persistence and Infectivity of Human Adenovirus in Estuarine Water
W. Quidort, K. Reece, H. Kator; Virginia Inst. of Marine Sci., Gloucester Point, VA.

1521 Persistence of the *Enterococcus* Quantitative Polymerase Chain Reaction (qPCR) Signal and Die-off of Cultural Fecal Indicator Bacteria (FIB) and Polioviruses in Simulated Recreational Water Samples
K. P. Brenner[1], K. Oshima[1], Y. Chu[2], L. Wymer[1], R. Haugland[1], E. Chern[1]; [1]US EPA, Cincinnati, OH, [2]Dynamac Corp., Cincinnati, OH.

1522 Simulated Sunlight Inactivation of Poliovirus, Adenovirus, and Bacteriophages MS2 and PRD1 in Coastal Waters from Southern California and Mexico
A. I. Silverman, K. L. Nelson; Univ. of California, Berkeley, Berkeley, CA.

1523 Development of a Predictive Model for Direct Inactivation of Ms2 by Sunlight
M. T. Nguyen, K. L. Nelson; Univ. of California, Berkeley, Berkeley, CA.

1524 Long-range Quantitative PCR for Determining Dna Damage in Adenovirus Caused by Ultraviolet Light
R. A. Rodriguez, S. Bounty, K. G. Linden; Univ. of Colorado-Boulder, CO.

1525 The Influence of Sunlight Irradiation and Predation on the Decay of Fecal Indicator Bacteria in a Freshwater Environment
A. Korajkic[1], B. R. McMinn[1], O. C. Shanks[2], G. S. Fout[1], N. J. Ashbolt[1]; [1]US Environmental Protection Agency, Natl. Exposure Res. Lab., Office of Res. and Dev., Cincinnati, OH, [2]US Environmental Protection Agency, Natl. Risk Management Res. Lab., Office of Res. and Dev., Cincinnati, OH.

1526 Study of the Antibiotic Resistance Among Fecal Coliforms Isolated from Freshwaters near Human Health Facilities in the Northeast Area of Puerto Rico
J. M. Falero-Perez, L. M. Garcia-Peterson, M. E. Perez-Velez; Univ. del Este, Carolina, PUERTO RICO.

1527 A Study of *Escherichia coli* Survival in Stream Water and Sediment
E. N. Moody, J. A. Beston, C. L. Cooper; Truman State Univ., Kirksville, MO.

1528 The Dominant Population of *Enterococci* in Puerto Rico's Waterways
L. A. RIOS-HERNANDEZ, M. F. Cuebas-Irizarry, V. Semidei-Rodríguez, G. Negrón-Talavera; Univ. of Puerto Rico, Mayaguez, PR.

1529 Comparison of Molecular and Culture Techniques to Discriminate Viable and Dead *Helicobacter pylori* Cells
Y. Moreno, P. Santiago, J. Alonso, I. Amorós, M. Ferrús; Univ. Politécnica Valencia, Valencia, SPAIN.

1530 Study of the Presence of *H. pylori* in UV Treated Wastewater by FISH and Real Time PCR Techniques
P. Santiago, Y. Moreno, M. Castillo, J. Alonso, M. Ferrús; Univ.t Politécnica de Valencia, Valencia, SPAIN.

1531 Investigating the Role that Biochar Feedstock and Pyrolysis Temperature has on the Transport Behavior of *E. coli* in a Biochar-amended Soil under Saturated and Unsaturated Conditions
C. H. Bolster[1], S. M. Abit[1], P. Cai[2], S. L. Walker[3]; [1]USDA-ARS, Bowling Green, KY, [2]Huazhong Agricultural Univ., Wuhan, CHINA, [3]Univ. of California - Riverside, Riverside, CA.

1532 The Impacts of a Poultry Processing Plant on Genetic Diversity of *E. coli* in a Headwater Stream in the Brushy Creek Watershed, South Carolina
S. McCauley, B. Anderson, G. Lewis, M-K. Liao; Furman Univ., Greenville, SC.

1533 Effects of Agrochemicals on Bacterivorous Predation
Z. R. Staley, J. R. Rohr, V. J. Harwood; Univ. of South Florida, Tampa, FL.

1534 Hydrologic Transport of Fecal Bacteria Attenuated by FGD Gypsum
M. B. Jenkins, H. H. Schomberg, D. M. Endale, D. H. Franklin, D. S. Fisher; USDA-Agriculture Res. Service, Watkinsville, GA.

116 Experimental and Molecular Evolution (Division R)

10:45 a.m. – 12:30 p.m.; Poster Hall

1535 Identification of the Alleles Most Responsible for a Laboratory Evolved Phenotype Using the TaqMAMA Assay
K. Selvam, J. R. Battista; Louisiana state Univ., Baton Rouge, LA.

1536 The Evolutionary Trajectory Leading to Pan-drug Resistance in *Acinetobacter baumannii*
E. Snitkin, A. Zelazny, NISC Comparative Sequence Program, P. Murray, J. Segre; NIH, Bethesda, MD.

1537 Experimental Evolution of a Clinical Strain of *Enterococcus faecalis* Reveals Novel Resistance Mutations
C. Miller[1], J. Kong[1], G. Saxer[1], C. Arias[2], Y. Shamoo[1]; [1]Rice Univ., Houston, TX, [2]Univ. of Texas Med. Sch., Houston, TX.

1538 Hypermutation and Phenotypic Plasticity in Experimentally Evolved Salt-Tolerant *Vibrio splendidus*
S. A. Clarke[1], S. C. Timberlake[1], E. J. Alm[1,2,3]; [1]Massachusetts Inst. of Technology, Cambridge, MA, [2]Broad Inst. of MIT and Harvard, Cambridge, MA, [3]VIMSS, Berkeley, CA.

1539 A Long Term Study of CRISPR Evolution in *Streptococcus thermophilus* Through Analysis of Fluctuation of Host and Phage Populations
W. Morovic[1], B. Stahl[1], D. Páez[2], C. Sun[2], J. Banfield[2], R. Barrangou[1]; [1]DuPont, Madison, WI, [2]Univ. of California-Berkeley, Berkeley, CA.

1540 TimeZone: Tracking Recent Adaptive Evolution in Bacterial Genomes
S. Chattopadhyay, S. Paul, E. V. Sokurenko; Univ. of Washington, Seattle, WA.

1541 Rapid Genetic Change within the Lifetime Symbiotic Fungi Due to a Host Shift
I. R. Sanders, C. Angelard; Dept. of Ecology and Evolution, Univ. of Lausanne, Lausanne, SWITZERLAND.

1542 Generation of Genetic Diversity in *Vibrio cholerae* During Limited Laboratory Passage
N. A. Hasan[1,2], D. W. Fadrosh[3], A. S. Abdullah[3], A. G. Longmire[3], S. Y. Choi[1,2], A. J. Chen[1], A. Huq[1], T. A. Cebula[4,2], R. R. Colwell[1,5,6,2]; [1]Univ. of Maryland, College Park, MD, [2]CosmosID Inc, College Park, MD, [3]CosmosID Inc, College Park, MD, [4]Dept. of Biology, Johns Hopkins Univ., Baltimore, MD, [5]Ctr. for Bioinformatics and Computational Biology, Univ. of Maryland, College Park, MD, [6]John Hopkins Bloomberg Sch. of Publ. Hlth, Baltimore, MD.

1543 Classification and Essential Amino Acid Residues of the Dipeptidyl Peptidase (DPP) 7/11 Family in the *Cytophaga-Flavobacterium-Bacteroides* Group
Y. Ohara-Nemoto[1], S. Abdur-Rouf[1], T. Hoshino[1], T. Fujiwara[1], Y. Shimoyama[2], S. Kimura[2], T. Ono[1], T. Nemoto[1]; [1]Nagasaki Univ., Nagasaki, JAPAN, [2]Iwate Med. Univ., Yahaba, JAPAN.

1544 Determining the Evolutionary History of a Putative Collagen Protein in Trichodesmium erythraeum
S. Price, S. Anandan; Drexel Univ., Philadelphia, PA.

1545 Genetic diversity and evolution of ICE_{Efm1} in *Enterococcus faecium* and *Enterococcus faecalis*
J. Top, W. van Schaik, M. J. M. Bonten, R. J. L. Willems; Univ. Med. Ctr. Utrecht, Utrecht, NETHERLANDS.

1546 Sex in Wild Cystoviral Isolates Examined *Via* Electrophoretic Mobility
S. L. Diaz-Munoz[1], O. Tenaillon[2], P. Turner[3], L. Chao[1]; [1]Section of Ecology, Behavior and Evolution, Univ. of California, San Diego, La Jolla, CA, [2]INSERM U722 and Univ. Paris, Paris, FRANCE, [3]Dept. of Ecology and Evolutionary Biology, Yale Univ., New Haven, CT.

1547 Adaptive Evolution of the Major Structural Subunit of *Salmonella* Type 1 Fimbriae
D. I. Kisiela[1], V. Tchesnokova[1], S. Chattopadhyay[1], I. Medenica[1], E. W. Lankau[2], R. I. Mackie[2], S. Clegg[3], E. V. Sokurenko[1]; [1]Univ. of Washington, Seattle, WA, [2]Univ. of Illinois, Urbana, IL, [3]Univ. of Iowa, Iowa City, IA.

1548 Comparative Evaluation of the H-NS Binding Regions in Different *E. coli* Genomes
K. Higashi[1], T. Tobe[2], A. Kanai[3], E. Uyar[4], T. Ueda[4], S. Ishikawa[4], Y. Suzuki[3], N. Ogasawara[4], K. Kurokawa[1], T. Oshima[4]; [1]Tokyo Inst. of Technology, Yokohama, JAPAN, [2]Osaka Univ., Osaka, JAPAN, [3]The Univ. of Tokyo, Tokyo, JAPAN, [4]Nara Inst. of Sci. and Technology, Nara, JAPAN.

1549 tRNA Functional Characters Pinpoint the Evolutionary Origins of Plastids within Cyanobacteria
W. D. Swingley, **D. H. Ardell**; UC Merced, Merced, CA.

1550 Multilocus Sequence Typing (PubMLST) Reveals Clustering of *C. sakazakii* Based on Their Sources
S. Joseph, S. J. Forsythe; Nottingham Trent Univ., Nottingham, UNITED KINGDOM.

1551 Mucoid *Escherichia coli* from Sputum of Patients with Cystic Fibrosis
C. E. Lloyd[1], P. Barillova[2], K. Ulrich[2], S. Weissman[3], B. Kahl[4], E. Sokurenko[1]; [1]Dept. of Microbiol., Univ. of Washington Sch. of Med., Seattle, WA, [2]Med. Microbiol., Univ. Clinics of Muenster, Muenster, GERMANY, [3]Seattle Children's Res. Inst., Seattle, WA, [4]Inst. of Med. Microbiol., Univ. Hosp. Münster, GERMANY.

1552 Characterization of the Flagellar and Chemotaxis Operons of *Legionella anisa*
S. R. Gargis, N. A. Kozak, C. E. Lucas, M. Frace, J. M. Winchell; CDC, Atlanta, GA.

1553 Molecular Evolution of Surface Cell Antigen Proteins in *Rickettsia*
M. Sheth, **G. A. Dasch**; CDC, Atlanta, GA.

1554 Phylogenetic Analysis and Taxonomy of the Genus *Conidiobolus* in Japan Based on 18S rDNA, 28S rDNA and *rpb 2*
E. Fujihara[1], T. Mikawa[1], M. Suzuki[1], H. Koyama[1], M. Hasegawa[1], F. Ikeda[1], T. Yaguchi[2], M. Kimura[3], I. Kobayashi[4]; [1]Mitsubishi Chemical Medience Corp., Tokyo, JAPAN, [2]Med. Mycol. Res. Ctr., Chiba Univ., Chiba, JAPAN, [3]Faculty of Med., Kinki Univ., Osaka, JAPAN, [4]Faculty of Med., Toho Univ., Tokyo, JAPAN.

1555 Using tRNA Functional Elements to Identify and Phylogenetically Classify *Alphaproteobacteria*
K. C. H. Amrine, W. D. Swingley, D. H. Ardell; Univ. of California, Merced, Merced, CA.

1556 Expanding the Multilocus Sequence Typing of *Cronobacter sakazakii* to Include Virulence Relatedness
N. Masood, S. J. Forsythe; Nottingham Trent Univ., Nottingham, UNITED KINGDOM.

1557 Thermodynamic and Spatial Constraints on Genome Organization Directly Impact Transcription, Translation and Regulation in *Thermotoga maritima*
H. Latif[1], J. A. Lerman[1], V. A. Portnoy[1], Y. Tarasova[1], H. Nagarajan[1], A. C. Schrimpe-Rutledge[2], R. D. Smith[2], J. N. Adkins[2], D-H. Lee[1], Y. Qiu[1], B. O. Palsson[1], K. Zengler[1]; [1]Univ. of California San Diego, La Jolla, CA, [2]Pacific Northwest Natl. Lab., Richland, WA.

1558 Mutations in Regulatory Genes Facilitate Adaptation of *Pseudomonas aeruginosa* to the Airways of Cystic Fibrosis Patients
S. Damkiær, L. Jelsbak, S. Molin; Ctr. for Systems Microbiol., DTU-Systems Biology, Technical Univ. of Denmark, Lyngby, DENMARK.

1559 Evolutionary and Functional Analysis of a (Per)chlorate Reduction Genomic Island
R. A. Melnyk, A. Engelbrektson, I. C. Clark, H. K. Carlson, J. D. Coates; Univ. of California, Berkeley, Berkeley, CA.

117 Mycobacterial Detection and Drug Testing (Division U)

10:45 a.m. – 12:30 p.m.; Poster Hall

1560 Antimicrobial Activity of Five Essential Oils and Their Main Constituents Against *Mycobacterium tuberculosis*
S. Andrade Ochoa, K. F. Chacón Vargas, L. M. Rodriguez Valdez, L. R. Hernández Ochoa, G. V. Nevarez Moorillón, B. E. Rivera Chavira; Univ. Autónoma de Chihuahua, Chihuahua, MEXICO.

1561 Copper Resistance as a Novel Drug Target of *Mycobacterium tuberculosis*
A. Speer, J. L. Rowland, M. Niederweis, O. Kutsch, F. Wolschendorf; Univ. of Alabama at Birmingham, Birmingham, AL.

1562 Activity of Sulopenem with or without Clavulanate in Whole Blood and Broth Culture Models of Tuberculosis
P. J. Converse[1], J. Lee[1], O. Amoabeng[1], D. V. Almeida[1], K. Dionne[1], N. Parrish[1], R. S. Wallis[2], **E. L. Nuermberger**[1]; [1]Johns Hopkins Univ., Baltimore, MD, [2]Pfizer, Inc, Groton, CT.

1563 Activity of PNU-100480 and its Major Metabolite in Whole Blood and Broth Culture Models of Tuberculosis
P. J. Converse[1], J. Lee[1], K. N. Williams[1], K. Dionne[1], N. Parrish[1], R. S. Wallis[2], E. L. Nuermberger[1]; [1]Johns Hopkins Univ., Baltimore, MD, [2]Pfizer, Inc, Groton, CT.

1564 Development of a Direct Resazurin Assay for the Rapid Detection of Multidrug Resistant *Mycobacterium tuberculosis* Using Artificial Sputum
F. S. Abilleira, A. Von Groll, **P. E. Almeida da Silva**; Univ.e Federal do Rio Grande, Rio Grande, BRAZIL.

1565 *In vitro* Susceptibility of Various Mycobacteria against Disinfectants
M. Watanabe[1], N. Shinoda[1], S. Mitarai[2], H. Saito[3]; [1]Kitasato Univ., Tokyo, JAPAN, [2]The Res. Inst. of Tuberculosis, Japan Anti-Tuberculosis Association, Tokyo, JAPAN, [3]Hiroshima Environment & Hlth.Association, Hiroshima, JAPAN.

1566 The Aminoacid Substitution Q154M in GyrA May Contribute to Fluorquinolone Resistance in *Mycobacterium abscessus*
J. C. Campos, F. Teixeira, J. Sampaio; Univ.e de Sao Paulo, Sao Paulo, BRAZIL.

1567 Evaluation of the Cepheid GeneXpert MTB/RIF Assay for Detection of *Mycobacterium tuberculosis* Complex and Rifampin Resistance
M. Ghajar, M. H. Zhowandai, S. V. Prabhu, R. C. Alexander; Orange County Publ. Hlth.Lab., Santa Ana, CA.

1568 Detection of False Positive Rifampicin Resistance in *Mycobacterium tuberculosis* Using a Rapid Commercial Real-Time PCR Assay
D. A. Williamson, **I. Basu**, J. E. Bower, J. T. Freeman, G. Henderson, S. A. Roberts; LabPlus, Auckland City Hosp., Auckland, NEW ZEALAND.

1569 Comparison of the Genexpert Mtb/rif and the Amplified Mtd Assay for Detection of *Mycobacterium tuberculosis* Complex in Respiratory and Nonrespiratory Samples
F. Vlaspolder, E. Kempenaar, P. Singer; Med. Ctr. Alkmaar, Alkmaar, NETHERLANDS.

1570 Use of Multiplex Allele-Specific Polymerase Chain Reaction (MAS-PCR) to Detect Multidrug-Resistant Tuberculosis in Panama
B. Chia[1], F. Lanzas[2], A. Herrera[3], E. Y. Kim[3], C. Sailer[4], E. Torres-Chavolla[4], T. R. Ioerger[5], J. C. Sacchettini[5], P. C. Karakousis[3,4]; [1]Johns Hopkins Univ., Baltimore, MD, [2]Inst. Conmemorativo Gorgas de Estudios de la Salud, PANAMA, [3]Johns Hopkins Bloomberg Sch. of Publ. Hlth., Baltimore, MD, [4]Johns Hopkins Sch. of Med., Baltimore, MD, [5]Texas A&M Univ., College Station, TX.

1571 Detection of Mycobacteria in Clinical Samples: A Commercial Real Time Assay Compared to an Established In-House Assay
J. G. Magee, F. Reid, A. Barrett, A. Sails; Hlth.Protection Agency, Newcastle, UNITED KINGDOM.

1572 Detection of *Mycobacterium* tuberclosis using Polymerase Chain Reaction in different clinical Specimens
N. Arshad, **S. Khan**, N. Arshad, T. Mushtaq, T. Kaleem, M. R. Khanani; Dow Univ. of Hlth.Sci., Karachi, PAKISTAN.

1573 Validation of Genotype MTBDRPLUS for Rapid Identification of Drug Resistant- *Mycobacterium tuberculosis* Complex (MTBC) Isolates
L. V. Rupido, D. Rama Narayana, S. Wang, K. Mak, M. Quieng, K. Ha, L. Sng; Singapore Gen. Hosp., SINGAPORE.

1574 Detection of Discordant Isolates of Drug Resistant *Mycobacterium tuberculosis* in Manila
M. Hoshide[1], L. Qian[1], K. Koster[1], H. B. Evasco II[2], T. Tupasi[2], J. T. Douglas[1]; [1]Univ. of Hawaii, Honolulu, HI, [2]Tropical Disease Fndn., Inc., Makati, Manila, PHILIPPINES.

1575 Comparative Yield Study of Induced Sputum, String Test, and Gastric Aspirate for the Microbiological Confirmation of Pulmonary Tuberculosis in Children
C. M. Perez[1,2,3], J. M. Hernandez[4,5], E. C. Wilches[1], A. Casanova[1,6], D. M. Castrillón[4], S. Mejía[4], S. Atehortua[4,5], G. I. Mejía[4], V. J. Gomez[4], J. C. Rozo[7], B. Ferro[7], C. Moreira[8,9], A. E. Prada-Quiroz[10], M. P. Arbelaez[10], C. L. Daley[3], **J. A. Robledo**[4,5]; [1]Grupo Tuberculosis Valle-Colorado, Cali, COLOMBIA, [2]Univ. of Colorado, Denver, CO, [3]Natl. Jewish Hlth., Denver, CO, [4]Corporacion para Investigaciones Biológicas, Medellín, COLOMBIA, [5]Univ. Pontificia Bolivariana, Medellín, COLOMBIA, [6]Hosp. Departamental de Buenaventura, Buenaventura, COLOMBIA, [7]Centro Internacional de Entrenamiento e Investigaciones Médicas, Cali, COLOMBIA, [8]Secretaría Departamental de Salud, Cali, COLOMBIA, [9]Secretaria Municipal de Salud, Buenaventura, COLOMBIA, [10]Univ. de Antioquia, Medellín, COLOMBIA.

1576 Rapid Drug Resistance Screening for Tuberculosis using Multiplex PCR and Pyrosequencing
T. J. Rindfleisch[1,2], B. T. Leader[1], A. Ostash[1], Y. Houze[1], R. K. Gautom[1], A. C. Pérez-Osorio[1]; [1]Washington State Publ. Hlth.Lab., Shoreline, WA, [2]Association of Publ. Hlth.Lab., Silver Green, MD.

1577 Towards Second Generation of Fluoromycobacteriophages for Detection and Antibiotic Susceptibility Testing of *Mycobacterium tuberculosis*
M. Piuri[1], E. Urdaniz[1], G. F. Hatfull[2]; [1]Departamento de Química Biológica, Facultad de Ciencias Exactas y Naturales, Univ. de Buenos Aires, Buenos Aires, ARGENTINA, [2]Dept. of Biological Sci., Univ. of Pittsburgh, Pittsburgh, PA.

1578 A Modification of Inoculum Preparation for Drug Susceptibility Testing of *Mycobacterium tuberculosis* by BACTEC MGIT 960
A. Duque, G. Lin, E. Desmond; California Dept. of Publ. Hlth., Richmond, CA.

1579 Preliminary Evaluation of the Copan MYCOsolution for Decontamination of Clinical Specimens Investigated for Mycobacteria Species with Cultures and Molecular Detection Procedures
C. Russo[1], M. Favaro[2], L. Coltella[1], C. Fontana[2], B. Lucignano[1], L. Di Pietrantonio[1], D. Menichella[1]; [1]Bambino Gesu - Children Hosp., Rome, ITALY, [2]Microbiol. Lab. - Tor Vergata Univ., Rome, ITALY.

1580 Revolutionizing Decontamination and Concentration Method for the Diagnosis of Tuberculosis
T. Kocagoz[1], I. Akyar[1], S. Altin[2], P. Basoren[3], P. Karaduman[4], E. Yesilyurt[4], S. Oktem Okullu[1], N. Aytekin[1], S. Kocagoz[1], T. Silier[3]; [1]Acibadem Univ., Sch. of Med., Istanbul, TURKEY, [2]T.R. Ministry of Hlth., Yedikule Chest Dis. Chest Surgery Ed. and Res. Hosp., Istanbul, TURKEY, [3]Salubris Inc., Woburn, MA, [4]Trends in Innovative Biotechnology Organization (TIBO), Istanbul, TURKEY.

1581 Enzyme Based Rapid, Specific and Effective Lysis of Multiple Mycobacterial Species
Y. Yang[1], A. Bhatti[1], D. Ke[1], P. Zhang[1], Y. Guerardel[2], A. Ojha[1]; [1]Univ. of Pittsburgh, Pittsburgh, PA, [2]Université de Lille-[1], Villneuve d'Ascq, FRANCE.

1582 Molecular Diagnosis of Buruli Ulcer by PCR Targeting *Mycobacterium ulcerans* Directly from the Tissue Specimens in Japan
K. Ohkusu, T. Ezaki; Gifu Univ. Graduate Sch. of Med., Gifu, JAPAN.

1583 Detection of Mixed Infections of *Mycobacterium avium* subsp. *paratuberculosis* Using ssDNA-MALDI-TOF of Short Sequence Repeats
***C. Ahlstrom*, J. De Buck**; Univ. of Calgary, Vet. Med., Calgary, AB, CANADA.

1584 Utility of a Novel 16S Sequence Analysis Software for the Evaluation of Polymicrobial AFB Cultures: Results of a 1 Year Pilot Study in a Clinical Laboratory
B. A. Kendall[1], **E. S. Slechta**[2], K. E. Simmon[3], H. Muir[4], K. E. Hanson[1]; [1]Univ. of Utah, Salt Lake City, UT, [2]ARUP Inst. for Clinical and Experimental Pathology, Salt Lake City, UT, [3]Isentio, Bergen, NORWAY, [4]ARUP Lab., Salt Lake City, UT.

118 Current and Future Methods for Laboratory-Based Surveillance (Division Y)

10:45 a.m. – 12:30 p.m.; Poster Hall

1585 Evaluation of Abbott PLEX-ID for the Detection of Respiratory Viruses vs. Traditional Culture in a Public Health Laboratory
K. Benge, M. Mendenhall, A. Hurst, R. Atkinson; Unified State Lab.: Publ. Hlth., Taylorsville, UT.

1586 Global Bio Lab: Enabling Technologies for High-Throughput Screening of Infectious Disease Samples
S. A. Buono[1], J. Diaz-Decaro[1], L. Viernes[1], L. Borenstein[1], S. M. Dabo[1], T. H. Erkkila[2], C. Detter[2], J. F. Miller[3], H. A. Godwin[1]; [1]UCLA Sch. of Publ. Hlth., Los Angeles, CA, [2]Los Alamos Natl. Lab., Los Alamos, TX, [3]UCLA Sch. of Microbiol., Immunology & Molecular Genetics, Los Angeles, CA.

1587 A Rapid Epidemiology Tool for Vancomycin Resistant *Enterococci* (VRE) Detection and Analysis
S. C. Edberg, S. Waycott; Yale Univ. Sch. of Med., New Haven, CT.

1588 A Rapid Epidemiology Tool for Methicillin Resistant *Staphylococcus aureus* (MRSA) Detection and Analysis
M. B. Perrrachio[1], J. Sinnott[2], **S. C. Edberg**[1,2]; [1]Yale Univ. Sch. of Med., New Haven, CT, [2]Univ. of S. Florida, Tampa, FL.

1589 Public Health Laboratory Surveillance of Lyme Disease, Ehrlichiosis and Rocky Mountain Spotted Fever in the State of Maryland from 2000 to 2011
M. Dembele[1], L. Trivedi[2], T. Lawson[2], S. Montgomery[2], M. Carlos[2,1]; [1]Johns Hopkins Sch. of Publ. Hlth., Baltimore, MD, [2]Div. of Virology and Immunology, Maryland Dept. of Hlth.and Mental Hygiene Lab. Admin., Baltimore, MD.

1590 Study of Hospital Based Malaria Cases in the Pediatric Department of Korle Bu Teaching Hospital, Ghana
F. A. Botchway[1], C. E. Lekpor[2]; [1]KBTH, Accra, GHANA, [2]Pathology Dept., UGMS, Accra, GHANA.

1591 Performance Comparison of Rapid Viability PCR Method for Detection of Live *Bacillus anthracis* Ames Spores from Wipe and Sponge-Stick Samples
G. Murphy[1], T. Alfaro[1], S. Letant[1], S. Kane[1], S. Shah[2]; [1]Lawrence Livermore Natl. Lab., Livermore, CA, [2]US EPA, Washington, DC.

1592 Serosurvey of Adaptive Immunity to *Vibrio cholerae* in Haiti
D. F. Talkington[1], J. M. Pruckler[1], G. A. Gómez[1], B. R. Jackson[2], B. L. Nygren[3], E. D. Mintz[3], M. D. B. Fouché[4], J. Boncy[5], P. Gerner-Smidt[1]; [1]CDC/NCEZID/DFWED/EDLB, Atlanta, GA, [2]CDC/NCEZID/DFWED/EDEB, Atlanta, GA, [3]CDC/NCEZID/DFWED/WDPB, Atlanta, GA, [4]Université Quisqueya, Port-au-Prince, HAITI, [5]LNSP/MSPP, Port-au-Prince, HAITI.

1593 Non-Bacterial Microbial Etiologies for Diarrheal Diseases in Afghanistan
D. S. Elyan; US NAMRU-[3], Cairo, EGYPT.

1594 Use of Washed Sheep Blood Agar with Mitomycin C (WSB) to Decrease Turnaround Time for the Identification of Shiga toxin-producing *Escherichia coli* (STEC)
J. Shelerud, D. Warshauer, T. Monson; Wisconsin State Lab. of Hygiene, Madison, WI.

1595 A Systematic Survey for LGV Serotypes in *Chlamydia trachomatis*-Positive Samples from Men and Women Across the US
B. A. Kendall, R. Schlaberg; Univ. of Utah, Salt Lake City, UT.

1596 Multidrug-resistant *Staphylococcus aureus* is Carried More Often by Industrial Workers and Household Members than Antibiotic-free Farmers and Household Members in North Carolina
M. Nadimpalli[1], C. Heaney[2], J. Rinsky[1], D. Hall[3], N. Muhammed[4], D. Hall[3], S. Wing[1], J. Stewart[1]; [1]UNC Gillings Sch. of Global Publ. Hlth., Chapel Hill, NC, [2]Johns Hopkins Bloomberg Sch. of Publ. Hlth., Baltimore, MD, [3]Rural Empowerment Association for Community Help (REACH), Warsaw, NC, [4]Environmental Justice Network, Tillery, NC.

1597 Seroprevalence of Measles IgG among Young Men in Thailand
S. Gonwong, S. Sornsakrin, T. Chuenchitra, J. Gaywee, N. Sirisopana, D. Islam, C. J. Mason; Armed Forces Res. Inst. of Med. Sci. (AFRIMS), Bangkok, THAILAND.

1598 Multiplex Screening for Blood-Borne Viral, Bacterial and Protozoan Parasites using the OpenArray® Platform
E. Grigorenko[1], C. Fisher[2], S. Patel[1], R. Duncan[2]; [1]Life Technologies, Inc, Beverly, MA, [2]FDA, Bethesda, MD.

1599 Detection of Bacterial vaginosis and *Streptococcus agalactiae* colonization in a Pregnant Women population at Maternity National Hospital in El Salvador
R. J. Madrid[1], J. F. Lopez[1], G. F. Lopez[1], A. E. Rodriguez[2], **M. T. Bertoli Ertoli Avella**[1]; [1]Univ. Dr José Matias Delgado, Antiguo Cuscatlan, EL SALVADOR, [2]Hosp. Natl. de Maternidad, San salvador, EL SALVADOR.

1600 Concurrent Prevalence of Hyperglycaemia and Hepatitis C Virus Antibody in HIV/AIDS Patients in Enugu, Nigeria
N. C. Umezinne[1], C. I. Eleazar[2], I. P. Udoh[2], B. O. Ogeneh[1]; [1]Coll. of Med., Univ. of Nigeria, Enugu, NIGERIA, [2]Faculty of Med. Sci., Univ. of Nigeria, Enugu, NIGERIA.

1601 To Study the Current Prevalent Genotype of HBV in Karachi, Pakistan
S. B. Mohsin, S. Khan, N. Arshad, s. Ahmad, A. I. Khan, A. I. Khan, N. Haidar, **M. R. Khanani**; Dow Univ. of Hlth.Sci., Karachi, PAKISTAN.

119 Pathogenic Mechanisms, Disease Transmission and Host Response (Division Z)

10:45 a.m. – 12:30 p.m.; Poster Hall

1602 Immunosuppression at Point-of-Lay Increases Susceptibility to *Salmonella enterica* serovar Enteritidis in Naive and Vaccinated Chickens
C. Hartley, C. Johnston, A. Salisbury, **P. Wigley**; Univ. of Liverpool, Wirral, UNITED KINGDOM.

1603 Pan-genome Structure Prediction and Function Annotation of African Swine Fever Virus (ASFV)
Z. Xiang[1], M. Bounpheng[2], A. Clavijo[2], J. Neilan[3], D. Brake[3], A. Roy[1], Y. Zhang[1], **Y. He**[1]; [1]Univ. of Michigan, Ann Arbor, MI, [2]Texas Vet. Med. Diagnostic Lab., College Station, TX, [3]Dept. of Homeland Security Sci.&Technology, Plum Island Animal Disease Ctr., Greenport, NY.

1604 Virulence of Commensal *Escherichia coli* Isolated from Healthy Broiler Chickens
R. Vaillancourt[1], F. Malouin[1], H. Rempel[2], M. Diarra[2]; [1]Université de Sherbrooke, Sherbrooke, QC, CANADA, [2]Pacific Agri-Food Res. Ctr., Agassiz, BC, CANADA.

1605 Pathogen-Specific Siderophore Production by Avian Pathogenic *Escherichia coli* Allows Evasion from the Ex-FABP Chicken Siderocalin
A. Garénaux, S. Houle, B. Folch, G. Dallaire, M. Truesdell, F. Lépine, N. Doucet, C. Dozois; IAF - Inst. Armand Frappier, QC, CANADA.

1606 Tetracycline Can Induce the Expression of Invasion Factors in Multidrug-Resistant *Salmonella* During Early-Log Phase
B. W. Brunelle[1], S. M. D. Bearson[1], B. L. Bearson[2]; [1]Natl. Animal Disease Ctr., Ames, IA, [2]Natl. Lab. for Agriculture and the Environment, Ames, IA.

1607 Systemic Infection Induced by *Campylobacter Jejuni*: Development of a Mouse Model and Elucidation of Molecular Mechanisms
S. A. Terhorst, O. Sahin, E. R. Burrough, Z. Shen, P. J. Plummer, M. J. Yaeger, Q. Zhang; Iowa State Univ., Ames, IA.

1608 A HD Superfamily Putative Hydrolase Contributes to *Listeria monocytogenes* Virulence
S. M. Reddy, J. Nichols, M. M. Banes, J. Scott, M. L. Lawrence; Mississippi State Univ., Mississippi State, MS.

1609 Initial Characterization of Luxs and Uspe Mutants of Histophilus Somni and Their Role in Intracellular Survival
Y. Pan, T. Inzana, I. Sandal; Virginia Tech, Blacksburg, VA.

1610 Early Phosphatidylinositol 3-Kinase/Akt Pathway Activation during Porcine Circovirus Type 2-Infection is Required for both Cell Survival and Viral Replication
L. Wei, S. Zhu, J. Wang, **J. Liu**; Inst. of Animal Husbandry and Vet. Med., Beijing Municipal Academy of Agriculture and Forestry Sci., Beijing, CHINA.

1611 Identification and Characterization of Genes Associated with Pathogenicity in Strains of *Leptospira* Spp Isolated from Cattle by Real Time Pcr (qpcr)
P. Hernández-Rodríguez[1], A. P. Gomez Ramirez[1], M. M. Baquero[1], R. Santos Arias[1], M. L. Posada-Buitrago[2]; [1]Univ. de La Salle, Bogotá, COLOMBIA, [2]Univ. del Rosario, Bogotá, COLOMBIA.

1612 Enhancement of Electro-Transformation Efficiency of *Haemophilus* parasuis
M. Costa-Hurtado[1], N. Galofré-Milà[1], V. Martínez-Moliner[1], S. Kiljunen[2], H. Savilahti[2], V. Aragón[1,3]; [1]Ctr. de Recerca en Sanitat Animal (CReSA), Bellaterra, SPAIN, [2]Univ. of Turku, Turku, FINLAND, [3]Inst. de Recerca i Tecnologia Agroalimentàries (IRTA), Barcelona, SPAIN.

1613 EMS Mutagenesis of *Mannheimia haemolytica* A1 and Characterization of Non-haemolytic Mutants Defective in Leukotoxin Activity
R. Lo; Univ. of Guelph, Guelph, ON, CANADA.

1614 Capsule Synthesis Gene ntp Genotype Affects the Biofilm-forming Ability of *Riemerella anatipestifer*
S-T. Wang, S-L. Hsu, C. Chu, **S-H. Wang**; Natl. Chiayi Univ., Chiayi City, TAIWAN.

1615 Comparison of *Staphylococcus aureus* Strains Isolated from Bovine Mastitis
M. Bardiau, J-N. Duprez, J. G. Mainil, I. Ote; Lab. of Bacteriology, Dept. of Infectious Diseases, Faculty of Vet. Med., Univ. of Liège, Liege, BELGIUM.

1616 Use of Formic Acid to Control Vibriosis Caused by *Vibrio harveyi* in Shrimp Aquaculture
R. Boopathy, D. Adams; Nicholls State Univ., Thibodaux, LA.

1617 Prevalence and Virulence profiles of Vibrio spp. in Pacific Harbor Seals (Phoca vitulina richardii) Off Central California
S. N. Hughes[1], D. Greig[2], F. M. Gulland[2], J. T. Harvey[1]; [1]Moss Landing Marine Lab., Marina, CA, [2]The Marine Mammal Ctr., Sausalito, CA.

1618 Evaluation of Virulence and Antimicrobial Resistance in *Salmonella enterica* serovar Enteritidis Isolates from Poultry-Associated and Human Sources
S. L. Foley[1], J. Han[1], D. Barnette[1,2], K. Gokulan[1], S. Khare[1], A. Rooney[1,3], R. Nayak[1]; [1]U.S. Food and Drug Admin., Jefferson, AR, [2]Ouachita Baptist Coll., Arkadelphia, AR, [3]Univ. of Minnesota-Morris, Morris, MN.

1619 Inhibition of Growth of *Mannheimia haemolytica* by *Bibersteinia trehalosi* in the Nasopharynx of Domestic sheep (Ovis aries)
J. Bavananthasivam, A. Kugadas, S. Shanthalingam, R. Subramaniam, R. P. Dassanayake, J. Brown, D. R. Call, D. P. Knowles, S. Srikumaran; Washington State Univ., Pullman, WA.

1620 Construction and Characterization of Attenuated Strains of Chicken Infectious Anemia Virus by VP3 Gene Mutation
B. Yang, H. Zhou, X. Su, X. Chen, F. Xu; Inst. of Animal Sci. and Vet. Med., Beijing Academy of Agriculture and Forestry Sci., Beijing, CHINA.

1621 Selection and Characterization of *Bacillus* Strains for Biological Control of Disease in Channel Catfish Aquaculture
C. Ran, A. Carrias, M. Williams, N. Capps, P. Cobine, J. Kloepper, J. Terhune, M. Liles; Auburn Univ., Auburn, AL.

1622 Proteomic Analysis and Immunogenicity of *Mannheimia haemolytica* Vesicles
S. Ayalew; Oklahoma State Univ., Stillwater, OK.

1623 Transcriptomic Response to Arsenic Stress in *Campylobacter*
Z. Shen, Z. Wu, Q. Zhang; Iowa state Univ., Ames, IA.

1624 The Expression of Cathepsins in Olive Flounder *(Paralichthys olivaceus)* during *Streptococcus parauberis* Infection
I. Cha[1,2], S. Park[1], S. Nho[1], H. Jang[1], C. S. d. Castillo[1], J-i. Hikima[1], T. Aoki[1], T. Jung[1]; [1]Aquatic Biotechnology Ctr. of WCU project, Gyeongsang Natl. Univ., KOREA, REPUBLIC OF, [2]Res. Inst. of Life Sci., Gyeongsang Natl. Univ., KOREA, REPUBLIC OF.

1625 Identification and Characterization of a Bile Salt Hydrolase for Developing Novel Alternatives of Antibiotic Growth Promoters
Z. Wang[1,2], **K. Smith**[1], X. Zeng[1], Y. Mo[1], J. Lin[1]; [1]Univ. of Tennessee, Knoxville, TN, [2]Coll. of Animal Sci. and Technology, China Agricultural Univ., Beijing, CHINA.

1626 Effect of Monensin on the Microbial Populations within the Rumen of Lactating Dairy Cattle
J. A. McGarvey; USDA ARS PMR, Albany, CA.

1627 The use of Soluble Plantain Fibre to Prevent Colonisation and Invasion of *Salmonella* Typhimurium in the Chicken B.
N. Parsons, C. L. Roberts, J. M. Rhodes, B. J. Campbell, P. Wigley; the Univ. of Liverpool, Liverpool, UNITED KINGDOM.

233 Late Breaker Diagnostic Microbiology and Epidemiology (Divisional Group I)

(Late Breakers will be available for viewing throughout all Poster Sessions)

10:45 a.m. – 12:30 p.m.; Poster Hall

LB-01 Identification of echovirus 19 by Sequence-Independent Single Primer Amplification Method Associated with Encephalitis Epidemic in India During 2011
D. Shukla[1], A. Kumar[1], R. Kumar[2], S. Srivastava[3], T. N. Dhole[1]; [1]Sanjay Gandhi Post Graduate Inst. of Med. Sci., Lucknow, INDIA, [2]Chhatrapati Sahuji Maharaj Med. Univ., Lucknow, INDIA, [3]Lucknow Univ., Lucknow, INDIA.

LB-02 Application of a SNP-genotyping High Density Microarray to Study *Yersinia pestis* Isolates from the Caucasus Region
P. Hu[1], E. Zhgenti[2], G. Chanturia[2], D. Tsereteli[2], M. Kekelidze[2], E. Zangaladze[2], T. Torok[1]; [1]Lawrence Berkeley Natl. Lab, Berkeley, CA, [2]Natl. Ctr. for Disease Control and Publ. Hlth., Tbilisi, GEORGIA.

LB-03 Pertussis Serodiagnosis in São Paulo, Brazil
L. R. A. Vaz de Lima[1], M. D. Martin[2], L. Pawloski[2], D. Leite[1], T. M. V. Ibelli[1], D. P. Alvarenga[1], K. C. P. Rocha[1], C. Sacchi[1], A. F. Ribeiro[3], T. R. M. P. Carvalhanas[3], R. M. D. Nakasaki[4], S. S. Oliveira[4], E. A. Waldman[5], M. L. Tondella[2], Clinical and Epidemiological Team Work of HospitalSentinels of São Paulo district; [1]Inst. Adolfo Lutz, São Paulo, BRAZIL, [2]CDC, Atlanta, GA, [3]Secretaria de Estado de Saude, São Paulo, BRAZIL, [4]Secretaria Municipal da Saúde SP (CCD/COVISA), São Paulo, BRAZIL, [5]Faculdade de Saude Pública, USP., São Paulo, BRAZIL.

LB-04 Effect of an Extracellular Cholesterol Source on Localization of Phosphatidylinositol- 4,5- bisphosphate and Virulence Functions in Entamoeba *histolytica*
A. B. Koushik, R. R. Powell, A. M. Goldston, B. H. Welter, L. A. Temesvari; Clemson Univ., Clemson, SC.

LB-05 The Effect of Contact Precautions on Healthcare Worker Activity in Acute Care Hospitals
D. J. Morgan[1,2], L. Pineles[1], M. Shardell[1], M. M. Graham[3], S. Mohammadi[4], G. Forrest[4], H. S. Resinger[3], M. Schweizer[5], E. N. Perencevich[6]; [1]Univ. of Maryland Sch. of Med., Baltimore, MD, [2]VA Maryland Hlth. care System, MD, [3]Iowa City VA, Iowa City, IA, [4]Portland VA, Portland, OR, [5]Univ. of Iowa Sch. of Med., Iowa City, IA, [6]Iowa City VA, Univ. of Iowa Sch. of Med., Iowa City, IA.

LB-06 Optimization and Evaluation of a DNA Array for Simultaneous Detection of Multiple *Legionella* Species in Environmental Samples
A. Van Assche[1,2], R. Calders[3], C. Heusdens[1,2], M. Meyers[4], K. Willems[1,2], B. Lievens[1,2]; [1]Lab. for Process Microbial Ecology and Bioinspirational Management (PME&BIM), Consortium for Industrial Microbiol. and Biotechnology (CIMB), Dept. of Microbial and Molecular Systems (M^{2}S), KU Leuven Association, Lessius, Campus De Nayer, Sint Katelijne Waver, BELGIUM, [2]Scientia Terrae Res. Inst., Sint Katelijne Waver, BELGIUM, [3]Provincial Inst. for Hygiene (PIH), Antwerp, BELGIUM, [4]Catholic Univ. Coll. Limburg, Diepenbeek, BELGIUM.

LB-07 Signs, Symptoms, and Etiologic Agents in Spotted Fever Group Rickettsiosis in Tennessee
A. Stull-Lane[1], M. Fankhauser[1], N. Mendell[2], X. Zhang[1], J. Huang[1], K. Bloch[3,4], D. Bouyer[2], A. Moncayo[1,3]; [1]Tennessee Dept. of Hlth., Vector-Borne Diseases Section, Nashville, TN, [2]Dept. of Pathology, Ctr. for Biodefense and Emerging Infectious Diseases, Ctr. for Tropical Diseases, Univ. of Texas Med. Branch at Galveston, Galveston, TX, [3]Dept. of Preventive Med., Vanderbilt Univ. Sch. of Med., Nashville, TN, [4]Dept. of Med., Vanderbilt Univ. Sch. of Med., Nashville, TN.

LB-08 Development of a Comprehensive Database and Easy Procedure for the Identification of Molds using Matrix-assisted Laser Desorption Ionization Time-of-Flight Mass Spectrometry (MALDI-TOF MS)
A. F. Lau, S. K. Drake, L. B. Calhoun, C. Henderson, A. M. Zelazny; NIH, Bethesda, MD.

LB-09 A Pseudo-Outbreak of Infection with Mycobacteria tuberculosis Due to Faulty Interferon-Gamma Release Assay TB Antigen Tubes
M. Slater, N. Banaei; Stanford Univ., Stanford, CA.

LB-10 Functional Analysis of Anthrax Toxin Receptor Tem8 by Random and Site-directed Mutagenesis
R. Karamsetty, V. Parthasarathy, G. J. Chaudry; UTSA, San Antonio, TX.

Monday, June 18

1:00 p.m. – 2:45 p.m.

122 Experimental and Clinical Pharmacology and Therapeutics (Division A)

1:00 p.m. – 2:45 p.m.; Poster Hall

1628 Effects of a Specific Nutrient Synergy on Metalloproteinases involved in Leukemia
S. M. M. Harakeh[1], M. D. Assaf[2], J. Khalifeh[2], E. Barbour[2], T. Kumosani[1], A. Niedzwiecki[3], M. Rath[3]; [1]King Abdulaziz Univ., Saudi Arabia, SAUDI ARABIA, [2]American Univ. of Beirut, Beirut, LEBANON, [3]Dr. Rath research Inst., Santa Clara, CA.

1629 Safety, Pharmacokinetics, and Efficacy of Anthrax Immune Globulin in New Zealand White Rabbits
N. Kamal[1,2], M. Lindeblad[3], T. Rudge[4], R. Barnewall[4], C. Wilhelm[4], E. McGuinness[4], A. Lyubimov[3], C. P. Quinn[2]; [1]AREF, Decatur, GA, [2]CDC, Atlanta, GA, [3]Univ. of Illinois, Chicago, IL, [4]Battelle BRC, Columbus, OH.

1630 Comparative Potencies of Contemporary Generic Vancomycin Lots; in-vitro Assay results from Nine Products and a Reference Reagent-Grade Sample
R. N. Jones, **A. A. Watters**, R. K. Flamm, H. S. Sader, G. Moet; JMI Lab., North Liberty, IA.

1631 Wide Pharmacokinetic Variability of Ciprofloxacin in Patients with Cystic Fibrosis (CF)—A Reason of Treatment Failure?
C. S. Dalbøge[1], X. C. Nielsen[2], K. Dalhoff[3], M. Duno[4], A. Buchard[5], A. G. Jensen[1], T. Pressler[6], H. Wang[1], N. Høiby[1,7], H. K. Johansen[1]; [1]Dept. of Clinical Microbiol., RigsHosp.et, 2100 Copenhagen Ø, DENMARK, [2]Dept. of Clinical Microbiol., Slagelse Hosp., Slagelse, DENMARK, [3]Dept. of Clinical Pharmacology, Bispebjerg Hosp., Copenhagen NV, DENMARK, [4]Dept. of Clinical Genetics, RigsHosp.et, 2100 Copenhagen Ø, DENMARK, [5]Dept. of Forensic Med., Copenhagen Univ., 2200 Copenhagen N, DENMARK, [6]Cystic Fibrosis centre, RigsHosp.et, 2100 Copenhagen Ø, DENMARK, [7]Dept. of Intl. Hlth., Immunology, and Microbiol., Univ. of Copenhagen, 2200 Copenhagen N, DENMARK.

1632 Effects of Antibiotic Exposure on Methicillin-Resistant *Staphylococcus aureus* Virulence Expression
J. M. Yamaki[1], T. Synold[2], A. Wong-Beringer[1]; [1]Univ. of Southern California, Los Angeles, CA, [2]City of Hope, Duarte, CA.

1633 Efficacy of the Combined Ciprofloxacin and Gentamicin Regimen Against Experimental Bubonic Plague
N. C. Lemaitre, M. Simonet, E. Pradel, I. Ricard, R. Courcol, F. Sebbane; Inserm U1019, Lille, FRANCE.

1634 Treatment of Methicillin-Resistant *Staphylococcus aureus* Experimental Osteomyelitis with Bone-Targeted Vancomycin
M. J. Karau[1], S. M. Schmidt[1], K. E. Greenwood-Quaintance[1], J. N. Mandrekar[1], W. M. Pierce, Jr[2], K. E. Merten[2], R. Patel[1]; [1]Mayo Clinic, Rochester, MN, [2]Pradama, Inc., Louisville, KY.

1635 Pharmacokinetic/Toxicity Properties of the Novel Anti-Staphylococcal Drug,SK-03-92
W. R. Schwan[1], J. M. Kolesar[2], M. S. Kabir[3], J. M. Cook[3], A. Monte[1]; [1]Univ. Wisconsin-La Crosse, La Crosse, WI, [2]Univ. Wisconsin-Madison, Madison, WI, [3]Univ. Wisconsin-Milwaukee, Milwaukee, WI.

1636 Management of Infections by ESBL Producing Resistant Strains with Non-Carbapenem Antibiotic
T. N. Dhole[1], A. K. Shakya[1], M. Chaudhary[2], V. Krishnaraju[2], S. Shakya[2]; [1]Sanjay Gandhi Post Graduate Inst. of Med. Sci., Lucknow, UP, INDIA, [2]Venus Medicin Res. Ctr., Baddi, HP, INDIA.

1637 Neuregulin-1/Artemether Combination Therapy Attenuates Mortality in Experimental Cerebral Malaria
W. J. Solomon[1], N. O. Wilson[1], M. Liu[1], B. D. Ford[2], J. K. Stiles[1]; [1]Dept. of Microbiol., Biochemistry and Immunology MSM, Atlanta, GA, [2]NeuroSci. Inst. MSM, Atlanta, GA.

1638 Heat Shock Protein 90: A Potential Drug Target against Entamoeba *histolytica*
D. Shahinas[1], K. Khairnar[1], C. Benedict[1], A. Debnath[2], J. H. McKerrow[2], D. R. Pillai[1,3]; [1]Univ. of Toronto, Toronto, ON, CANADA, [2]Sandler Ctr. for Drug Discovery, Univ. of California in San Francisco, San Francisco, CA, [3]Univ. of Calgary, Calgary, AB, CANADA.

1639 A Novel Assay for the Discovery of Type Three Secretion System Inhibitors
M. C. Duncan, W. M. Bray, W. R. Wong, R. G. Linington, V. Auerbuch; Univ. of California, Santa Cruz, Santa Cruz, CA.

1640 A Second Generation *Candida albicans* Biofilm Chip (CaBChip-G2)—an Ultra High-Throughput Platform for Drug Discovery and Combinatorial Drug Screening
A. Srinivasan, J. L. Lopez-Ribot, A. K. Ramasubramanian; The Univ. of Texas at San Antonio, San Antonio, TX.

123 Fighting Back II: How the Bugs Resist the Drugs (Division A)

1:00 p.m. – 2:45 p.m.; Poster Hall

1641 Use of Check-points Microarray for Beta-lactamase (BL) Detection Among *Enterobacteriaceae* (ENT) Bacteremia Isolates from USA Hospitals
M. Castanheira, S. E. Farrell, L. N. Woosley, R. E. Mendes, R. N. Jones; JMI Lab., North Liberty, IA.

1642 Gene Expression Profile of Multidrug Resistant *Mycobacterium tuberculosis* Clones Exposed to New Antituberculosis Compounds
K. Penuelas-Urquides[1,2], L. Villarreal-Treviño[3], B. Silva-Ramírez[1], P. Becerril-Montes[1], L. Rivadeneyra-Espinoza[1], G. M. Molina-Salinas[1], J. Dávila-Velderrain[4], R. Hernández-Pando[5], E. del Olmo-Fernández[6], M. A. San Feliciano[6], S. Said-Fernández[7], M. Bermúdez de León[1]; [1]Mexican Social Security Inst., Monterrey, N.L., MEXICO, [2]Microbiol. Graduate Program, Faculty of Biological Sci. at Autonomus Univ. of Nuevo Leon, San Nicolas de los Garza, N.L., MEXICO, [3]Faculty of Biological Sci., Autonomus Univ. of Nuevo Leon, San Nicolas de los Garza, N.L., MEXICO, [4]Ctr. of Complexity Sci. C[3], Natl. Autonomus Univ. of Mexico, Mexico City, MEXICO, [5]Salvador Zubirán Natl. Inst. of Med. Sci. and Nutrition, Mexico city, MEXICO, [6]Faculty of Pharmacy. Univ. of Salamanca, Salamanca, SPAIN, [7]Faculty of Med., Autonomus Univ. of Nuevo Leon, Monterrey, N.L., MEXICO.

1643 Anti-*Helicobacter pylori* Activities of Chinese Traditional Medicine Herb Extract
S. Ryu, M. Hasegawa, A. Kanayama, I. Kobayashi; Toho Univ., Faculty of Nursing, Dept. of Infection Control and Prevention, Tokyo, JAPAN.

1644 Defining the Interaction Between the Fusidic Acid Resistance Protein, FusB, and the Drug Target (EF-G) it Acts to Protect
G. Cox, A. J. O'Neill; Univ. of Leeds, Leeds, UNITED KINGDOM.

1645 A Novel Screening System Towards Pyoverdine-mediated Signal Transduction Pathway in *Pseudomonas aeruginosa*
K. Sato, K. Akiba, T. Ando, E. Isogai, H. Yoneyama; Graduate Sch. of Agricultural Sci., Tohoku Univ., Sendai, JAPAN.

1646 PA5471 Modulation of the *Pseudomonas aeruginosa* mexXY Multidrug Efflux Pump Operon Repressor MexZ: Identification of Important Interaction Domains and Residues
T. J. M. Hay, S. Fraud, K. Poole; Queen's Univ., Kingston, ON, CANADA.

1647 *Staphylococcus aureus* Tea Tree Oil Reduced Susceptibility Mutants Exhibit a Novel Small Colony Variant Phenotype
J. A. Cuaron, S. Dulal, P. H. Cooke, J. E. Gustafson; New Mexico State Univ., Las Cruces, NM.

1648 Identification of Amino Acids Involved in Dimerization and DNA-binding of NfxB, a Repressor of mexCD-*oprJ* Expression in *Pseudomonas aeruginosa*
A. C. Purssell, K. Poole; Queen's Univ., Kingston, ON, CANADA.

1649 Sequence Analysis of Genes Associated with Antimicrobial Resistance of *Bartonella Bacilliformis* Isolates from Endemic Areas of Peru
A. A. Espinoza, MSc, R. Garcia, MSc, R. Quispe, A. Eca, M. Icho, G. Vasquez, P. Ramirez, Dr, D. Alvardo, MSc; San Marcos Univ., Lima, PERU.

1650 The Thermophilic Bacterium *Thermus thermophilus* as a Model System for Investigating the Evolution of Ribosomal Antibiotic-Resistance
S. T. Gregory, J. F. Carr, E. S. Kim, J. L. Connetti, H. Demirci, E. L. Murphy, G. Jogl, A. E. Dahlberg; Brown Univ., Providence, RI.

1651 Mechanisms of Carbapenem Resistance in Multi-Drug Resistant (MDR) *Acinetobacter baumannii* in Maryland
M. D. Smith[1,2], B. Turng[2], A. D. Harris[1], A. Horneman[3], J. K. Johnson[1]; [1]Univ. of Maryland, Baltimore, Baltimore, MD, [2]BDDS, Sparks, MD, [3]VAMC Baltimore, Baltimore, MD.

1652 Relationship Between *apt* Mutation in a Hetero-Vancomycin-Intermediate *Staphylococcus aureus* and Susceptibility to Cell Wall-Active Antimicrobials
S. Dulal, J. A. Cuaron, J. E. Gustafson; New Mexico State Univ., Las Cruces, NM.

1653 Differential Adaptations of Methicillin-resistant *Staphylococcus aureus* (mrsa) to Serial *in vitro* Passage in Daptomycin (dap) Resulting in Evolution of Daptomycin Resistance (dap-r): Role of Cell Membrane (cm) Carotenoid Content and Fluidity
N. N. Mishra[1], A. Rubio[2], C. C. Nast[3,4], A. S. Bayer[1,4]; [1]LA BioMed. Res. Inst. at Harbor-UCLA Med. Ctr., Torrance, CA, [2]Cubist Pharmaceuticals, Lexington, MA, [3]Cedars-Sinai Med. Ctr., Los Angeles, CA, [4]David Geffen Sch. of Med. at UCLA, Los Angeles, CA.

1654 Effects of Microtopographic Patterns on the Horizontal Gene Transfer in *Escherichia coli* Biofilms
H. Gu[1,2], K. W. Kolewe[1,2], D. Ren[1,2,3,4]; [1]Dept. of BioMed. and Chemical Engineering, Syracuse Univ., Syracuse, NY, [2]Syracuse Biomaterials Inst., Syracuse Univ., Syracuse, NY, [3]Dept. of Civil and Environmental Engineering, Syracuse Univ., Syracuse, NY, [4]Dept. of Biology, Syracuse Univ., Syracuse, NY.

1655 Planktonic Aggregates of *Staphylococcus aureus* Promote Protection Against Common Antibiotics
J. Haaber[1], M. T. Cohn[1], T. J. Andersen[2], D. Frees[1], H. Ingmer[1]; [1]Univ. of Copenhagen, Frederiksberg C, DENMARK, [2]Univ. of Copenhagen, Copenhagen K, DENMARK.

1656 Lack of Integron-mediated Drug Resistance in *Campylobacter jejuni* isolated from Kuwait
M. Albert, S. Haridas; Dept. of Microbiol., Faculty of Med., Kuwait Univ., Safat, KUWAIT.

1657 Polyamine Mediated β-Lactam Susceptibility of Carbapenemase-Producing Multidrug Resistant *Acinetobacter baumannii*
L. Malone, Jr.[1], D. H. Kwon[1,2]; [1]Long Island Univ. Brooklyn, Brooklyn, NY, [2]Dept. of Med., Michael E. DeBakey VA Med. Ctr., Baylor Coll. of Med., Houston, TX.

1658 Biological Cost of Resistance by Efflux in *Acinetobacter baumannii*
E-J. Yoon, P. Courvalin, **C. Grillot-Courvalin**; Inst. Pasteur, Paris Cedex 15, FRANCE.

124 Regulation of Virulence IV (Division B)

1:00 p.m. – 2:45 p.m.; Poster Hall

1659 Further Evidence of a Link Between Pyrimidine Biosynthesis and Virulence Factor Production in *Pseudomonas aeruginosa*
T. C. Spigener, S. A. Cope, A. A. Niazy, A. Y. Nusair, G. A. O'Donovan; Univ. of North Texas, Denton, TX.

1660 Functional Characterization of the Variably-Expressed Outer Membrane Proteins (Vomp) of *Bartonella quintana*
N. J. Davis, J. E. Koehler, Microbial Pathogenesis and Host Defense Program, Division of Infectious Diseases, Department of Medicine; Univ. of California San Francisco, San Francisco, CA.

1661 *STM2215* Encodes a c-di-GMP Phosphodiesterase Containing an EAL-domain that is Required during *Salmonella* Infection
Y. Zheng[1], M. Reynolds[2], M. McClelland[3,4], H. Andrews-Polymenis[1]; [1]Texas A&M Hlth.Sci. Ctr., College Station, TX, [2]Texas A&M Univ., College Station, TX, [3]VRISD, San Diego, CA, [4]Dept. of Pathology, UC, Irvine, CA.

1662 Carvacrol and Trans-cinnamaldehyde Reduce *Clostridium difficile* Toxin Production and Cytotoxicity *in vitro*
S. Mooyottu[1], K. Venkitanarayanan[2]; [1]Univ. of Connecticut, STORRS, CT, [2]Univ. of Connecticut, Storrs, CT.

1663 Functional Analyses of PrtH/FDF Cysteine Proteinase Activity in Periodontopathic Bacterium *Tannerella forsythia*
T. Nakajima[1,2], K. Honma[1], A. Sharma[1]; [1]Dept. of Oral Biology, Sch. of Dental Med., The State Univ. of New York, Buffalo, NY, [2]Section Bacterial Pathogenesis, Graduate Sch., Tokyo Med. and Dental Univ., Tokyo, JAPAN.

1664 Contributions of Critical Residues of CsrABb to Gene Regulation in *Borrelia burgdorferi*
S. Karna, R. G. Prabhu, J. Seshu; The Univ. of Texas at San Antonio, San Antonio, TX.

1665 Suppressor Screen Identifies the Sensor Kinase that Activates QseB in the Absence of its Cognate Sensor QseC
M. Kostakioti, M. Hadjifrangiskou, A. P. Gu, S. J. Hultgren; Washington Univ. Sch. of Med., Saint Louis, MO.

1666 Characterization of Bas0520, a heme-uptake protein from *Bacillus anthracis*
M. A. Balderas, A. W. Maresso; BCM, Houston, TX.

1667 *Francisella tularensis* Regulators m*igR, trmE,* and c*phA* Control FPI Gene Expression and Intracellular Growth in Response to Different Cell Environments
M. Faron, J. Rasmussen, B. Buchan, J. Fletcher, B. Jones; Univ. of Iowa, Iowa city, IA.

1668 Roles of Type VI Secretion and Bacterial Motility in the Intracellular Lifecycles of *Burkholderia pseudomallei* and B. thailandensis
i. J. Toesca, T. C. French, W. Wong, J. F. Miller; UCLA, los angeles, CA.

1669 NlpB, a Conserved Outermembrane Lipoprotein, Is Essential for Virulence in *Yersinia pestis*
D. M. Bland, D. M. Anderson; Univ. of Missouri, Columbia, MO.

1670 Rheostat Control of *S. pneumoniae* Virulence by Manipulation of mRNA Folding Free Energy
F. E. Amaral[1], B. Fulton[2], R. Kulkarni[1], M. Shirasu-Hiza[2], A. J. Ratner[1]; [1]Dept. of Pediatrics, Columbia Univ., New York, NY, [2]Dept. of Genetics & Dev., Columbia Univ., New York, NY.

1671 Immediate Genome-wide Responses to a Shift from Room Temperature (23°C) to Human Body Temperature (37°C) in *Escherichia coli*
A. L. Gant, P. A. Cote, C. A. White-Ziegler; Smith Coll., Northampton, MA.

1672 *Staphylococcus aureus* Senses Neutrophils to Selectively Up-regulate the Expression and Production of the Leukotoxin Lukab
A. L. DuMont[1], P. Yoong[1], M. A. Benson[1], J. M. Voyich[2], V. J. Torres[1]; [1]New York Univ. Sch. of Med., New York, NY, [2]Montana State Univ., Bozeman, MT.

1673 OxyR is a Repressor of Gene Expression in *Corynebacterium diphtheriae*
S. Pahwa, P. L. P. Rossi, **D. M. ORAM**; Univ. of Maryland, BALTIMORE, MD.

1674 HilE Prevents Triggering of *Salmonella enterica* serovar Typhimurium Invasion Apparatus by Blocking DNA Binding of HilD
J. R. Grenz[1], J. Cott-Chubiz[1], J. M. Slauch[1,2]; [1]Dept. of Microbiol., Univ. of Illinois at Urbana-Champaign, Urbana, IL, [2]Coll. of Med., Univ. of Illinois at Urbana-Champaign, Urbana, IL.

1675 Host- Pathogen Communication and its Role in Atypical EPEC Virulence
F. M. Franzin[1,2], M. P. Sircili[2,1], V. Sperandio[3]; [1]UNICAMP, Campinas, BRAZIL, [2]Butantan Inst., Sao Paulo, BRAZIL, [3]UT Southwestern Med. Ctr., Dallas, TX.

1676 A Sequence in the Leader Region of a T3SS mRNA Protects it from Degradation
P. B. Lodato[1], P-K. Hsieh[2], J. G. Belasco[2], J. B. Kaper[1]; [1]Univ. of Maryland Sch. of Med., Baltimore, MD, [2]New York Univ. Sch. of Med., New York, NY.

1677 Lipopolysaccharide Core Defects Result in *Yersinia pestis* Death upon the Induction of Type Three Secretion System
K. V. SERGUEEV, X-Z. HUANG, M. P. NIKOLICH, **A. A. FILIPPOV**; Walter Reed Army Inst. of Res., Silver Spring, MD.

1678 Coordinated Regulation of the Staphylococcal Superantigen-like Proteins by Rot and SaeR in *S. aureus*
M. A. Benson[1], J. M. Voyich[2], V. J. Torres[1]; [1]New York Univ. Sch. of Med., New York, NY, [2]Montana State Univ., Bozeman, MT.

1679 The Two-Component System CpxR/A Negatively Regulates the Expression of the SPI-1 and SPI-2 Virulence Regulons in *Salmonella enterica* Serotype Typhimurium
I. J. Palacios, M. A. De la Cruz, L. C. Martínez, E. Calva, J. L. Puente, V. H. Bustamante; Inst. de Biotecnología, Cuernavaca, Morelos, MEXICO.

125 Secretion Systems, Toxins, and Other Secreted Products II (Division B)

1:00 p.m. – 2:45 p.m.; Poster Hall

1680 Exploring the Structural Properties and Dynamics of the *Shigella* IpaB Subunit of the Type III Secretion Apparatus Translocon Pore
N. E. Dickenson, S. P. Choudhari, A. Quick, P. R. Adam, K. P. Pendleton, W. D. Picking, W. L. Picking; Oklahoma State Univ., Stillwater, OK.

1681 Endogenously Produced CO2 May Induce Protein Secretion and Act Like a Growth Inhibitor in Enteropathogenic *Escherichia coli* (EPEC)
H. Martínez, 2010[1], T. Buhse[1], M. Rivera[1], P. Parmananda[2], G. Ayala[3], J. Sánchez[1]; [1]Univ. Autónoma del Estado de Morelos, Cuernavaca, MEXICO, [2]Dept. of Physics, IIT, Powai-400076, Mumbai, INDIA, [3]Inst. Natl. de Salud Pública, Cuernavaca, MEXICO.

1682 Identification and Functional Analysis of the Putative IgG Endopeptidase IdeSsuis of *Streptococcus suis*
J. Seele[1], A. Beineke[2], U. von Pawel-Rammingen[3], P. Valentin-Weigand[1], C. G. Baums[1]; [1]Inst. for Microbiol., Univ. of Vet. Med. Hannover, Hannover, GERMANY, [2]Dept. of Pathology, Univ. of Vet. Med. Hannover, Hannover, GERMANY, [3]Dept. of Molecular Biology and Umeå Ctr. for Microbial Res., Umeå Univ., Umeå, SWEDEN.

1683 *Staphylococcus aureus* Leukotoxin GH (LukGH) Promotes Inflammation
N. Malachowa, S. D. Kobayashi, K. R. Braughton, A. R. Whitney, M. J. Parnell, D. J. Gardner, F. R. DeLeo; Rocky Mountain Lab., Natl. Inst. of Allergy and Infectious Diseases, NIH, Hamilton, MT.

1684 Primary Screen of ~400 siRNA Genes Representative of Host Factors to Alter Vascular Leakage after Exposure to Staphylococcal enterotoxin B
O. O. Abegunrin; Howard Univ., Washington, DC.

1685 Divergence in the Potency and Trafficking of Members of Cytolethal Distending Toxin (CDT) Family
A. Gargi[1], B. Tamilselvam[1], B. Kim[1], A. Eshraghi[2], K. A. Bradley[2], S. R. Blanke[1]; [1]Univ. of Illinois, Urbana, IL, [2]Univ. of California, Los Angeles, CA.

1686 Enterotoxins ascertained among Coagulase-negative *Staphylococcus* isolates
F. E. Abdullah[1], **A. A. Memon**[2], S. U. Kazmi[3]; [1]Sindh Med. Coll., Dow Univ. of Hlth.Sci., Karachi, PAKISTAN, [2]Dow Med. Coll., Dow Univ. of Hlth.Sci., Karachi, PAKISTAN, [3]Karachi Univ., Karachi, PAKISTAN.

1687 Analysis of the Requirements for Secretion and Environmental Cues Governing the Expression of a Recently Identified RTX Protein, TosA
M. D. Engstrom, P. D. Vigil, H. L. T. Mobley; Univ. of Michigan, Ann Arbor, MI.

1688 The effects of obesity on Shiga Toxin 2-induced immune responses and disease in mice
L. M. Harrison, D. W. Gaines, U. S. Babu, A. Mehta, K. V. Balan, E. C. Bigley, III, M. R. Pereira; Food and Drug Admin., Laurel, MD.

1689 A *Yersinia pestis* Tat Secretion Mutant Is Highly Attenuated in Bubonic and Small-Aerosol Pneumonic Challenge Models of Infection But Not by Intranasal Challenge
J. Bozue, C. Cote, T. Bell, D. Fritz, A. Jenkins, S. Mou, K. Moody, J. Kugelman, P. Worsham; USAMRIID, Fort Detrick, MD.

1690 Toxin Genes in Methicillin-resistant *Staphylococcus aureus* (MRSA) Strains Isolated from Healthy Carriers in a Mexican Community
J. Bustos-Martínez, E. Espino, O. Quiroz, A. Hamdan-Partida, T. Sainz- Espuñes; Univ. Autonoma Metropolitana-Xochimilco, Mexico City, MEXICO.

1691 Structural Investigation of a Novel Bacteriocin, Carocin D from *Pectobacterium carotovorum*
J. Oh[1], M-I. Kim[1], S. Heu[2], S. Rhee[1]; [1]Seoul Natl. Univ., Seoul, KOREA, REPUBLIC OF, [2]Rural Dev. Admin., Suwon, KOREA, REPUBLIC OF.

1692 Comparative analysis of virulence factors secreted by *Bacillus anthracis* Sterne at host body temperature
S. Kim, S. Kim, S. Shahid, J. Park, H. Lee, K. Jung, Y. Chai; Div. of Molecular and Life Sci., Hanyang Univ., Ansan, Republic of Korea, KOREA, REPUBLIC OF.

1693 A Cytoplasmic Regulatory Complex Interacts with the Apparatus to Control Effector Secretion in the *Pseudomonas aeruginosa* Type Three Secretion System
P-C. Lee, C. M. Stopford, A. G. Tomalka, A. Riestch; Dept. Mole. Biol. and Microbiol. Case Western Reserve Univ., Cleveland, OH.

1694 Gene Structure and Function of a Novel T2SS Secretin Pilotin in *Vibrio cholerae*
S. P. Howard, V. Rininsland, T. G. Strozen; Univ. of Saskatchewan, Saskatoon, SK, CANADA.

1695 The *Salmonella* chitinase ChiA is a potential virulence factor
R. F. Frederiksen, T. Larsen, J. Leisner; Dept. of Vet. Disease, Faculty of Hlth.Sci., Univ. of Copenhagen, Copenhagen, DENMARK.

1696 UV Enhanced ExoA and Azurin from *Pseudomonas aeuroginosa*
Y. A. Osman; Mansoura Univ., Mansoura, EGYPT.

1697 Streptolysin S is critical for virulence, skin invasion, and throat colonization of hypervirulent Group A *Streptococcus*
J. Li, W. Feng, M. Liu, B. Lei; Montana State Univ., Bozeman, MT.

1698 Array analysis of genes involved in Streptolysin S immunity
S. Lee, C. L. Thomas; Univ. Notre Dame, Notre Dame, IN.

1699 Expression and Characterization of a Novel *Bacillus cereus* ADP-ribosyltransferase
N. C. Simon[1], J. M. Vergis[2], A. V. Ebrahimi[2], C. L. Ventura[2], A. D. O'Brien[2], J. T. Barbieri[1]; [1]The Med. Coll. of Wisconsin, Milwaukee, WI, [2]Uniformed Services Univ. of the Hlth.Sci., Bethesda, MD.

1700 A Role for the Dsb System in Type III Secretion and Virulence in *Salmonella*
A. Chang, S. Lu; Univ. of California, Berkeley, Berkeley, CA.

1701 Conformational Changes in an N-terminal Fragment of IpaB from *Shigella flexneri* Occur upon Association with its Chaperone IpgC
P. R. Adam[1], M. K. Patil[1], N. E. Dickenson[1], S. P. Choudhari[1], M. Barta[2], B. V. Geisbrecht[2], W. L. Picking[1], W. D. Picking[1]; [1]Oklahoma State Univ., Stillwater, OK, [2]Univ. of Missouri-Kansas City, Kansas City, MO.

1702 Characterization of the *Chlamydia pneumoniae* Type III Secretion CopN Protein
T. L. Leighton, R. C. Clayden, J. B. Mahony; McMaster Univ., Hamilton, ON, CANADA.

1703 The Type III Secretion System of *Pseudomonas aeruginosa* is Necessary for Cell-Associated Bacterial Aggregation and Membrane Protrusion Formation in Polarized Epithelium
C. S. Tran[1], Y. Eran[1], A. Kierbel[2], J. Engel[1]; [1]Univ. of California San Francisco, San Francisco, CA, [2]Inst. Pasteur de Montevideo, Montevideo, URUGUAY.

1704 Epithelial Cytochrome P450 Enzymes in Intestinal Immunity to Enterotoxins and Enteric Pathogens
S. Ahlawat[1], Q-Y. Zhang[2], X. Ding[2], N. J. Mantis[3]; [1]Div. of Infectious Diseases, Wadsworth Ctr., New York State Dept. of Hlth., NY, [2]Div. of Environmental Hlth.Sci., Wadsworth Ctr., New York State Dept. of Hlth., Albany, NY, [3]Div. of Infectious Diseases, Wadsworth Ctr., New York State Dept. of Hlth., Albany, NY.

126 Diagnostic Bacteriology: Molecular Identification of Gram Negative Organisms (Division C)

1:00 p.m. – 2:45 p.m.; Poster Hall

1705 Development of a Real-Time PCR Assay for the Detection of *Bordetella pertussis* using the Abbott M2000RT
S. E. Sefers[1], C. D. Quinn[1], J. L. Little[1], A. M. Woron[2], L. E. DesJardin[3], J. D. Chappell[1], Y. W. Tang[1]; [1]Vanderbilt Univ. Med. Ctr., Nashville, TN, [2]Tennessee State Dept. of Hlth., Nashville, TN, [3]State Hygienic Lab. at the Univ. of Iowa, Coralville, IA.

1706 Clinical Evaluation of a Novel Non-Enzymatic Method for Enrichment of Pathogen DNA from Whole Blood: a Pilot Study
A. J. M. Loonen[1,2], J. Tosserams[1], P. de Jager[1], P. Wever[1], A. J. C. van den Brule[1,2]; [1]Jeroen Bosch Hosp., 's-Hertogenbosch, NETHERLANDS, [2]Fontys Univ. of Applied Sci., Eindhoven, NETHERLANDS.

1707 Diagnosis of Ventilator Associated Pneumonia Using PNA QuickFISH
A. Phillips[1,2], T. Davis[2,3], D. Fuller[2,3], R. Buckner[2,3], M. Fiandaca[4]; [1]Indiana Univ. Purdue Univ. of indianapolis, Indianapolis, IN, [2]Indiana Univ. Sch. of Med., Indianapolis, IN, [3]Wishard Hlth.Services, Indianapolis, IN, [4]AdvanDx, Woburn, MA.

1708 Evaluation of 2 Real-Time PCR Assays for Detection of *Neisseria Meningitidis* in CSF and Blood
D. P. Salamon[1], C. Cummins[1], A. Leber[1,2], M. J. Marcon[1,2]; [1]Nationwide Children's Hosp., Columbus, OH, [2]The Ohio State Univ. Coll. of Med., Columbus, OH.

1709 Comparison of 2 Chromogenic Media, a Direct Ertapenem Disk Method and 2 PCR Assays for the Detection of KPC-producing *Enterobacteriaceae* from Rectal Surveillance Swab Specimens
S. Vasoo[1], K. Lolans[1], H. Li[1], K. Prabaker[1], H. D. Engler[2], M. K. Hayden[1]; [1]Rush Univ. Med. Ctr., Chicago, IL, [2]Lab. Corp. of America, Raritan, NJ.

1710 A Novel Rapid Method that Enables Identification of Pathogenic Microorganisms within 3 Hours after Samples are Collected
H. Niimi[1], T. Ueno[1], S. Hayashi[1], M. Mori[2], H. Tabata[3], H. Minami[3], I. Kitajima[1]; [1]Toyama Univ. Hosp., Toyama, JAPAN, [2]Ishikawa Prefectural Univ., Ishikawa, JAPAN, [3]Hokkaido Mitsui Chemicals Corp., Hokkaido, JAPAN.

1711 Multi-center Evaluation of *Gram-negative Quick*Fish for Rapid Identification of *Escherichia coli*, *Klebsiella pneumoniae* and *Pseudomonas aeruginosa* Directly from Blood Cultures
M. Morgan[1], M. K. Deck[2], E. S. Anderson[2], J. M. Coull[2], M. J. Fiandaca[2], P. Della Latta[3], F. Wu[3], K. Hazen[4], D. Fuller[5], R. J. Buckner[5]; [1]Cedars-Sinai Med. Ctr., Los Angeles, CA, [2]AdvanDx, Inc., Woburn, MA, [3]Columbia Univ. Med. Ctr., NewYork-Presbyterian Med. Ctr., New York, NY, [4]Univ. of Virginia, Charlottesville, VA, [5]Indiana Univ. Sch. of Med., Indianapolis, IN.

1712 Beta-Evaluation of a *Mycoplasma pneumoniae* DNA Amplification Assay in a Pediatric Hospital Setting
K. Everhart[1], D. P. Salamon[1], L. Sherman[1], **M. J. Marcon**[1,2]; [1]Nationwide Children's Hosp., Columbus, OH, [2]The Ohio State Univ. Coll. of Med., Columbus, OH.

1713 Pyrosequencing Assay for Rapid Detection of *Burkholderia mallei* and Discrimination from *Burkholderia pseudomallei*
T. D. Jackson, V. A. Luna, A. Tatavarthy, A. Cannons; Univ. of South Florida, Tampa, FL.

1714 Comparison of the MALDI Biotyper™ with the Vitek ®2 and ARIS® Automated Bacterial Identification Systems: Results from a US Regional Laboratory Practice
B. J. Olson[1], C. L. Pike[2], M. E. Stemper[2,3], T. J. Novicki[2], M. Kostrzewa[4], J. K. Meece[1], S. K. Shukla[1], T. R. Fritsche[2,3]; [1]Marshfield Clinic Res. Fndn., Marshfield, WI, [2]Marshfield Clinic, Marshfield, WI, [3]Univ. of Wisconsin, La Crosse, WI, [4]Bruker Daltonik GmbH, Bremen, GERMANY.

1715 Detection of Bacterial Targets by a Multiplexed Respiratory Panel: *Bordetella Pertussis*, *Chlamydophila pneumoniae,* and *Mycoplasma pneumoniae*
K. J. Kanack, K. M. Bourzac, S. K. Richards, Y. R. Lems, P-G. A. Klenk, K. Bloch, W. S. Oswald, B. Lingenfelter; Idaho Technology Inc, Salt Lake City, UT.

1716 Evaluation of the FilmArray Gastrointestinal Pathogen Detection System for Infectious Diarrhea
M. Vaughn[1], J. Gardner[1], B. Harrel[1], R. Wallace[1], A. Pavia[2], T. Barney[3], G. Alger[3,2], J. Daly[3,2], **M. Rogatcheva**[1]; [1]Idaho Technology Inc, Salt Lake City, UT, [2]Univ. of Utah, Salt Lake City, UT, [3]Primary Children's Med. Ctr., Salt Lake City, UT.

1717 Identification of Bacteria by Matrix-assisted Laser Desorption Ionization Time-of-flight Mass Spectrometry (MS) Compared with Conventional Identification by Vitek 2 and MicroScan
K. H. Rand, M.D.[1], M. Thalmann[2], D. Gaskins[2], N. Safwat[2], P. Giglio[2], H. Houck[1]; [1]Univ. of Florida, Gainesville, FL, [2]Shands at UF, Gainesville, FL.

1718 A Laboratory Developed Taqman Array Card for Simultaneous Detection of Twenty Enteropathogens
J. Liu[1], J. Gratz[2], H. Kumburu[2], S. Ndealilia[2], G. Kibiki[2], E. Houpt[1]; [1]Univ. of Virginia, Charlottesville, VA, [2]Kilimanjaro Christian Med. Ctr., Moshi, TANZANIA, UNITED REPUBLIC OF.

1719 A New Approach for Detection of Melioidosis Using Reverse Transcriptase Real-Time PCR
J. L. Buchhagen[1], R. E. Colman[1], J. M. Schupp[1], L. Richardson[2], D. M. Engelthaler[1], M. Kaestli[2], M. Mayo[2], B. J. Currie[2,3], P. Keim[1,4]; [1]Translational Genomics Res. Inst., Flagstaff, AZ, [2]Menzies Sch. of Hlth.Res., Charles Darwin Univ., Darwin, AUSTRALIA, [3]Royal Darwin Hosp., Darwin, AUSTRALIA, [4]Northern Arizona Univ., Flagstaff, AZ.

1720 Multi-center Evaluation of the Prevalence of *Kingella kingae* in Synovial Fluid of Adult and Pediatric Patients with Septic Arthritis Assessed by a Multiplex Real Time PCR Assay
M. Haldar[1], M. Butler[2], C. D. Quinn[3], C. W. Stratton[3], Y-W. Tang[3], C-A. D. Burnham[1]; [1]Washington Univ. Sch. of Med., Saint Louis, MO, [2]Saint Louis Children's Hosp., Saint Louis, MO, [3]Vanderbilt Univ. Med. Ctr., Nashville, TN.

1721 A Real-Time Multiplex PCR Assay for Rapid Identification and Differentiation of *Burkholderia pseudomallei* and *Burkholderia thailandensis*
C-W. Lowe, B. A. Satterfield, J. K. March, A. B. Bunnell, K. L. O'Neill, R. A. Robison; Brigham Young Univ., Provo, UT.

1722 Simultaneous Detection of *Legionella* species, *Legionella pneumophila* and *Legionella pneumophila* serogroup 1 in Clinical and Environmental Samples Using a Multiplex Real-Time PCR Assay
A. J. Benitez, J. M. Winchell; Ctr. for Disease Control and Prevention, Atlanta, GA.

1723 Novel Target Algorithm for PCR-Based Detection and Differentiation of *Bordetella* Species
C. E. Hulseberg, H. Y. Chong, J. A. Black, S. D. Mahlen; Madigan Army Med. Ctr., Tacoma, WA.

1724 Analysis of *non-aeruginosa* Pseudomonads Derived from Clinical Specimens
B-S. Scales, J. Erb-Downward, G. Huffnagle; Univ. of Michigan, Ann Arbor, Ann Arbor, MI.

1725 A Rapid Extraction Instrument and LAMP Detection Assay to Detection Assay to Detect *Salmonella enterica* in Clinical Urine Samples
T. Parrish, J. Chapman, M. Duggan, P. Williams; Evogen, Inc, Lenexa, KS.

127 Models and Studies of Host-Pathogen Interactions II (Division D)

1:00 p.m. – 2:45 p.m.; Poster Hall

1726 Yts1: A Type-II-Secretion System of *Yersinia enterocolitica* Associated with Environmental Survival
D. von Tils[1], B. Shutinoski[1], S. Seekircher[1], M. A. Schmidt[1], G. Heusipp[1,2]; [1]Inst. of Infectiology - Ctr. for Molecular Biology of Inflammation (ZMBE), Münster, GERMANY, [2]Rhine-Waal Univ. of Applied Sci., Kleve, GERMANY.

1727 Dysbiosis in the Sinus Mucosal Microbiome related to Chronic Rhinosinusitis
N. A. Abreu[1], **N. A. Nagalingam**[2], Y. Song[3], F. C. Roediger[2], S. D. Pletcher[2], A. N. Golderg[2], S. V. Lynch[2]; [1]Univ. of California, Berkley, Berkley, CA, [2]Univ. of California, San Francisco, San Francisco, CA, [3]Fudan Univ., Shanghai, CHINA.

1728 The Serological Relationship Between *Brucella melitensis* and *Coxiella burnetii*
M. G. Elfaki, A. A. AL-Hokail; King Faisal Specialist Hosp. and Res. Ctr., Riyadh, SAUDI ARABIA.

1729 Investigating the Pathogen-Specific Innate Immune Responses of the Endocervix Using a Human 3-D Endocervical Epithelial Cell Model
A. L. Radtke[1], A. Quayle[2], M. M. Herbst-Kralovetz[1]; [1]Univ. of Arizona, Phoenix, AZ, [2]Louisiana State Univ. Hlth.Sci. Ctr., New Orleans, LA.

1730 Reduction in Egg Production Due to the *Salmonella* Enteritidis Infection in Hens
C-L. Wang, H-J. Tsai, C-H. Chiu, C-H. Chou; Natl. Taiwan Univ., Taipei, TAIWAN.

1731 Environmental Chlamydia, *Protochlamydia* Induces Caspase-dependent Apoptosis to Human Immortal HEp-2 Cells by Triggering a Mitochondrial Pathway
J. Matsuo[1], A. Ito[1], S. Nakamura[2], H. Sakai[2], M. Yoshida[2], K. Takahashi[2], H. Yamaguchi[1]; [1]Hokkaido Univ., Sapporo, JAPAN, [2]Juntendo Univ., Tokyo, JAPAN.

1732 Effect of secreted molecules from Fusobacterium nucleatum on THP-1 cells
J-Y. Lee, Y-J. Jung, Y-J. Jang, Y-J. Choi, B-K. Choi; Sch. of Dentistry, Seoul Natl. Univ., KOREA, REPUBLIC OF.

1733 A Factor that Converts VBNC *Vibrio cholerae* to Culturable from Human Colonic Epithelial Cell HT-29: Identification as a Catalase
M. Senoh[1], J. Ghosh-Banerjee[2], R. R. Colwell[3], G. B. Nair[2], Y. Takeda[1]; [1]Collab. Res. Ctr. Okayama Univ., Kolkata, INDIA, [2]NICED, Kolkata, INDIA, [3]Univ. of Maryland, College Park, MD.

1734 Visualization of *Yersinia pestis* Dissemination in Mice using Biophotonic Imaging Technology
R. J. Gonzalez, E. H. Weening, V. L. Miller; UNC Chapel Hill, Chapel Hill, NC.

1735 Inflammation Makes New Nutrients Accessible to *Salmonella*: Ethanolamine and 1,2-propanediol Utilization Foster Outgrowth Over the Microbiota
P. Thiennimitr[1,2], S. E. Winter[1], M. G. Winter[1], M. N. Xavier[1], D. L. Huseby[1], V. Tolstikov[1], T. Sterzenbach[1], R. M. Tsolis[1], J. R. Roth[1], A. J. Baumler[1]; [1]UC Davis, Davis, CA, [2]Faculty of Med., Chiang Mai Univ., THAILAND.

1736 Culture Supernatants of Periodontopathogens Stimulate Prostaglandin E_2 Expression in Human PBMC
Y-J. Choi, Y-J. Jang, Y-J. Jung, J-Y. Lee, B-K. Choi; Sch. of Dentistry, Seoul Natl. Univ., Seoul, KOREA, REPUBLIC OF.

1737 Increased L-Arginine Bioavailability Reduces Intestinal Permeability During Malaria and *Salmonella* Co-infection
J. Y. Chau, J. A. Lawrence, J. P. Mooney, R. M. Tsolis, S. Luckhart; Univ. of California Davis, Davis, CA.

1738 Encapsulation of Il-10 with Poly (lactic-*Co*-glycolic Acid) (PLGA)-chitosan as Future Therapy to Prevent *Chlamydia trachomatis* Inflammation
A. N. Yilma[1], P. Suburayan[1], F. Villinger[2], S. J. Fairley[1], V. A. Dennis[1]; [1]Ctr. for Nanobiotechnology and Life Sci. Res., Alabama State Univ., Montgomery, AL, [2]Yerkes Natl. Primate Res. Ctr., Emory Univ., Atlanta, GA.

1739 The *Moraxella catarrhalis* Denitrification Is Involved in Pathogenesis ex vivo
W. Wang, B. Mocca; FDA/CBER, Bethesda, MD.

1740 African Trypanosome Propulsive Motility is Dispensable for Infection in Mice
N. K. Kisalu[1], G. Langousis[1], L. A. Bentolila[1,2], K. S. Ralston[3], S. Weiss[1,2], K. L. Hill[1,4]; [1]Univ. of California, Los Angeles, Los Angeles, CA, [2]California NanoSystems Inst., Los Angeles, CA, [3]Univ. of Virginia Sch. of Med., Charlottesville, VA, [4]Molecular Biology Inst., Los Angeles, CA.

1741 UPEC Superinfection Leads to Chronic Cystitis in a Time-and Invasion- Dependent Manner
D. J. Schwartz, S. J. Hultgren; Washington Univ., Saint Louis, MO.

1742 Permease Proteins of the Sap Transporter are Required for Virulence of *Haemophilus ducreyi* in Humans
S. D. Rinker, X. Gu, M. P. Trombley, K. R. Fortney, B. W. Zwickl, B. P. Katz, D. M. Janowicz, S. M. Spinola, **M. E. Bauer**; Indiana Univ. Sch. of Med., Indianapolis, IN.

1743 Protection by Single Chain anti-Shiga Toxin (Stx) Type 2and/or Stx1 B Subunit in Stx2-intoxicated Vero Cells or in B2F1-Infected Mice
Z-M. Liu, A. R. Melton-Celsa, J. F. Sinclair, S. C. Darnell, A. D. O'Brien; Uniformed Services Univ. of Hlth.Sci., Bethesda, MD.

1744 Transcriptional Responses of Human Lung Bronchial Epithelial Cells to *Bacillus* anthracis Spores
K. Sung[1], S. A. Khan[1], T. Han[1], J. C. Fuscoe[1], M. S. Nawaz[1], S. R. Khan[2], M. A. Khan[2]; [1]NCTR, FDA, Jefferson, AR, [2]CDER, Silver Spring, MD.

1745 *Listeria* Adhesion Protein Induces Epithelial Tight Junction Compromise through Activation of NF-κB and Down Regulation of Tight Junction Proteins
H. Kim, M. A. R. Amalaradjou, K-H. Kim, **A. K. Bhunia**; Purdue Univ., West Lafayette, IN.

1746 The Temporal Dynamics of the Rhesus Gastric Microbiome
M. E. Martin, S. Bhatnagar, J. A. Eisen, M. J. Hornsby, J. V. Solnick; Univ. of California - Davis, Davis, CA.

1747 Using Antibiotic Treatment to Assess the Effect of Intracellular Symbiotic Bacteria Rickettsia on the Fecundity of Their Host, the Tick *Ixodes pacificus*
A. Kurlovs, J. Li; Humboldt State Univ., Arcata, CA.

1748 Mouse Trophoblast Stem Cell System to Study Infectious Causes of Preterm Labor and Placental Defense Mechanisms
V. Zeldovich[1], J. Robbins[2], J. Gonzalez[1], E. Maltepe[1], A. Bakardjiev[1]; [1]UCSF, San Francisco, CA, [2]Xavier Univeristy, Cincinnati, OH.

1749 Discovery of novel virulence factors in *Bacillus anthracis*
S. E. Franks[1], C. Ebrahimi[2], R. Aroian[2], V. Nizet[2], S. M. McGillivray[1,2]; [1]Texas Christian Univ., Fort Worth, TX, [2]Univ. of California, San Diego, La Jolla, CA.

128 New Technologies to Study Host-Pathogen Interactions (Division D)

1:00 p.m. – 2:45 p.m.; Poster Hall

1750 High-throughput Screenings to Identify Ligands for Staphylococcal Adhesins
E. M. Barbu[1], J. Sun[1], S. Arora[2], J. T. Skare[3], T. J. Foster[4], M. Hook[2], W. Arap[1], R. Paqualini[1]; [1]Univ. of Texas MD Anderson Ctr., Houston, TX, [2]Texas A&M Hlth.Sci. Ctr., Houston, TX, [3]Texas A&M Hlth.Sci. Ctr., College Station, TX, [4]Trinity Coll., Dublin, IRELAND.

1751 The Long Quest of Host-Pathogen Studies in the Lung: from Ex Vivo to In Vivo Two-Photon Dynamic Imaging
D. Fiole[1,2], J. Douady[2], J-C. Vial[2], J. Mathieu[1], A. Quesnel-Hellmann[1], **J-N. Tournier**[1,3]; [1]Inst. de Recherche Biomédicale des Armées, Grenoble, FRANCE, [2]Laboratoire Interdisciplinaire de Physique UMR 5588 CNRS / Université Joseph Fourier, Grenoble, FRANCE, [3]Ecole du Val-de-Grâce, Paris, FRANCE.

1752 Proteome Analysis of Polymicrobial Infection with Filifactor alocis and *Porphyromonas gingivalis* in Epithelial Cells
W. Aruni, K. Zhang, H. M. Fletcher; SCHOOL OF MEDICINE LOMA LINDA Univ., Loma Linda, CA.

1753 Identification of a Unique *Salmonella* Typhimurium DT104 Promoter, Activated Specifically Inside Infected Human Intestinal INT407 Cells, that Controls Expression of a ~5 kd Protein
C. P. Giri[1], P. K. Rompikuntal[2], R. B. Raybourne[3], J. P. McDaniel[1], S. N. Wai[2], D. J. Kopecko[1]; [1]FDA-CBER, Bethesda, MD, [2]Univ. of Umea, Umea, SWEDEN, [3]FDA-CFSAN, Laurel, MD.

1754 Host Specificity Is Determined by Operon and Gene Mobilization Between Unique *Vibrio fischeri* Isolates
A. A. Chavez-Dozal[1], **C. Gorman**[1], C. P. Lostroh[2], M. K. Nishiguchi[1]; [1]New Mexico State Univ., LAS CRUCES, NM, [2]Colorado Coll., Colorado Springs, CO.

1755 Profiling the GPlome of *Trypanosoma cruzi* during metacyclogenesis
M. R. Gaynor, F. Gazos-Lopes, I. C. Almeida; The Border BioMed. Res. Ctr., Dept. of Biological Sci., Univ. of Texas at El Paso, El Paso, TX.

1756 Enrichment of Rare Bacteria in Human Saliva for Single-cell Sequencing
Y. K. Light[1], R. J. Meagher[1], S. Yilmaz[1], D. Saxena[2], A. K. Singh[1]; [1]Sandia Natl. Lab., Livermore, CA, [2]NYU Sch. of Dentistry, New York, NY.

1757 Formation of Coalitions of CRISPR-types in Natural Populations of *Sulfolobus islandicus*
W. England[1], L. Childs[2], N. Held[1], M. Young[3], J. Weitz[2], R. Whitaker[1]; [1]Univ. of Illinois at Urbana-Champaign, Urbana, IL, [2]Georgia Inst. of Technology, Atlanta, GA, [3]Montana State Univ., Bozeman, MT.

1758 Metaproteomics Reveals Time-Dependent Functional Shifts in Human and Microbial Proteins in the Premature Infant Fecal Microbiome
J. C. Young[1,2], B. Brooks[3], C. Pan[1], R. Mueller[3], B. Thomas[4], J. F. Banfield[3], M. J. Morowitz[5], R. L. Hettich[1]; [1]Oak Ridge Natl. Lab., Oak Ridge, TN, [2]Univ. of Tennessee, Knoxville, TN, [3]Univ. of California, Berkeley, CA, [4]Univeristy of California, Berkeley, CA, [5]Univ. of Pittsburg, Pittsburg, PA.

1759 Detection of *Staphylococcus* species and Methicillin-Resistant *Staphylococcus aureus* by quantitative real-time PCR
Z. Gao, G. Perez-Perez, M. J. Blaser; NYU, new york, NY.

1760 Identification and Discrimination of *Edwardsiella tarda* using MALDI-TOF Mass Spectrometry
S. Park, S. Nho, I. Cha, H. Jang, T. Aoki, T. Jung; Vet. medicine, Jinju, KOREA, REPUBLIC OF.

129 Innate Immune Responses (Division E)

1:00 p.m. – 2:45 p.m.; Poster Hall

1761 *Gardnerella vaginalis* Induced Inflammatory Cytokine Response in a Human Macrophage Cell Line
E. J. Vick, K. Huff, M. B. Farone, A. L. Farone; Middle Tennessee State Univ., Murfreesboro, TN.

1762 Dynamic Imaging of Myelomonocytic Cell Recruitment during Splenic Infection by Inflammasome Activating *Listeria monocytogenes*
C. R. Williams; New York Univ. Sch. of Med., New York, NY.

1763 Modulated Lipooligosaccharide Structure Prevents nontypeable *Haemophilus* influenzae from IgM-mediated Complement Killing During Otitis Media
J. D. Langereis[1], K. Stol[1], E. K. Schweda[2], B. Twelkmeyer[3], H. J. Bootsma[1], S. P. W. de Vries[1], P. Burghout[1], D. A. Diavatopoulos[1], P. W. M. Hermans[1]; [1]Univ. Med. Ctr. St Radboud, Nijmegen, NETHERLANDS, [2]Linköping Univ., Linköping, SWEDEN, [3]Karolinska Inst.t, Huddinge, SWEDEN.

1764 The Effects of Ingested Human Insulin on NF-κB Activation and the Mosquito Immune Response to Malaria Infection
N. Pakpour[1], V. Corby-Harris[2], G. P. Green[1], H. M. Smithers[1], K. W. Cheung[1], M. A. Riehle[3], S. Luckhart[1]; [1]Univ. of California Davis, Davis, CA, [2]United States Dept. of Agriculture, Tucson, AZ, [3]Univ. of Arizona, Tucson, AZ.

1765 Identification of Novel Inflammasome Components by Genome-Wide siRNA Screen
M. B. Ohlson, D. M. Monack; Stanford Univ., Stanford, CA.

1766 The Role of Keratin-Derived Antimicrobial Peptides (KDAMPs) in Mucosal Innate Defense
C. Tam[1], J. J. Mun[1], D. J. Evans[1,2], S. M. J. Fleiszig[1]; [1]Univ. of California, Berkeley, Berkeley, CA, [2]Touro Univ., Vallejo, CA.

1767 An EPS-depolymerase and a Negative Regulator May Modulate the Innate Immune Response to the Gram-negative Bacteria in Dictyostelium discoideum
Z. Liu, C. Dinh, G. Chen, A. Kuspa; Baylor Coll. of Med., Houston, TX.

1768 MyD88-dependent Signaling in the Host Response to *Histoplasma capsulatum* Infection
A. M. Coady, A. Sil; Univ. of California, San Francisco, San Francisco, CA.

1769 Effects of Toll-like Receptor Pathways on Caspase-2-mediated, Rough *Brucella*-induced Proinflammatory Cell Death
D. Bronner, Y. He; Univ. of Michigan, Ann Arbor, MI.

1770 Interaction of *Bacillus anthracis* Exosporium Protein BclA with Host Complement Component Factor H
S. Jenkins, C. Gu, Y. Xu; Texas A&M Hlth.Sci. Ctr., Houston, TX.

1771 Inflammasome Activation during *Haemophilus ducreyi* Infection in Humans
W. Li, S. Spinola; Indiana Univ. Sch. of Med., Inidanapolis, IN.

1772 Induction of IFN-beta Signaling by Staphylcoccus aureus USA300 is Mediated by TLR9
D. Parker, A. Prince; Columbia Univ., New York, NY.

1773 Expression of Avian Defensins Genes in Response to Pathogenic *Escherichia coli* Infection
R-M. Ramírez, J. García, P. Miranda, A. Enríquez, S. Sánchez; Univ. Autonoma de Zacatecas, Zacatecas, MEXICO.

1774 The Lyme Disease Spirochete *Borrelia burgdorferi* induces IL-6, IL-8 and CCL-2 with concomitant Neuronal Apoptosis in Primary Cultures of Rhesus Dorsal Root Ganglia
G. Ramesh[1], F. M. Inglis[2], M. T. Philipp[1]; [1]Tulane Natl. Primate Res. Ctr., Covington, LA, [2]Tulane Univ., New Orleans, LA.

1775 *E. coli* and *P. aeruginosa* Lipopolysaccharide-Induced Inflammation of the Testis Induces Hypoxia-Inducible Factor-1 Protein Accumulation
D. Patel, G. Fasano, C. Dugan, M. Karpodinis, M. A. Palladino; Monmouth Univ., West Long Branch, NJ.

1776 NSD1 Mitigates Caspase-1 Activation by the Pore Forming Toxin Listeriolysin O in Macrophages
O. Sakhon, K. Victor, T. Tsuchiya, D. Do, N. L. Schiller, M. J. Carson, T. Eulgem, J. H. F. Pedra; Univ. of California- Riverside, Riverside, CA.

1777 SCC25 Cells: A Model System to Study Interactions Between Oral Epithelial Cells and Pathogens
M. Greenlee[1], M. Abdallah[1], C. Alvarado[1], J. Weimer[1], E. Norris[2], R. Garner[2], T. Ness[1]; [1]Armstrong Atlantic State Univ., Savannah, GA, [2]Mercer Univ. Sch. of Med., Savannah, GA.

1778 Anti-inflammatory Effects of *Ginkgo biloba* Extract through Induction of Heme oxygenase-1 Expression in *Porphyromonas gingivalis* LPS-stimulated RAW264.7 cells
E-Y. Ryu[1], A-J. Park[2], H-W. Eom[2], S-Y. Park[2], Y-H. Kim[2], S. Park[1], S-J. Lee[1]; [1]Pusan Natl. Univ., Busan, KOREA, REPUBLIC OF, [2]Pusan Natl. Univ., KOREA, REPUBLIC OF.

1779 Modulation of Hypoxia-inducible Factor-1 Expression by a Leading Gram-positive Bacterial Pathogen
A. Louie, T. Bhandari, V. Nizet; Univ. of California, San Diego, La Jolla, CA.

1780 Intestinal Guanylate Cyclase Provides Resistance to Attaching/Effacing Bacterial Pathogens
E. A. Mann, E. Harmel-Laws, M. B. Cohen, **K. A. Steinbrecher**; Cincinnati Children's Hosp. and Univ. of Cincinnati, Cincinnati, OH.

1781 TLR4/MD2 Complex Agonistic Antibody Promotes Innate Host Resistance Against Secondary Pneumococcal Pneumonia Induced Co-infection with Influenza Virus
A. Tanaka[1], S. Nakamura[1], M. Seki[2], N. Iwanaga[1], Y. Imamura[1], T. Miyazaki[1], K. Izumikawa[1], H. Kakeya[1], Y. Yamamoto[1], K. Yanagihara[1], T. Tashiro[1], S. Kohno[1]; [1]Nagasaki Univ. Hosp., Nagasaki, JAPAN, [2]Osaka Univ. Hosp., Suita, JAPAN.

1782 *Candida albicans* Mannan Activates HEK293 Cells that Are Transfected with Plasmids Bearing HumanTLR4 Genes
R. E. Garner[1], E. A. Norris[1], T. L. Ness[2]; [1]Mercer Univ. Sch. of Med., Savannah, GA, [2]Armstong Atlantic and State Univ., Savannah, GA.

1783 Recognition of Bacterial Amyloids by Toll Like Receptor 2/1 Complex is Enhanced by Co-Receptor CD14
G. J. Rapsinski, G. Oppong, T. Newman, S. Biesecker, C. Tukel; Temple Univ. Sch. of Med., Philadelphia, PA.

1784 *Staphylococcus aureus* Protein A Mediates Innate Immune Responses During Nasal Colonization in Humans
G. Muthukrishnan, C. R. Eade, M. P. Wood, R. P. Lamers, A. Ellis, A. L. Cole, **A. M. Cole**; Univ. of Central Florida Coll. of Med., Orlando, FL.

1785 Enhancing Innate Anti-HIV-1 Host Defense of the Female Genital Tract Through STAT3-Mediated Upregulation of Retrocyclins
A. L. Cole, N. A. Rogers, A. A. Hirasimtschuk, N. Venkataraman, C. R. Eade, A. M. Cole; Univ. of Central Florida Coll. of Med., Orlando, FL.

1786 Macrophage Migration Inhibitory Factor (MIF) Regulates PMN Functions in Cystic Fibrosis (CF)
M. Gadjeva, G. Pier; Brigham and Womens Hosp., Harvard Med. Sch., Boston, MA.

130 Fungal Pathogenesis and Host Response (Division F)

1:00 p.m. – 2:45 p.m.; Poster Hall

1787 Immune Response Remains Intact during Chronic Immune Suppression in a Mouse Model of *Pneumocystis murina* Pneumonia
M. J. Linke[1], A. D. Ashbaugh[2], K. Lynch[2], M. T. Cushion[1,2], P. D. Walzer[1,2]; [1]VA Med. Ctr., Cincinnati, OH, [2]Univ. of Cincinnati, Cincinnati, OH.

1788 Biofilm Formation by *Candida parapsilosis* Isolates Causing Bloodstream Infections
S. Pannanusorn[1,2], T. Schön[3], V. Fernandez[4], U. Römling[1]; [1]Dept. of Microbiol., Tumor and Cell Biology, Karolinska Inst.t, Stockholm, SWEDEN, [2]Dept. of Parasitology, Mycology and Environmental Microbiol., Swedish Inst. for Infectious Disease Control, Solna, SWEDEN, [3]Dept. of Clinical Microbiol., Kalmar Country Hosp., Kalmar, SWEDEN, [4]Dept. of Parasitology, Mycology and Environmental Microbiol., Swedish Inst. for Infectious disease control, Solna, SWEDEN.

1789 Assessment of the Effect of *Candida albicans* Persisters on Antifungal Therapy Using a Caenorhabditis elegans Infection Model
Q. Qi, F. Jia; Shandong Univ., Jinan, CHINA.

1790 Differences in E,E-farnesol Secretion among Bloodstream Isolates of *Candida albicans* with Different Mutilocus Sequence Types
S-H. Kim[1], J. Shin[1], S-I. Jung[2], J. Kim[1], J-H. Kim[1], M-E. Bougnoux[3,4,5], C. d'Enfert[4,5]; [1]Dept. of Lab. Med., Chonnam Natl. Univ. Med. Sch., Gwangju, KOREA, REPUBLIC OF, [2]Div. of Infectious Diseases, Chonnam Natl. Univ. Med. Sch., Gwangju, KOREA, REPUBLIC OF, [3]Laboratoire de Parasitologie-Mycologie, Service de Microbiologie, Hôpital Necker-Enfants Malades, Univ. Paris Descartes, Paris, FRANCE, [4]Inst. Pasteur, Unité Biologie et Pathogénicité Fongiques, Paris, FRANCE, [5]INRA USC2019, Paris, FRANCE.

1791 *Coccidioides* Cupin Protein 21 Immunoreactivity: Native Versus Recombinant
S. M. Johnson[1], E. L. Carlson[1], L. A. Nesbit[2], N. M. Ampel[2], D. Pappagianis[1]; [1]Univ. of California, Davis, CA, [2]Univ. of Arizona, Tucson, AZ.

1792 Titan Cell Production in *Cryptococcus neoformans* Alters Host-Pathogen Interactions
L. H. Okagaki, J. N. Crabtree, K. Nielsen; Univ. of Minnesota, Minneapolis, MN.

1793 X-linked Immunodeficient Mice Exhibit Increased Susceptibility to Acute and Chronic Cryptococcal Infection
W. A. Szymczak, L-A. Pirofski; Albert Einstein Coll. of Med., Bronx, NY.

1794 Methamphetamine Alters Blood Brain Barrier Functions Facilitating Central Nervous System Fungal Infection
E. A. Eugenin[1], J. D. Nosanchuk[1], **L. R. Martinez**[2,1]; [1]Albert Einstein Coll. of Med., Bronx, NY, [2]Long Island Univ., Post, Brookville, NY.

1795 Large-scale Genetic Interaction and Chemical-genetic Approaches to Functionally Annotate Microbial Virulence Genes of Unknown Function
J. C. S. Brown, N. Scott, H. D. Madhani; Univ. of California, San Francisco, San Francisco, CA.

1796 Ability to Form Biofilms is a Key Determinant in *Fusarium* Keratitis *In Vivo*
P. K. Mukherjee, J. Chandra, Y. Sun, C. Yu, E. Pearlman, **M. A. Ghannoum**; Case Western Reserve Univ., Cleveland, OH.

1797 The Role of Galectin-3 in Host Defense Against Histoplasmosis
B. A. Wu-Hsieh, S-Y. Wu; Natl. Taiwan Univ., Taipei, TAIWAN.

1798 *Fusarium* Keratitis Outbreak Isolates Vary in Their Ability to Form Biofilms on Contact Lenses and Their Antifungal Susceptibilities
P. K. Mukherjee, J. Chandra, Y. Sun, C. Yu, E. Pearlman, M. A. Ghannoum; Case Western Reserve Univ., Cleveland, OH.

1799 *Pichia,* a Member of the Oral Microbiome, Inhibits *Candida* Biofilms
J. CHANDRA, P. K. Mukherjee, M. A. Ghannoum; Case Western Reserve Univ., CLEVELAND, OH.

1800 Diverse Pulmonary Lymphocyte Subsets of Vaccinated and Non-vaccinated C57BL/6 Mice Produce Immunomodulatory IL-10 During *Coccidioides* Infection
C-Y. Hung, N. Castro-Lopez, G. T. Cole; Univ. of Texas at San Antonio, San Antonio, TX.

1801 *In Vivo* Evaluation of Protein Fractions which Induce Protective *C. neoformans*-specific Immune Responses
A. K. Chaturvedi, I. Cleary, K. L. Wozniak, F. L. Wormley Jr; UTSA, San Antonio, TX.

1802 Heterogeneity of Immune Response of Vaccinated HLA-DR4 (DRB1*0401) Transgenic Mice to Coccidioidomycosis
B. J. Hurtgen[1,2], N. Castro-Lopez[1], C-Y. Hung[1], G. T. Cole[1,2]; [1]Univ. of Texas at San Antonio, San Antonio, TX, [2]Univ. of Texas Hlth.Sci. Ctr. at San Antonio, San Antonio, TX.

1803 The Role of Host Gender in the Pathogenesis of *Cryptococcus neoformans* Infections
E. E. McClelland[1], L. M. Hobbs[1], G. P. Bisson[2], J. M. Smith[1], J. J. Ory[3]; [1]The Commonwealth Med. Coll., Scranton, PA, [2]Univ. of Pennsylvania Perelman Sch. of Med., Philadelphia, PA, [3]King's Coll., Wilkes-Barre, PA.

1804 Deciphering the Role of Annexins During Macrophage Infection with *Crytpococcus neoformans*
S. Stukes, A. Casadavall; Albert Einstein Coll. of Med., Bronx, NY.

1805 Cytokine Profiles in Brain Tissue of Immunocompetent Mice Infected Intravenously with *Aspergillus* Flavus
R. Anand[1], J. Shankar[2], A. P. Singh[3], B. N. Tiwary[4]; [1]Microbial and Molecular Genetics Lab., Dept. of Botany, Patna Univ., Patna, 800005, INDIA, [2]Div. of Infectious Diseases and Geographic Med., Stanford Univ. Sch. of Med., 94305, CA, [3]Infectious Diseases Lab., Natl. Inst. of Immunology,110067, INDIA, [4]Dept. of Biotechnology, Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G. 495009, INDIA.

1806 Scavenger Receptor A Modulates the Adaptive Immune Response during Pulmonary Infections with *Cryptococcus neoformans*
Y. Qiu[1,2], J. Dayrit[1], M. Davis[1,2], D. Lyons[1,2], D. Meister[1,2], Z. Hadd[1,2], M. Jie[1,2], J. Curtis[1,2], J. Osterholzer[1,2], M. Olszewski[1,2]; [1]Dept of VA, Ann Arbor, MI, [2]Univ. of Michigan, Ann Arbor, MI.

1807 Brain Inositol Promotes *Cryptococcus neoformans* Traversal Across the Blood-Brain Barrier
J-C. Kim, H-J. Kwon, **K. J. Kim**; Univ. of Kansas Med. Ctr., Kansas City, KS.

This session will include presentations on fungal factors that impact virulence and pathogenesis, and examine the host response and important host factors for the development of fungal disease.

131 Symbiosis and Microbial Interactions (Division I)

1:00 p.m. – 2:45 p.m.; Poster Hall

1808 Next-Gen Sequencing Reveals Temporal Changes in Host and Symbiont Physiology in a Digestive-Tract Association
L. A. Bomar, J. Graf; Univ. of Connecticut, Storrs, CT.

1809 The Lux Pathway Bifurcates at LuxU to Regulate Biofilm Formation by *Vibrio fischeri*
V. Ray, K. Visick; Loyola Univ. Chicago, Maywood, IL.

1810 An Analysis of the Genes Involved in Iron Uptake and Their Role in Squid Symbiosis by *Vibrio fischeri*
E. C. DaSilva, R. L. Desy, C. A. Whistler; Univ. of New Hampshire, Durham, NH.

1811 Understanding the Relationship Between Conifers and Bacterial Endophytes
E. C. Wilson, C. Frank; Univ. of California, Merced, CA.

1812 Metagenomics of an Environmental Microbial Community with Potential Uncultured Human Pathogens
M. Abrams, E. Vandaei, D. Romero, V. Nguyen; San Jose State Univ., San Jose, CA.

1813 Evaluation of Four Laboratory Media for Isolation of Potentially Proboitic Strains from Chicken Caecal and Fecal Samples
S. A. Abu Hafsa; ALCDR Inst., City of Scientific Res. and Technology Applications, Alexandria, EGYPT.

1814 Activated Carbon Functions as an Electron Shuttle to Stimulate Direct Interspecies Electron Transfer
F. Liu, P. M. Shrestha, A. E. Rotaru, K. Flanagan, K. P. Nevin, D. R. Lovley; Dept. of Microbiol., Univ. of Massachusetts Amherst, Amherst, MA.

1815 Metabolic Activity of the Obligate Intracellular Amoeba Symbiont *Protochlamydia amoebophila* in a Host-Free Environment
B. S. Sixt[1], A. Siegl[1], C. Müller[2], M. Watzka[3], A. Richter[3], P. Schmitt-Kopplin[2], M. Horn[1]; [1]Dept. of Microbial Ecology, Vienna, AUSTRIA, [2]Helmholtz-Zentrum Muenchen - German Res. Ctr. for Environmental Hlth., Inst. of Ecological Chemistry, Dept. of Molecular BioGeoChemistry and Analytics, Neuherberg, GERMANY, [3]Dept. of Chemical Ecology and Ecosystem Res., Vienna, AUSTRIA.

1816 Bacterial Communities Associated with Four Coral Diseases in the Western Caribbean
C. J. Closek[1], Y. Vallès[2], M. Cortes Garcia[1], Y. Aguilar[1], E. Buschiazzo[1], M. E. Brandt[3], M. Francino[2], M. Medina[1]; [1]Univ. of California, Merced, Merced, CA, [2]Ctr. for Advanced Res. in Publ. Hlth., Valencia, SPAIN, [3]Univ. of the Virgin Islands, St. Thomas, VIRGIN ISLANDS, U.S.

1817 A Broad Role for Type VI Secretion (T6S) in Interbacterial Interactions
A. B. Russell[1], P. Singh[1], M. Brittnacher[1], N. Bui[2], R. D. Hood[1], M. A. Carl[1], D. M. Agnello[1], D. R. Goodlett[1], W. Vollmer[2], J. D. Mougous[1]; [1]Univ. of Washington, Seattle, WA, [2]Newcastle Univ., Newcastle upon Tyne, UNITED KINGDOM.

1818 The Endophytes and Endophyte Diversities of Fusarium wilt-Susceptable and Fusarium wilt-Resistant Banana
H-M. Chiang; Natl. Chung Hsing Univ., Taichung, TAIWAN.

1819 Microbial Community Associated with the Yeast Agriculture-Ant Cyphomyrmex minutus
M. Medina-Rivera, M. J. Cafaro; Univ. of Puerto Rico-Mayaguez, Mayaguez, PR.

1820 Characterizing the Interactions between Planktonic Bacteria and Biofilms Under Imposed Environmental Gradients
A. Culotti, W. Zhang, A. I. Packman; Northwestern Univ., Evanston, IL.

1821 Anaerobic Degradation of Benzoate by a Syntrophic Co-culture through a Combination of Tetrathionate Respiration and Anoxygenic Photosynthesis
S. Haruta, S. Nishitani, K. Matsuura; Tokyo Metropolitan Univ., Hachioji, JAPAN.

1822 Direct Interspecies Electron Transfer in Methanogenic Environments: Genome-Scale Analysis of Mechanisms in Defined Co-Cultures and Natural Aggregates
A-E. Rotaru[1], **P. Shrestha**[1], F. Liu[1], P-L. Tremblay[1], J. Smith[1], D. Flores[1], M. Murnane[1], H. Nagarajan[2], M. Embree[2], K. Zengler[2], D. R. Lovley[1]; [1]Univ. of Massachusetts, Amherst, MA, [2]Univ. of California, San Diego, CA.

132 Cell Structure: Wall, Membrane and the Cytoskeleton (Division J)

1:00 p.m. – 2:45 p.m.; Poster Hall

1823 Function and Three Dimensional Structure of an Autolysin Inhibitor IseA from *Bacillus subtilis*
J. Sekiguchi, R. Arai; Shinshu Univ., Ueda, JAPAN.

1824 The Dependence of Bacterial Growth Rate on Turgor Pressure
E. Rojas, K. Huang, J. Theriot; Stanford Univ., Palo Alto, CA.

1825 Solid-State NMR Spectroscopy Reveals Atomic-level Changes in *Staphylococcus aureus* Peptidoglycan as a Function of Growth Stage
X. Zhou, L. S. Cegelski; Stanford Univ., Stanford, CA.

1826 UPLC Peptidoglycan Analysis of Cell-Shape Mutants to Determine Biophysical Factors Regulating Morphogenesis and Pathogenesis
S. Desmarais, R. Monds, K. C. Huang; Stanford Univ., Stanford, CA.

1827 The Presence of Certain Carbohydrates Regulates TnaA Tryptophanase Activity and Polar Localization in *Escherichia coli*
G. Li, S. E. Vestal, K. D. Young; Univ. of Arkansas for Med. Sci., Little Rock, AR.

1828 Cell Envelope Lipid Composition of Burkholderia multivorans Variant Strains
S. A. Ruskoski, J. W. Bullard, F. R. Champlin; Oklahoma State Univeristy-CHS, Tulsa, OK.

1829 Viral Fusogenic Protein of *Paramyxovirus* SV5 Induces Pores Formation in Drug Resistant Tumor Cell Culture
A. Gómez Treviño, M. Cantú Cárdenas, M. Suarez Herrera, M. Sanchez Gonzalez, M. Ortiz Martinez, S. Fernandez Delgadillo; Univ. Autonoma de Nuevo Leon, San Nicolas de los Garza, MEXICO.

1830 Role of IunH in *Bacillus anthracis* Spore Germination
R. R. Giorno[1], C. Zhang[1], E. Dill[2]; [1]Louisiana Tech Univ., Ruston, LA, [2]Grambling State Univ., Grambling, LA.

1831 Genetic Analysis of Interactions between FtsZ and FtsZ-associated Proteins in *Escherichia coli* Cell Division
K-H. Huang[1,2], S. Chaudhry[1], J. M. Durand-Heredia[1], **A. Janakiraman**[1,2]; [1]City Coll. of CUNY, NEW YORK, NY, [2]Graduate Ctr., CUNY, NY.

1832 Defining the Molecular Role for FtsA in *Escherichia coli* Cell Division
J. R. Juarez, W. Margolin; Univ. of Texas Hlth.Sci. Ctr. at Houston, Houston, TX.

1833 Cell Division in Flattened Cells
K. A. Torabian[1], E. Rojas[1], K. C. Huang[1], M. Goulian[2]; [1]Stanford Univ., Stanford, CA, [2]Univ. of Pennsylvania, Philadelphia, PA.

1834 Adaptive Changes to the MreB Bacterial Cytoskeleton and Cell Morphology During Experimental Evolution of *Escherichia coli*
R. D. Monds[1], S. Quan[1], T. K. Lee[2], T. F. Cooper[3], K. C. Huang[2]; [1]Stanford Univ. Sch. of Med., Stanford, CA, [2]Stanford Univ., Stanford, CA, [3]Univ. of Houston, Houston, TX.

1835 Mechanisms for Cell Width Control in Gram-negative Bacteria
C. Tropini, T. K. Lee, R. D. Monds, K. C. Huang; Stanford, Stanford, CA.

1836 The Human SNARE Protein Syntaxin 2 Regulates *Chlamydia trachomatis* Vacuole Fusion
J. H. Tran, J. Engel; Univ. of California, San Francisco, San Francisco, CA.

1837 High Levels of Morphological and Cellular Differentiation in the Filamentous Euendolithic Cyanobacterium Mastigocoleus testarum Strain BC008
B. S. Guida, F. Garcia-Pichel; Arizona State Univ., Tempe, AZ.

1838 Automating the Simulation of Symbolically-Defined Biological Reaction-Diffusion Models in Complex Geometries
WITHDRAWN

133 Bacterial Stress Responses (Division K)

1:00 p.m. – 2:45 p.m.; Poster Hall

1839 pH Regulation Differs Under Low Oxygen Conditions in *E. coli*
D. P. Riggins, K. Martinez, J. L. Slonczewski; Kenyon Coll., Gambier, OH.

1840 The Role of *Helicobacter pylori* Methionine Sulfoxide Reductase in Urease Maturation
L. G. Kuhns, M. Mahawar, J. S. Sharp, R. J. Maier; Univ. of Georgia, Athens, GA.

1841 Different Antibiotics Effects on Bacteria after High Frequency Electromagnetic Irradiation: *Escherichia coli* Become More Sensitive to Tetracycline than to Chloramphenicol, Ceftriaxone or Kanamycin
H. Torgomyan[1], A. Trchounian[2]; [1]Dept. of Biophysics, Biological Faculty,Yerevan State Univ., Yerevan, ARMENIA, [2]Dept. of Biophysics, Dept. of Microbiol. and Biotechnology, Biological Faculty,Yerevan State Univ., Yerevan, ARMENIA.

1842 *Enterococcus hirae* Growth and Survival are Affected by Extremely High Frequency Electromagnetic Field and Different Antibiotics
V. Ohanyan[1], H. Torgomyan[1], A. Trchounian[1,2]; [1]Dept. of Biophysics, Yerevan State Univ., Yerevan, ARMENIA, [2]Dept. of Microbiol. and Biotechnology, Yerevan State University, ARMENIA.

1843 Identification of Peroxynitrite Stress Target Proteins in *Helicobacter pylori*
N. Hartman, M. Mahawar, R. Maier; Univ. of Georgia, Athens, GA.

1844 Biochemical and Proteomic Analysis of Induction of Chromate Reduction Activity in an Anoxy*Bacillus* Strain under Heat Stress
S. Chowdhury Paul[1], P. Bhattacharya[1], B. Bal[2], D. Bhattacharyya[3], **S. Pal**[1]; [1]Jadavpur Univ., Kolkata, INDIA, [2]Saha Inst. of Nuclear Physics, Kolkata, INDIA, [3]Indian Inst. of Chemical Biology, Kolkata, INDIA.

1845 The Roles of Two 2-Cys Peroxiredoxins in *Vibrio vulnificus*, AhpC1 and AhpC2, in Defense against Oxidative Stress
Y-J. Bang[1], M. Oh[1,2], P-S. Chang[1], S. Choi[1]; [1]Seoul Natl. Univ., Seoul, KOREA, REPUBLIC OF, [2]Emerging Pathogens Inst., Univ. of Florida, Gainesville, FL.

1846 The *rpoH* Gene Encoding σ32 is Required for the Expression of the *algA* and *pnrB* Genes as well as Stress Shock Genes in *Pseudomonas* sp. HK-6 Cells Grown under TNT/RDX Stress Conditions
B-U. Lee[1], S-J. Ha[1], H. Baek[2], J-S. Kim[1], H-K. Choi[2], **K-H. Oh**[2]; [1]Kosin Univ., Busan, KOREA, REPUBLIC OF, [2]Soonchunhyang Univ., Chung-Nam, KOREA, REPUBLIC OF.

1847 The Methylmenaquinol:fumarate Reductase (Mfr) Regulates Oxidative Stress Response and Virulence in *Campylobacter jejuni*
I. I. Kassem[1], M. Khatri[1], Y. M. Sanad[1], M. Wolboldt[1], J. W. Olson[2], G. Rajashekara[1]; [1]The Ohio State Univ., Wooster, OH, [2]North Carolina State Univ., Raleigh, NC.

1848 Effect of Water Activity on the Surface Enhanced Raman Spectra and Total RNA of *Salmonella* Cells Associated with a Dry Cereal
R. C. Fink, L. He, C. L. Radtke, Z. P. Metz, A. R. Amann, T. P. Labuza, F. Diez-Gonzalez; Univ. of Minnesota, St. Paul, MN.

1849 Extremely High Frequency Electromagnetic Irradiation Effect on *LactoBacillus acidophilus* Sensitivity Toward Antibiotic Ceftazidime
A. Trchounian[1,2]; [1]Dept. of Biophysics, Biology Faculty of the Yerevan State Univ. Biology Faculty of the Yerevan State Univ., Yerevan, ARMENIA, [2]Dept. of Biotechnology and Microbiol., Biology Faculty of the Yerevan State Univ., Yerevan, ARMENIA.

1850 Phenotypic Rescue of an *Escherichia coli* Small Colony Variant by Lipoic Acid
V. A. Santos, I. N. Hirshfield; Saint John's Univ., Jamaica, NY.

1851 RNase III Controls the Degradation of *corA* mRNA in *Escherichia coli*
B. Lim, S-H. Sim, M. Sim, k. Lee; Chungang Univ., Seoul, KOREA, REPUBLIC OF.

1852 Genetic Approaches and Effect of Cell Density and Redox Conditions in Methylmercury Release from *Desulfovibrio* desulfuricans Strain ND132
R. Bridou[1], A. Kucken[1], S. Smith[1], D. Elias[2], J. Wall[1]; [1]Univ. of Missouri, Columbia, MO, [2]Oak Ridge Natl. Lab., Oak Ridge, TN.

1853 RidA Prevents Metabolic Stress Created by Pyridoxal 5'-Phosphate (PLP)-dependent Mechanisms
J. A. Lambrecht, D. M. Downs; Univ. of Wisconsin-Madison, Madison, WI.

1854 *Staphylococcus aureus* Mutants Disrupted in Bacillithiol Metabolism are Sensitive to Xenobiotics and Oxidants
J. Ikawa Wakabayashi, M. Rawat; California State Univ., Fresno, Fresno, CA.

1855 OsuR Plays a Role in the Oxygen Induction of the Oxygen induced Starch Utilization Operon *(osu)* of *Bacteroides fragilis*
Y. Cao, M. E. Brock, E. R. Rocha, C. J. Smith; East Carolina Univ., Greenville, NC.

1856 Determining the Interaction Interface between the Bacterial Stress Response Induction Proteins, LexA and RecA
M. Khandelwal, S. L. Lusetti; New Mexico State Univ., Las cruces, NM.

1857 Purification and Biochemical Characterization of *Staphylococcus aureus recA* Protein
I. P. Menikpurage, L. A. Uranga, M. Khandelwal, S. L. Lusetti; New Mexico State Univ., Las Cruces, NM.

1858 Selective Protein Degradation of the Mutagenesis Proteins MucA (MucA') and MucB
M. E. Bailey, K. Pierson, I. R. Bothwell, M. Gonzalez; Southwestern Univ., Georgetown, TX.

1859 The Physiology of Glucose-Phosphate Stress: Induction of the Pho Regulon Suppresses the Growth Defect of an *Escherichia coli sgrS* Mutant
G. R. RICHARDS, M. Patel, C. K. Vanderpool; Univ. of Illinois at Urbana-Champaign, Urbana, IL.

1860 Insights into Mechanism of YjbH-Mediated Spx Proteolysis by ClpXP
C. Chan, S. K. Garg, P. Zuber; Oregon Hlth.& Sci. Univ., Beaverton, OR.

1861 Characterization of *Mycobacterium smegmatis* Mutants Disrupted in Mycothiol Dependent Proteins
K. Barretto, M. Rawat; California State Univ., Fresno, Fresno, CA.

1862 Multiple Two Component Signaling Systems Modulate Carbon Utilization in *Desulfovibrio vulgaris*
E. G. Luning, L. Rajeev, M. Nhan, G. Zane, P. Dehal, M. Price, J. Wall, A. Arkin, P.Novichkov, A. Kazakov, I. Dubchak, and A. Mukhopadhyay; Lawrence Berkeley Natl. Lab., Emeryville, CA.

1863 RpoS Proteolysis is Controlled Directly by ATP Levels in *Escherichia coli*
C. Peterson[1], I. Levchenko[2], J. D. Rabinowitz[3], T. A. Baker[2], T. J. Silhavy[3]; [1]Suffolk Univ., Boston, MA, [2]Massachusetts Inst. of Technology, Cambridge, MA, [3]Princeton Univ., Princeton, NJ.

1864 Influence of Salt Exposure on Stress Response and Antibiotic Resistance in *Escherichia coli* O157:H7
L. Mesak[1], J. Davies[2], V. Gannon[3], K. Allen[1]; [1]Food, Nutrition, and Hlth.Program, UBC, Vancouver, BC, CANADA, [2]Dept. of Microbiol. and Immunology, UBC, Vancouver, BC, CANADA, [3]Lab. of Foodborn Zoonoses, Hlth.Canada, Lethbridge, AB, CANADA.

1865 Stress response of cheese ripening bacteria *Brevibacterium aurantiacum*
M-P. Forquin-Gomez, R. Jeannotte, B. C. Weimer; Univ. of California, Davis, Davis, CA.

134 Morphogenesis, Genomics, Evolution and Ecology (Division M)

1:00 p.m. – 2:45 p.m.; Poster Hall

1866 Expanding Our View of Mycobacteriophage Genetic Diversity
D. Jacobs-Sera, C. A. Bowman, D. A. Russell, W. H. Pope, R. W. Hendrix, G. F. Hatfull; Univ. of Pittsburgh, Pittsburgh, PA.

1867 Mycobacteriophage Adephagia Repressor: New Insights Into TM4 Evolution and a Novel Selection Strategy in Mycobacteria
Z. Petrova, G. F. Hatfull, G. W. Broussard; Univ. of Pittsburgh, Pittsburgh, PA.

1868 Characterization of Mycobacteriophage Alice and Comparison of tRNA Genes with Other C1 Subcluster Phages
C. M. Manley, L. E. Hughes; Univ. of North Texas, Denton, TX.

1869 *Propionibacterium acnes* Bacteriophages Display Limited Genetic Diversity and Broad Killing Activity Against Bacterial Skin Isolates
L. J. Marinelli[1], S. Fitz-Gibbon[2], C. Hayes[1], C. A. Bowman[3], M. So[2], A. Loncaric[4], D. A. Russell[3], D. Jacobs-Sera[3], H. Li[5], M. Pellegrini[2], J. F. Miller[6], G. F. Hatfull, Ph.D.[3], R. L. Modlin[1,6]; [1]Dept. of Med.-Dermatology, UCLA, Los Angeles, CA, [2]Dept. of Molecular Cell and Dev.al Biology, UCLA, Los Angeles, CA, [3]Dept. of Biological Sci., Pittsburgh Bacteriophage Inst., Univ. of Pittsburgh, Pittsburgh, PA, [4]Solta Med., Inc, Hayward, CA, [5]Dept. of Molecular and Med. Pharmacology, Crump Inst. for Molecular Imaging, UCLA, Los Angeles, CA, [6]Dept. of Microbiol., Immunology and Molecular Genetics, UCLA, Los Angeles, CA.

1870 Genome Sequences of Two Marine Bacteriophages Infecting SAR11 (pelagiphage)
Y. Zhao, M. S. Schwalbach, K. Vergin, J. Yan, C. Thrash, D. P. Smith, Z. C. Landry, B. Temperton, S. J. Giovannoni; Dept. of Microbiol., Oregon State Univ., Corvallis, OR.

1871 Sequencing and Annotation of Bacteriophage J1 Genome and its Relationship with Prophage Like Elements Present in the Model Strain *LactoBacillus casei BL23*
M. E. Dieterle[1], D. Jacobs-Sera[2], D. Russel[2], G. Hatfull[2], **M. Piuri**[1]; [1]Departamento de Química Biológica, Facultad de Ciencias Exactas y Naturales, Univ. de Buenos Aires, Buenos Aires, ARGENTINA, [2]Dept. of Biological Sci., Univ. of Pittsburgh, Pittsburgh, PA.

1872 A Large Family of Bacteriophages Infecting *Bacillus* pumilus Constitute Two Types by Morphology and Genomics
J. M. Barrett[1], T. Burkholder[1], R. Cain[1], L. Lorenz[1], A. Montgomery[1], C. Starke[1], G. Christie[2], S. G. Cresawn[1], R. Raab[1], L. Temple[1]; [1]James Madison Univ., Harrisonburg, VA, [2]Va. Commonwealth Univ., Richmond, VA.

1873 Listeriaphage Genomes Display Extensive Diversity and Mosaicism
K. Vongkamjan, A. M. Switt, H. den Bakker, T. Denes, M. Wiedmann; Cornell Univ., Ithaca, NY.

1874 Phage Smp131 of *Stenotrophomonas maltophilia* is closely related to prophages of *Stenotrophomonas* and *Xanthomonas*
C-N. Lee[1], H-C. Chang[1], J-W. Lin[2], S-F. Weng[1], **Y-H. Tseng**[3]; [1]Inst. of Molecular Biology, Natl. Chung Hsing Univ., Taiwan, TAIWAN, [2]Inst. of Biochemistry, Natl. Chung Hsing Univ., Taiwan, TAIWAN, [3]Tzu Chi Univ., Hualien, TAIWAN.

1875 Characterization and Genomic Sequence Analysis of Bacteriophage 1M3-16 Active Against a Novel Haloalkaliphilic Nitrincola sp. Bacterial Host
M. Movassaghi[1], K. Moulton[1], F. Mwaura[2], J. Kabaru[2], L. J. Rothschild[3], S. M. Duboise[1]; [1]Univ. of Southern Maine, Portland, ME, [2]Univ. of Nairobi, Nairobi, KENYA, [3]NASA Ames Res. Ctr., Moffett Field, CA.

1876 Characterization and Genomic Analysis of Two *Staphylococcus aureus* Phages Isolated from Poultry-livestock Farms
J. Yun[1], Y. Chang[1], S. Hur[2], S. Ryu[1]; [1]Seoul Natl. Univ., Seoul, KOREA, REPUBLIC OF, [2]Rural Dev. Admin., Suwon, KOREA, REPUBLIC OF.

1877 Discovery and Characterization of the First Prophage in Thermotogales: A Tailed Bacteriophage Predicted to Infect Thermosipho and Thermotoga
C. L. Nesbø[1], C. Geslin[2], J. Lossouarn[2], M. Jebbar[2], O. Zhaxybayeva[3]; [1]Univ. of Oslo and Univ. of Alberta, Edmonton, AB, CANADA, [2]laboratoire de Microbiologie des Environnements Extrêmes UMR 6197 -CNRS-Ifremer-UBO Université de Bretagne Occidentale (UBO), FRANCE, [3]West Virginia Univ., Morgantown, WV.

1878 Mapping the Packaging Cleavage Determinants in the Phage-dependent *Staphylococcus aureus* Pathogenicity Island SaPI1
J. C. Bento[1,2], K. D. Lane[1], N. Cerca[2], G. E. Christie[1]; [1]Virginia Commonwealth Univ. Sch. of Med., Richmond, VA, [2]Univ. of Minho Inst. for Biotechnology and Bioengineering, Braga, PORTUGAL.

1879 Characterization of Eli11:A Novel Lysobacteriophage Isolated from Cotton Compost
J. C. Hendricks, C. M. Johnson, M. Zellars; Georgia State Univ., Atlanta, GA.

1880 Sources of Bacteriophages which Infect *PaeniBacillus larvae,* an Important Honeybee Pathogen
D. G. Yost, P. S. Amy; UNLV, Las Vegas, NV.

1881 Presence of Stable Virus-like Particle Populations in Acetate-fed Methanogenic Enrichment Reactors
I-C. Chien, J. S. Meschke, H. L. Gough, J. F. Ferguson; Univ. of Washington, Seattle, WA.

1882 Analysis of Viral Metagenome in Acetoclast-Enriched Anaerobic Digesters
S. W. Pease, I-C. Chien, H. L. Gough, J. F. Ferguson, J. S. Meschke; Univ. of Washington, Seattle, WA.

1883 Diversity and Temporal Dynamics of Haloviral Communities in Lake Tyrrell, Victoria, Australia
J. B. Emerson[1], B. C. Thomas[1], K. Andrade[1], K. B. Heidelberg[2], J. F. Banfield[1]; [1]Univ. of California, Berkeley, Berkeley, CA, [2]Univ. of Southern California, Los Angeles, CA.

135 Marine and Aquatic Microbiology II (Division N)

1:00 p.m. – 2:45 p.m.; Poster Hall

1884 Changes in Microbial Community Structure Associated with Monochloramine-treated Drinking Water Biofilms
R. P. Revetta[1], V. Gomez-Alvarez[1], J. W. Santo Domingo[1], T. L. Gerke[2], N. J. Ashbolt[1]; [1]United States Environmental Protection Agency, Cincinnati, OH, [2]ORISE, Cincinnati, OH.

1885 Ecogenomic Analysis of Eubacteria and Eukaryotic Organisms in Pipe Wall Biofilms Colonized by Pathogenic and Non-Pathogenic *Naegleria*
G. J. Puzon[1], T. Walsh[2], J. Wylie[1], L. Breckler[3], A. Wyber[3], M. Morgan[4]; [1]CSIRO Land and Water, Perth WA, AUSTRALIA, [2]CSIRO Ecosystems Sci., Canberra ACT, AUSTRALIA, [3]Water Corp. of Western Australia, Perth WA, AUSTRALIA, [4]CSIRO Ecosystem Sci., Canberra ACT, AUSTRALIA.

1886 Short-term Effects of a Widely Used Nanomaterial, Nano-Titanium Dioxide, on *Escherichia coli* in Natural Surface Water
B. T. T. Chu[1], T. Tong[2], K. Gray[2], J-F. Gaillard[2], J. J. Kelly[1]; [1]Dept. of Biology, Loyola Univ. Chicago, Chicago, IL, [2]Dept. of Civil and Environmental Engineering, Northwestern Univ., Evanston, IL.

1887 Mercury and Methyl Mercury Resistance Profiles of Sponge-Associated Bacteria from a Brazilian Coast
J. Santos-Gandelman[1], G. Muricy[2], M. Giambiagi-deMarval[1], T. Barkay[3], M. Laport[1]; [1]Univ.e Federal do Rio de Janeiro, Rio de Janeiro, BRAZIL, [2]Museu Natl., Univ.e Federal do Rio de Janeiro, Rio de Janeiro, BRAZIL, [3]Rutgers Univ., New Brunswick, NJ.

1888 Spatial Distribution of Microbial Community Structure in Los Osos Sweet Springs
M. W. Scandalis, E. Sivok, V. Harvey, M. W. Howard; California Polytechnic State Univ., San Luis Obispo, CA.

1889 Molecular Biogeography of Fungi across Tropical Coastal Habitats
D. L. Laureano-Córdova, Y. Bernier-Casillas, J. R. Pérez-Jiménez; Univ. del Turabo, Gurabo, PR.

1890 Diversity, Geographical Distribution, and Seasonal Fluctuations of Bioluminescent Bacterial Species
J. L. Schuld, J. M. Owens, C. F. Wimpee; Univ. of Wisconsin-Milwaukee, Milwaukee, WI.

1891 Analysis of dim mutants of *Vibrio harveyi* isolated from the Gulf of Mexico
E. R. Bolton, C. F. Wimpee; Univ. of Wisconsin-Milwaukee, Milwaukee, WI.

1892 Phylogenetic Analysis of Bacteriovorax from an Estuarine System
M. E. D. Treadwell, N. M. Bradley, T. L. Dickerson, L. Latinwo, D. S. Lymperopoulou, J. R. Murray, H. N. Williams; Florida Agricultural and Mechanical Univ., Tallahassee, FL.

1893 Marine Viral Survival Skills: How Oceanic Microbial Viruses Succeed in the Southern Ocean
Moved to The Units of Microbial Life as a Young Investigator

1894 Structuring of Bacterioplankton Diversity in a Large Tropical Bay
G. B. Gregoracci, J. R. Nascimento, A. S. Cabral, R. Paranhos, J. L. Valentin, C. C. Thompson, F. L. Thompson; UFRJ, Rio de Janeiro, BRAZIL.

1895 A Survey of Oil and Hydrocarbon-degrading Bacteria from Apalachicola Bay Oysters and their Environment
J. Thomas[1], D. Wafula[1], **A. Chauhan**[1], S. Green[2], C. Jagoe[1]; [1]Florida A&M Univ., Tallahassee, FL, [2]Univ. of Illinois, Chicago, IL.

1896 Heterothrophic vs Autotrophic metabolism in the iron-oxidizing bacteria *Leptothrix ochracea*
A. Lopez Guzman[1,2], D. Emerson[2], E. Fleming[2], M. Martinez Garcia[3,2]; [1]Interamerican Univ. of Puerto Rico, San German, PUERTO RICO, [2]Bigelow Lab. for ocean Sci., West Boothbay Harbor, ME, [3]Univ. de Alicante, Alicante, SPAIN.

1897 Investigating the Impact of an Ice Binding Protein on the Liquid Vein Network in Polycrystalline Ice Using Magnetic Resonance Techniques and its Implications for Habitat Modification in Ice
M. L. Skidmore[1], T. I. Brox[1], S. J. Vogt[1], J. R. Brown[1], J. D. Seymour[1], C. Wang[2], B-H. Luo[2], A. Achberger[2], B. C. Christner[2], S. L. Codd[1]; [1]Montana State Univ., Bozeman, MT, [2]Louisiana State Univ., Baton Rouge, LA.

1898 Dynamics of a Bacterial Community during an *Akashiwo sanguinea* Bloom in the Xiamen Sea
Y. Li[1], C. Yang[1,2], Y. Tian[1], J. Van Nostrand[2], J. Zhou[2], T. Zheng[1,3]; [1]Key Lab. of the Ministry of Ed. for Coastal and Wetland Ecosystems, Sch. of Life Sci., Xiamen Univ., Xiamen, CHINA, [2]Environmental Genomics and Dept. of Botany and Microbiol., Univ. of Oklahoma, Norman, OK, [3]State Key Lab. for Marine Environmental Sci., Xiamen Univ., Xiamen, CHINA.

1899 Spatial and Temporal Characterization of Denitrifier Communities in the San Francisco Bay Estuary
J. A. Lee, C. A. Francis; Stanford Univ., Stanford, CA.

1900 Ammonia Consumption Niche Partitioning among Cyanobacteria, Ammonia-Oxidizing Archaea, and Ammonia Oxidizing Bacteria in Coral Reef Cyanobacterial Mats
M. R. Boyett, A. Tavakkoli, D. Sobolev; Univ. of Houston - Victoria, Victoria, TX.

1901 Seasonal Dynamics of Microbial Ammonia Oxidation in San Francisco Bay
J. Damashek, C. A. Francis; Stanford Univ., Stanford, CA.

1902 Archaeal Ammonia Oxidizer Community Composition in Oceanic Oxygen Minimum Zones
X. Peng, A. Jayakumar, B. Ward; Princeton Univ., Princeton, NJ.

1903 Landscape-Scale Patterns of Ammonia-Oxidizing Bacteria in New England Salt Marshes
E. Yando, C. Dwyer, **A. E. Bernhard**; Connecticut Coll., New London, CT.

1904 Microbe Diversity Associated with Cup-Shaped Reef Structures (Buracas) of the Abrolhos Bank - Bahia, Brazil
G. S. Cavalcanti[1], G. B. Gregoracci[1], G. D. Garcia[1], E. O. Santos[1], T. Bruce[1], R. L. Moura[1], G. M. Amado-Filho[2], R. Paranhos[1], F. L. Thompson[1]; [1]UFRJ, Rio de Janeiro, BRAZIL, [2]JBRJ, Rio de Janeiro, BRAZIL.

1905 Needles in a Haystack: Identifying the Mutualists among Bacteria Associated with the Caribbean Coral Montastraea faveolata
E. Buschiazzo[1], C. J. Closek[1], K. L. Marhaver[1], Y. Vallès[2], E. A. Green[1], M. J. A. Vermeij[3], P. M. Francino[2], M. Medina[1]; [1]Univ. of California, Merced, Merced, CA, [2]Ctr. for Advanced Res. in Publ. Hlth., Valencia, SPAIN, [3]Carmabi Fndn., Willemstad, NETHERLANDS ANTILLES.

1906 Understanding Bacterial Communities and Symbiotic Relationships in Freshwater Mussels
C. R. ARIAS[1], S. LaFrentz[1], S. A. Bullard[1], P. Johnson[2]; [1]Auburn Univ., AUBURN, AL, [2]Alabama Aquatic Biodiversity Ctr., Marion, AL.

1907 Comparison of the Ability of Three qPCR Chemistries to Resolve PCR Inhibition in Ambient Marine Water Samples
E. Scott, M. Raith, J. Griffith; Southern California Coastal Water Res. Project, Costa Mesa, CA.

1908 Chemosynthetic Microbial Biofilms at Post Eruptive Vents on the East Pacific Rise at 9°N
C. Vetriani[1], T. Barkay[1], S. Borin[2], M. Bolognini[1], M. Crespo-Medina[3], C. O'Brien[1], I. Perez-Rodriguez[4], J. Ricci[5], B. Wawrick[6]; [1]Rutgers Univ., New Brunswick, NJ, [2]Univ. of Milan, Milan, ITALY, [3]Univ. of Georgia, Athens, GA, [4]Carnegie Inst. for Sci., Washington, DC, [5]California Inst. of Technology, Pasadena, CA, [6]Univ. of Oklahoma, Norman, OK.

1909 Comparative Metagenomic Analysis of Microbial Communities from the Columbia River Estuary and Adjacent Coastal Ocean
M. W. Smit[1], L. Zeigler Allen[2], A. E. Allen[2], H. M. Simon[1]; [1]Oregon Hlth. and Sci. Univ, Beaverton, OR, [2]Microbial and Environmental Genomics, J. Craig Venter Inst., La Jolla, CA.

1910 Cultivation and Molecular Analysis of the Microbial Community in Epsomite Lakes of the Pacific Northwest
B. R. Kilmer[1], **T. C. Eberl**[1], J. D. Crisler[1], B. Cunderla[2], B. E. Madu[3], M. A. Schneegurt[1]; [1]Wichita State Univ., Wichita, KS, [2]USDI-Bureau of Land Management, Wenatchee, WA, [3]Ministry of Energy and Mines, Kamloops, BC, CANADA.

1911 The Chloroplast Genome of an Uncultured Pelagophyte and its Distribution in the World's Oceans
A. Z. Worden[1], J. Janouskovec[2], A. Engman[1], **D. McRose**[1], S. Malfatti[3], S. G. Tringe[3], P. J. Keeling[2]; [1]Monterey Bay Aquarium Res. Inst., Moss Landing, CA, [2]Dept. of Botany, Canadian Inst. for Advanced Res., Univ. of British Columbia, Vancouver, BC, CANADA, [3]Joint Genome Inst., Walnut Creek, CA.

136 Molecular Microbiology Ecology: Communities and Organisms II (Division N)

1:00 p.m. – 2:45 p.m.; Poster Hall

1912 Rainfall Events as Drivers of Terrestrial Virus Migration and Changes in Freshwater Microbial Communities
J. A. Kendra, **K. E. Williamson**; Coll. of William and Mary, Williamsburg, VA.

1913 The Diversity of Soil Fungal Communities Across a Permafrost Thawing Gradient in an Arctic Tundra
C. Yang[1,2], F. Liu[1], J. Ma[1], M. Yuan[1], J. Zhang[1], K. Xue[1], J. Van Nostrand[1], T. Yuan[1], L. Wu[1], Z. He[1], E. Schuur[3], J. Zhou[1]; [1]Inst. for environmental genomics, Univ. of Oklahoma, Norman, OK, [2]Key Lab. of the Ministry of Ed. for Coastal and Wetland Ecosystems, Xiamen Univ., Xiamen, CHINA, [3]Dept. of Biology, Univ. of Florida, Gainesville, FL.

1914 Adults and Larvae from a Subsocial Passalidae Beetle Harbor Different Gut Microbial
G. Vargas-Asensio[1], M. Hernandez[2], S. He[3], S. Malfatti[3], C. Hernandez[2], C. Murillo[2], S. Tringe[3], J. Clardy[4], D. Sherman[5], A. Pinto[1,2], G. Tamayo[1,2]; [1]Univ. de Costa Rica, San Jose, COSTA RICA, [2]INBio, Santo Domingo. Heredia, COSTA RICA, [3]DOE Joint Genome Inst., Walnut Creek, CA, [4]Harvard Med. Sch., San Jose, MA, [5]Univ. of Michigan, Ann Arbor, MI.

1915 Long-term Nitrogen Fertilization Alters the Functional Diversity of Soil Microbial Communities
Y. Liang[1,2], L. Wu[1], I. Clark[3], K. Xue[1], Y. Deng[1], Z. He[1], J. D. Nostrand[1], P. Hirsch[3], F. Zhao[1], S. Mcgrath[3], J. Zhou[1]; [1]Inst. for Environment Genomics, Oklahoma, OK, [2]Changzhou Univ., CHINA, [3]Rothamsted Res., UNITED KINGDOM.

1916 Structure of Ammonia-Oxidazing Archaea at El Yunque Rain Forest in Puerto Rico
A. Carazo-Carrión, J. R. Pérez-Jiménez; Univ. del Turabo, Gurabo, PR.

1917 New Tools for Detection of the *nrfA* Gene, the Primary Nitrite Reductase Responsible for DNRA in the Environment
A. K. Welsh[1], J. C. Chee-Sanford[1,2], L. M. Connor[2], F. E. Löffler[3,4], R. A. Sanford[1]; [1]Univ. of Illinois at Urbana Champaign, Urbana, IL, [2]USDA-ARS, Urbana, IL, [3]Univ. of Tennessee, Knoxville, TN, [4]Oak Ridge Natl. Lab., Oak Ridge, TN.

1918 Metagenomic Analysis of Microbial Communities Inhabiting Speleothem Surfaces in Kartchner Caverns, AZ
M. Ortiz[1], B. M. Fryslie[1], W. M. Nelson[1], C. Soderlund[1], R. A. Wing[1], B. M. Pryor[1], L. S. Pierson[2], R. M. Maier[1]; [1]Univ. of Arizona, Tucson, AZ, [2]Texas A&M Univ., College Station, TX.

1919 Species-Level Identification of Bifidobacteria from Heterogeneous Samples Using Terminal Restriction Fragment Length Polymorphisms
Z. T. Lewis, N. Bokulich, S. Ruiz-Moyano, K. M. Kalanetra, D. A. Mills; UC Davis, Davis, CA.

1920 Stochastic Assembly Dictates the Succession of Microbial Communities in Response to Environmental Perturbations
J. Zhou, **Y. Deng**, P. Zhang, K. Xue, J. Van Nostrand, Z. He; Univ. of Oklahoma, Norman, OK.

1921 Phylogenetic Analysis of the Kenaf Fiber Microbial Retting Community by Semiconductor Sequencing of 16S rDNA Amplicons
D. K. Visi[1], N. A. D'Souza[1], B. G. Ayre[1], C. L. Webber, III[2], M. S. Allen[1]; [1]Univ. of North Texas, Denton, TX, [2]USDA, OK.

1922 Soil Microbial Diversity in Different Cropping Systems with Inoculated the Microbial Consortium Agent and Agrochemical using 454-pyrosequencing
J-H. Lim[1,2], C-H. An[1], Y-H. Kim[1], **B-K. Jung**[1], S-D. Kim[1]; [1]Dept. of Applied Microbiol. and Biotechnology, Yeungnam Univ., Gyeongsan, KOREA, REPUBLIC OF, [2]Inst. of Safety and Quality Evaluation for Agricultural Products, Kyungpook Natl. Univ., Daegu, KOREA, REPUBLIC OF.

1923 Metaproteomics Reveals Shifts in Active Microbial Community Composition and Functioning across a Gradient of Coal-Tar Contamination
B. T. Hanson, E. L. Madsen; Cornell Univ., Ithaca, NY.

1924 Effects of the Deepwater Horizon Oil Spill on the Bacterial Communities of the Gulf Killifish (Fundulus grandis)
A. Larsen, C. Arias; Auburn Univ., Auburn, AL.

1925 Microbial Community Structure and Hydrocarbon Degradation by Isolates Obtained from Different Depths in the Aftermath of the Deepwater Horizon Spill in the Gulf of Mexico
R. Chakraborty[1], Y. M. Picerno[1], F. C. Reid[1], S. E. Borglin[1], E. A. Dubinsky[1], L. M. Tom[1], T. C. Hazen[2], G. L. Andersen[1]; [1]Lawrence Berkeley Natl. Lab., Berkeley, CA, [2]Univ. of Tennessee, Knoxville, TN.

1926 Succession and persistence of hydrocarbon-degrading microbial communities following the *Deepwater Horizon oil spill*
E. A. Dubinsky, L. Tom, F. Reid, S. Borglin, K. Chavarria, J. Fortney, D. Joyner, J. Kuehl, R. Lamendella, H. Lim, O. Mason, Y. Piceno, K. Wetmore, C. Wu, T. Hazen, G. Andersen; Lawrence Berkeley Natl. Lab., Berkeley, CA.

1927 Community Transcriptomics Reveals High Microbial Diversity and Activity in Extremely Acidic Biofilms
D. S. Aliaga Goltsman, B. C. Thomas, J. F. Banfield; Univ. of California Berkeley, Berkeley, CA.

1928 The Cloacal Microbiomes of Antibiotic-treated versus Untreated Chicks of the Critically Endangered Attwater's prairie-chicken
S. E. Simon, S. C. Hammerly, D. K. Visi, J. A. Johnson, M. S. Allen; Univ. of North Texas, Denton, TX.

1929 Impact of Dietary Distiller's Dried Grains with Solubles (DDGS) on the Intestinal Microbiota of Turkeys
J. A. Benson[1], S. L. Noll[2], M. Hruby[1], E. A. Galbraith[1], G. R. Siragusa[1]; [1]Danisco, Waukesha, WI, [2]Univ. of Minnesota, St. Paul, MN.

1930 In-feed Antibiotic Effects on the Spatial and Functional Diversity of Microbial Communities in the Swine Intestinal Tract
T. Looft, H. K. Allen, U. Y. Levine, D. O. Bayles, D. Alt, T. B. Stanton; USDA-NADC, Ames, IA.

1931 Comparing the Dominant *Escherichia coli* Strains in Humans, Pigs, and Cows Using Pyroprinting: A Novel Method for Strain Identification
C. P. Bufano, M. Black, J. VanderKelen, C. Kitts; California Polytechnic State Univ., San Luis Obispo, CA.

1932 Investigating the Dominant *Escherichia coli* Strain in Lambs and Ewes Using Pyrosequencing: A Novel Method for Strain Identification
J. Nguyen, J. Vanderkelen, M. Black, C. Kitts; California Polytechnic State Univ., San Luis Obispo, CA.

1933 Investigating Changes in Prevalent Human *Escherichia coli* Strains with Different Collection Methods Using Pyroprinting: A Novel MST Method
W. Tang, C. J. Sabatini, E. R. Neal, A. Goodman, A. Dekhtyar, K. McGaughey, M. Black, C. Kitts; California Polytechnic State Univ., San Luis Obispo, CA.

1934 Temporal Dynamics of Bacterial and Viral Communities in Public Restrooms
T. M. Schwartz[1], J. A. Gilbert[2], S. T. Kelley[1]; [1]San Diego State Univ., San Diego, CA, [2]Argonne Natl. Lab., Argonne, IL.

1935 The Role of Polyphosphate in Thermophilic *Synechococcus sp.* from Microbial Mats
M. R. Gomez-Garcia, F. Fazeli, A. T. Grote, A. Grossman, **D. Bhaya**; Carnegie Insitution, Stanford, CA.

1936 Probing the Effects of Cyanobacteria Cell Density on Growth Rate Using a Parallel Microfluidic Platform
F. Yu[1], R. Chau[1], A. Zambon[2], D. Bhaya[3], K. C. Huang[1], S. Quake[1]; [1]Stanford Univ., Stanford, CA, [2]Univ. of Padova, Padova, ITALY, [3]Carnegie Inst. for Sci., Stanford, CA.

1937 Diversity and Relationship of Indoor Microbial Communities to Development of Asthma in Children
R. M. Maier[1], M. T. Hoffman[1], M. Ortiz[1], A. L. Wright[1], E. von Mutius[2]; [1]Univ. of Arizona, Tucson, AZ, [2]Univ. Children's Hosp., Munich, GERMANY.

137 Fermentations and Bioconversions (Division O)

1:00 p.m. – 2:45 p.m.; Poster Hall

1938 Metabolic and Genetic Engineering to Improve Rhamnolipid Production in *Pseudomonas aeruginosa*
P. B. Rogers, J. E. Dornenburg, K. L. Eppinett, C. E. Gamston, S-j. Suh; Auburn Univ., Auburn, AL.

1939 Application of *Aspergillus niger* Hemicellulases to Chemically Treated Sugarcane Bagasse for Bioethanol Production
K. RODRIGUEZ-ALBAVERA[1], M. Mendez-Melendez[1], L-A. Garcia-Vallejo[1], A-B. Pérez-Zapata[2], L-W. Granados-Baeza[2], H. Alonso-Jiménez[1], F. Hernández-Campos[1], A. Alvarez-Castillo[1], M-J. Granados-Baeza[1], A. Román-Toledo[1]; [1]Inst. Tecnológico de Zacatepec, Zacatepec, Morelos, MEXICO, [2]Univ Aut de Campeche, Campeche, MEXICO.

1940 Isolation, Identification and Cultural Optimization of the Thermostable Feruloyl Esterase Producing Actinomycetes
C-H. Yang, Y-P. Ciou, C-Y. Chen, Y-C. Huang; Providence Univ., Taichung, TAIWAN.

1941 Isolation and Characterization of a Thermotolerant Mutant Strain of *Brettanomyces custersii*
T. P. West, W. R. Gibbons; South Dakota State Univ., Brookings, SD.

1942 Development of Soy Functional Food Fermented with Selected Probiotics for Anti-melanogenesis
Y-M. Chen[1,2], R-Y. Dai[1], T-W. Shih[3], T-M. Pan[4], **T-Y. Tsai**[1]; [1]Dept. Food Sci., Fu Jen Univ., New Taipei City, TAIWAN, [2]R&D Div., Dong Jyu Biotech Co., LTD., Taipei City, TAIWAN, [3]R&D Div., SunWay Biotech Co., LTD., Taipei City, TAIWAN, [4]Dept. Biochem. Sci. Technol., Natl. Taiwan Univ., Taipei City, TAIWAN.

1943 Treatment of Sugarcane Bagasse from Morelos Mexico using Cellulases from *Trichoderma reseei* for BioethanolProduction
M. Mendez-Melendez[1], A. Alvarez-Castillo[1], H. Alonso-Jiménez[1], W-N. Hernandez-Diaz[1], L-A. Garcia-Vallejo[1], E-D. Ramírez-Paredes[1], E-E. Benitez-Hernandez[1], A-B. Pérez-Zapata[2], A. Román Toledo[1], M-J. Granados-Baeza[1]; [1]Inst. Tecnológico de Zacatepec, Zacatepec, Morelos, MEXICO, [2]UACampeche, Campeche, MEXICO.

1944 Systems Metabolic Engineering of Anaerobic Lactate-overproducers by Genome-wide Respiratory Control
H. KIM, D-W. LEE, **S. LEE**; Korea Res. Inst. BioSci. & Biotechnology, Deajeon, KOREA, REPUBLIC OF.

1945 Enhanced Production of Lipase by *Serratia marcescens* SM3 using a Statistical Experimental Design
F. Martinez-Morales[1], M. Sánchez-Ramos[1], L. Aranda-Collado[2], M. Acevedo-Quiroz[1], L. Serrano-Carreón[3], M. Trejo-Hernández[1]; [1]Centro de Investigación en Biotecnología, Univ. Autónoma del Estado de Morelos, Cuernavaca, MORE, MEXICO, [2]Facultad de Ciencias Biológicas, Univ. Autónoma del Estado de Morelos, Cuernavaca, MORE, MEXICO, [3]Inst. de Bionotecnología, Uiversidad Natl. Autónoma de México, Cuernavaca, MORE, MEXICO.

1946 Functional Analysis of Microbial Communities Involved in the *in situ* Effective and Environment-friendly Treatment of Tannery Wastewater
S-C. Koh; Korea Maritime Univ., Busan, KOREA, REPUBLIC OF.

1947 Engineering Yeast for Higher Yield of Acetyl-CoA
R. Jiang; Nanyang Technological Univ., singapore, SINGAPORE.

1948 Effect of Temeprature on Biofilm and Mk-7 Formation by *Bacillus subtilis* Natto
A. Berenjian[1], R. Mahanama[1], A. Talbot[2], H. Regtop[2], J. Kavanagh[1], F. Dehghani[1]; [1]The Univ. of Sydney, Sydney, AUSTRALIA, [2]Agricure, Braemar, AUSTRALIA.

1949 Application of *Trametes versicolor* and Cellulases from *Trichoderma viride* to Sugarcane Bagasse as an Integral Biological Treatment for Bioethanol Production
M-J. Granados-Baeza[1], A. Alvarez-Castillo[1], H. Alonso-Jimenez[1], F. Hernandez-Campos[1], L-A. Arau-Roffiel[1], M. Mendez-Melendez[1], A. Roman-Toledo[1], A. Sevilla-Garcia[1], J. Folch-Mallol[2], L-W. Granados-

Baeza[3], L-A. Garcia-Vallejo[1]; [1]Inst. Tecnológico de Zacatepec, Zacatepec Morelos, MEXICO, [2]UAEM, Cuernavaca Morelos, MEXICO, [3]UACampeche, Campeche, Campeche, MEXICO.

1950 Spent Grains of the Beer Industry on Oxidative and Hydrolytic Enzymes Production
G. Rojas-Verde, D. Juárez-Guzman, I. Quintero-Zapata, K. Arévalo-Niño; Inst. de Biotecnologia, Facultad de Ciencias Biologicas, San Nicolas de los Garza, MEXICO.

1951 Evidence for Fermentation of *Arabinose* Via a *Pentose Phosphoketolase* Pathway in *Clostridium acetobutylicum*
M. D. Servinsky, S. Liu, J. T. Kiel, J. Shanker, A. M. Clark, **C. J. Sund**; US Army Res. Lab., Adelphi, MD.

1952 Production of Glucanohydrolases from Selected Thermotolerant *Bacillus* Strains, Isolated from Hot Compost
E. A. Téllez-Espino, V. E. López-López, **S. R. Trejo-Estrada**; CIBA-IPN, Puebla, Puebla, MEXICO.

1953 Glucosylation of Ampelopsin to Enhance Physicochemical Properties by Using Dextransucrase from *Leuconostoc mesenteroides*
D. Kim, H-J. Woo, S. Lee; Chonnam Natl. Univ., Gwangju, KOREA, REPUBLIC OF.

1954 Purification and Biochemical Characterization of a Cellulose from a Thermotolerant Fungi *Lichtheimia ramosa* (H71D) Isolated from Sugarcane Bagasse
M. T. A. Zúñiga[1], M. E. Hidalgo[1], A. Santiago[1], S. Trejo[2]; [1]CINVESTAV-IPN, México, MEXICO, [2]CIBA-IPN, Tlaxcala, MEXICO.

1955 Isolation and Identification of β-Glucosidase from a New Yeast for Low-Cost Cellulose-to-Ethanol Conversion
Z. Liu, S. Weber, M. Cotta; USDA-ARS, Peoria, IL.

1956 Fermentation of Nopal *(Opuntia spp.)* with Ligninolytic Fungi for Cellulose Release
M. Jiménez-Fierro, T. S. Saucedo-Acosta, L. N. Muñoz-Castellanos, M. Peralta-Pérez, M. L. Ballinas-Casarrubias; Univ. Autónoma de Chihuahua, Chihuahua, MEXICO.

1957 Inactivation of virulence related *wabG* gene of 2,3-butanediol producer *Klebsiella* pneumoniae and *Klebsiella oxytoca*
J-H. Jang, S-G. Jung, A-Y. Kim, Y-R. Kim; Inst. of Life Sci. and Resources & Dept. of Food Sci. and Biotechnology, Coll. of Life Sci., Kyung Hee Univ., Yongin, KOREA, REPUBLIC OF.

1958 Catalytic Activities of Wild-Type and Variant Biphenyl Dioxygenases toward Flavonoids
T. T. M. Pham, M. Sylvestre; INRS-Inst. Armand-Frappier, Laval, QC, CANADA.

1959 Mandarin Orange and Grapefruit as Substrate to Oxidative and Hydrolytic Enzyme Production by White-Rot Fungi
G. Rojas-Verde, **D. Juárez-Guzman**, M. Flores-González, K. Arévalo-Niño; Inst. de Biotecnologia, Facultad de Ciencias Biologicas, San Nicolas de los Garza, MEXICO.

1960 Production of Fermentable Sugars for Streptomyces from Barley Husk
G. Cruz-Nicolás; Inst. Politecnico Natl., Tlaxcala, MEXICO.

1961 A Novel Osmotolerant Yeast Isolate Shows Strong Extracellular Invertase Activity
M. A. Plascencia Espinosa[1,2], L. M. Rubio - Orijuela[1], M. E. Hidalgo Lara[2]; [1]CIBA - IPN, Tlaxcala, MEXICO, [2]CINVESTAV-IPN, Mexico, MEXICO.

1962 Design of a Horizontal Drum Type Bioreactor with Rotary Blades for Solid State Fermentation
M. Quiroz-Cardoso, A. Tinoco-Quintero, F. Hernandez-Campos, W-N. Hernandez-Diaz, M-J. Granados-Baeza, J. Perez-Orozco; Inst. Tecnológico de Zacatepec, Zacatepec, Morelos, MEXICO.

1963 Screening and Selection of Thermotolerant Bacterial Strains for the Production of Arabinose isomerase.
M. Sánchez-Esgua, M. Hernández-Arroyo, L. Silva-Villanueva; CIBA-IPN, TLAXCALA, MEXICO.

138 Beneficial Food Microbes (Division P)

1:00 p.m. – 2:45 p.m.; Poster Hall

1964 Evaluation of the In Vivo Activity of Selected, Potentially Probiotic Strains, of Lactic Acid Bacteria and Osmotolerant Yeast
O. Lazo-Zamalloa[1], E. M. Loza-Valerdi[2], L. M. Islas-Romero[1]; [1]CIBA IPN, Tlaxcala, MEXICO, [2]METCO, Mexico, MEXICO.

1965 Extracellular Proteinase Production by *LactoBacillus species* Isolated from Traditional Alcoholic Beverage
R. E. Ohenhen[1], B. Amechi[2], R. Osagie[1]; [1]Ambrose Alli Univ., Benin City, Edo State., NIGERIA, [2]Federal Med. Ctr., Umuahia, Abia State., NIGERIA.

1966 The Effect of Cranberry Proanthocyanidins and Pomegranate Polyphenols on the Infectivity of Hepatitis A Virus
X. Su[1], A. B. Howell[2], D. H. D'Souza[1]; [1]The Univ. of Tennessee-Knoxville, Knoxville, TN, [2]Rutgers Univ., Chatsworth, NJ.

1967 *Monascus Purpureus* Ntu 568 Fermented Products and Co-treatment Decreases Blood Glucose and Represents a Potentially Safe Functional Food in Streptozotocin-induced Diabetic Rats
C. Chen, T. Pan; Natl. Taiwan Univ., Taipei, TAIWAN.

1968 Different Gastrointestinal Microflora of Obese Mice by Adding Fresh or Aged Blackberry Powders to Feed
S. Park[1,2,3], M. Munro[2], I. Hanning[4], W. Gilbert[3], L. Devareddy[3], S. C. Ricke[1,2,3]; [1]Cell and Molecular Biology Program, Univ. of Arkansas, Fayetteville, AR, [2]Ctr. for Food Safety, Univ. of Arkansas, Fayetteville, AR, [3]Dept. of Food Sci., Univ. of Arkansas, Fayetteville, AR, [4]Dept. of Food Sci., Univ. of Tennessee, Knoxville, TN.

1969 Effects of Probiotic Yogurt on Symptoms and Intestinal Microbiota in Patients with Irritable Bowel Syndrome
B. Yun[1], S. Oh[1], J. Lee[2], H. Yea[3], K. Lim[3], S. Kim[2]; [1]Div. of Animal Sci., Chonnam Natl. Univ., Gwangju, KOREA, REPUBLIC OF, [2]Div. of Food BioSci. and Technology, Coll. of Life Sci. and Biotechnology, Korea Univ., Seoul, KOREA, REPUBLIC OF, [3]R&D Ctr., Maeil Dairies Co, Gyeonggi-do, KOREA, REPUBLIC OF.

1970 *LactoBacillus casei* Heterologous Expressing Listerial Mucin-Binding Protein Increases its Competitive Ability Against *Listeria monocytogenes* to Adhere to Caco-2 Cells
J-R. Liu[1], H-Y. Hsueh[1], P-Y. Yueh[2]; [1]Natl. Taiwan Univ., Taipei, TAIWAN, [2]Council of Agriculture, Taipei, TAIWAN.

1971 Fibrinolytic Enzyme Production by *Bacillus subtilis* HK176 Isolated from Cheonggukjang, Korean Fermented Soyfood
K. Heo[1], S-J. Jeong[1], J-H. Kim[2,3]; [11]Div. of Appl. Life Sci. (BK[21]), Graduate Sch., Gyeongsang Nat'l. Univ., Jinju, KOREA, REPUBLIC OF, [2]Inst. of Agric. Life Sci., Gyeongsang Nat'l. Univ., Jinju, KOREA, REPUBLIC OF, [3]Div. of Appl. Life Sci. (BK[21]), Graduate Sch., Gyeongsang Nat'l. Univ., Jinju, KOREA, REPUBLIC OF.

1972 Isolation and Characterization of Promoters from *Leuconostoc mesenteroides* SY2, a Strain Isolated from Kimchi
J-Y. Park[1], K-W. Lee[1], N-S. Han[2], J-H. Kim[3]; [1]Div. of Appl. Life Sci. (BK[21]), Graduate Sch., Gyeongsang Nat'l. Univ., Jinju, KOREA, REPUBLIC OF, [2]Dept. of Food Sci. and Technol., Chungbuk Nat'l Univ., Cheongju, KOREA, REPUBLIC OF, [3]Inst. of Agric.and Life Sci., Gyeongsang Nat'l Univ., Jinju, KOREA, REPUBLIC OF.

1973 Persistence and Activity of *LactoBacillus plantarum* WCFS1 in the Mouse Gut Depend on the Host Diet
S. Tachon, M. Marco; UC Davis, Davis, CA.

1974 Probiotic Properties of *Enterococcus* Strain isolated from chicken caecal and fecal samples
S. A. Ibrahim; North Carolina A&T State Univ., GREENSBORO, NC.

1975 Development of a Strain Typing Scheme for Members of the Acidophilus Complex of *LactoBacillus*
P. Ramachandran, E. A. Pfeiler, D. W. Lacher, J. N. Patro, D. D. Levy, C. A. Elkins; FDA, Laurel, MD.

1976 Utility of the FDA "GutProbe" Metagenomic Microarray for Identification, Genotyping, and Comparative Community Analysis of Commercially Available Probiotics
J. N. Patro, P. Ramachandran, E. A. Pfeiler, M. K. Mammel, C. A. Elkins; U.S. Food and Drug Admin., Laurel, MD.

1977 Biosorbent for Dye Removal Textile Wastewater by Mixed Dairy Starter Culture Cells and its Extracellular Polysaccharides
A. Sofu, E. Sayılgan; SDU, Isparta, TURKEY.

1978 Lowbush Blueberries Modulate the Functional Potential of the Rat Proximal Colon Microbiota
A. C. Lacombe[1], R. Li[2], D. Klimis-Zacas[1], V. Wu[1], R. Young[1], E. Krauss[1], S. Tadepalli[1]; [1]Univerisity of Maine, Orono, ME, [2]UDSA ARS, Beltsville, MD.

1979 Fermentation of Prebiotics and Human Milk Oligosaccharides by Selected Probiotics
T. -. Thongaram, -[1], J. Chow[2], M. J. Miller[1]; [1]Univ. of Illinois at Urbana-Champaign, Urbana, IL, [2]Abbott Lab., Columbus, OH.

1980 Metaproteomic Analysis of Kimchi During Fermentation Process
J-H. Choi, S-J. Park, C. Jeon, C-J. Cha; Chung-Ang Univ., Anseong, KOREA, REPUBLIC OF.

1981 Comsumption of Human Milk Oligosaccharides by Bifidobacterium breve Strains
S. Ruiz-Moyano[1], S. M. Gutierrez[2], D. Garrido[1], K. Kalanetra[1], C. B. Lebrilla[2], D. A. Mills[1]; [1]Dept. of Viticulture and Enology, Univ. of California, Davis, CA, [2]Dept. of Chemestry, Univ. of California, Davis, CA.

1982 Effect of pH and NaCl Concentration on Autolysis of *Lactococcus lactis*
C. Nájera-Dominguez[1], G. Nevarez-Moorillón[1], I. Caro-Canales[2], **N. Gutierrez-Mendez**[1]; [1]Univ. Autónoma de Chihuahua, Chihuahua, MEXICO, [2]Univ. de León, León, SPAIN.

1983 Adhesive Behavior of Coagulase Negative Staphylococci Isolated from Italian Cheese
G. L. Scoarughi, R. Papa, A. Cellini, M. Vitale, M. Artini, **L. Selan**; 'Sapienza' Univ., Rome, ITALY.

1984 Selection and Characterization of the Hypocholesterolemic and Immunomodulatory Effect of Lactic Acid Bacteria
I. A. Lee, J. Lee, S. H. Kim; Div. of Food BioSci. and Technology, Korea Univ., Seoul, KOREA, REPUBLIC OF.

1985 Distribution of Lactic Acid Bacteria in *Mukeunji,* an Aged Kimchi Using SDS-PAGE with 16S rRNA Sequencing and PCR-DGGE with Sequence Analysis
Y. Hong[1], Y-H. Kim[2], H-Y. Kim[3]; [1]Inst. of Life Sci. & Resources, Kyung Hee Univ., Yongin, KOREA, REPUBLIC OF, [2]Dept. Food Sci. & Biotechnology, Kyung Hee Univ., Yongin, KOREA, REPUBLIC OF, [3]Dept. of Food Sci. & Biotechnology, Kyung Hee Univ., Yongin, KOREA, REPUBLIC OF.

1986 Comparison with Homologous Alkalophilic and Acidophilic L-arabinose Isomerases Reveals Region-specific Contributions to the Ph Dependence of Activity and Stability
S. Lee[1], S-J. Lee[2], Y-J. Lee[1], S-K. Choi[1], Y-R. Pyun[1], **D-W. Lee**[1]; [1]KRIBB, Daejeon, KOREA, REPUBLIC OF, [2]Yonsei Univ., Seoul, KOREA, REPUBLIC OF.

1987 Phenotypic Profiling of *Lactococcus lactis* Isolates from Tuscan Pecorino Cheeses
M. L. Van Tassell[1], B. Turchi[2], A. Lee[3], D. Cerri[2], M. J. Miller[1]; [1]Univ. of Illinois at Urbana-Champaign, Urbana, IL, [2]Univ. of Pisa, Pisa, ITALY, [3]Chicago High Sch. for Agricultural Sci., Chicago, IL.

1988 Assessment of Safety and Tolerance of a Fermented Dairy Food Containing Novel, Potentially Probiotic Strains
I. Chambaud[1], S. Jeansen[1], A. Elfakir[1], F. Banning[2], J-C. Queudot[3], C. Bouchez[3], P. Bourlioux[4], P. Marteau[4], J. Schrezenmeir[5]; [1]Danone Res., Palaiseau, FRANCE, [2]Harrison Clinical Res. Deutschland GmbH, Munich, GERMANY, [3]CIT Safety and Hlth.Res. Lab., Evreux, FRANCE, [4]Consultant, FRANCE, [5]Consultant, GERMANY.

139 Virulence Factors and Antimicrobial Resistance in Food Pathogens (Division P)

1:00 p.m. – 2:45 p.m.; Poster Hall

1989 Prevalence of Virulence Genes and Plasmids among Human, Avian, and Animal *Salmonella senftenberg* Isolates
S. R. PETERMANN[1], J. S. Sherwood[1], C. M. Logue[2]; [1]North Dakota State Univ., Fargo, ND, [2]Iowa State Univ., Ames, IA.

1990 Effect of Stress Conditions on the Response of *Escherichia coli* 0157:h7
K-H. Wu[1], C. Chiu[1], T-M. Pan[2], **T-Y. Tsai**[1]; [1]Dept. Food Sci., Fu Jen Univ., New Taipei City, TAIWAN, [2]Dept. Biochem. Sci. Technol., Natl. Taiwan Univ., Taipei City, TAIWAN.

1991 Triclosan Induced Aminoglycoside-Tolerant *Listeria monocytogenes* Isolates can Appear as Small-Colony Phenotype
V. G. Kastbjerg, L. Gram; Natl. Food Inst. DTU, Kgs. Lyngby, DENMARK.

1992 Molecular Characterization of *Salmonella enterica* Serovar Eenteritidis Isolated from Poultry and Clinical Samples during 2010 Outbreak
E. Mezal[1,2], T. Akiyama[2], R. Stefanova[3], N. Ali[4], A. A. Khan[2]; [1]Dept. of Applied Sci., Univ. of Arkansas at Little Rock, Little Rock, AR, [2]U.S. FDA/Nat'l. Ctr. for Toxicol. Res., Jefferson, AR, [3]Arkansas Hlth.Deaprtment, Little Rock, AR, [4]Graduate Inst. of Technology, UALR, Little Rock, AR.

1993 Prevalence of antibiotic resistance in aquaculture products: assessments of samples from Southern China
L. Ye[1,2], L. Zhang[1], X. Li[1], L. Shi[2], H. H. Wang[1]; [1]Dept. of Food Sci. and Technology, The Ohio State Univ., Columbus, OH, [2]South China Univ. of Sci. and Technology, CHINA.

1994 Prevalence and Antimicrobial Resistance of *Escherichia coli* Isolated from Retail Meat: National Antimicrobial Resistance Monitoring System (NARMS), 2002-2010
E. T. Crarey, S. Bodeis-Jones, S. Gaines, C. Henderson, S. Zhao, P. F. McDermott, NARMS Working Group; US Food & Drug Admin., Ctr. for Vet. Med., Laurel, MD.

1995 Incidence of Antibiotic-resistant *Enterococcus faecalis* in School Canteens
O. Famurewa[1], A. K. Olawale[2], O. M. David[1]; [1]Dept. of Microbiol., Ekiti State Univ., Ado-Ekiti, NIGERIA, [2]Dept. of Sci. Lab. Technology, Osun State Polytechnic, Iree, NIGERIA.

1996 Mechanisms of *Salmonella* Tolerance to Biocides and Clinically Important Antibiotics Explored Using Transcriptomic Techniques
O. Condell[1], K. Power[1], K. Händler[2], C. Burgess[3], J. C. D. Hinton[2], S. Fanning[1]; [1]UCD Ctr. for Food Safety, Univ. Coll. Dublin, Dublin, IRELAND, [2]Dept. of Microbiol., Moyne Inst. of Preventive Med., Sch. of Genetics & Microbiol., Trinity Coll., Dublin, IRELAND, [3]Food Safety Dept., Teagasc Food Res. Ctr., Dublin, IRELAND.

1997 Virulence Profiling Shiga Toxin-producing *Escherichia coli* 0145:H28 from Salinas, California: a Comparative Study to the 2010 Lettuce-associated Outbreak Strains
M. Q. Carter, J. W. Louie, R. E. Mandrell; Agricultural Res. Service, Albany, CA.

1998 Genotypic and Phenotypic Characterization of Hemolysin in Non-0157 *E. coli* Strains
S. C. Lorenz[1,2], I. Son[1], A. Laasri[1], N. Gonzalez-Escalona[1], A. Lin[3], L. V. Rump[4], M. Fischer[2], J. A. Kase[1]; [1]US FDA - CFSAN, College Park, MD, [2]Univ. of Hamburg, Hamburg, GERMANY, [3]US FDA - San Francisco District Lab., Alameda, CA, [4]Univ. of Maryland, College Park, MD.

1999 Antimicrobial resistance and genetic relatedness among *Salmonella* from retail foods of animal origin: NARMS 2010
S. Ayers, Shaohua Zhao, Emily Tong, Carol Henderson, Jason Abbott, Thu-Thuy Tran and Patrick McDermott; Food and Drug Admin., Laurel, MD.

2000 Molecular and Antimicrobial Susceptibility Analysis of *Staphylococcus aureus* from Animals and Retail Meat.
C. M. Logue[1], V. Velasco[2,3], J. S. Sherwood[2]; [1]Iowa State Univ., Ames, IA, [2]North Dakota State Univ., Fargo, ND, [3]Univ. of Concepcion, Chillan, CHILE.

140 Fecal Pollution Indicators and Pathogens (Division Q)

1:00 p.m. – 2:45 p.m.; Poster Hall

2001 Reductions in Gull Populations Improve Beachwater Quality
R. R. Converse[1], J. L. Kinzelman[2], E. Hudgens[1], E. A. Sams[1], A. P. Dufour[3], T. J. Wade[1]; [1]US EPA, Chapel Hill, NC, [2]City of Racine, Racine, WI, [3]US EPA, Cincinnati, OH.

2002 In-depth Examination of Water Quality Violations At a New England Beach
E. Halliday[1], R. J. Gast[1,2]; [1]Woods Hole Oceanographic Inst., Woods Hole, MA, [2]Woods Hole Ctr. for Ocean and Human Hlth., Woods Hole, MA.

2003 Environmental *Enterococcus faecalis* from beaches in California and Puerto Rico share a common genotype of virulence
D. M. Ferguson[1,2], G. Negron Talavera[3], L. A. Rios Hernandez[3]; [1]SCCWRP, Chino Hills, CA, [2]UCLA, Los Angeles, CA, [3]Univ. of Puerto Rico at Mayaguez, Mayaguez, PR.

2004 Detection of virulence factors among the populations of environmental *Enterococci* from recreational marine waters in Puerto Rico
G. Negron, L. Rios; Univ. of Puerto Rico, Mayaguez, PUERTO RICO.

2005 Endotoxin Activity of *Bacteroides* Species Lipopolysaccharides from Contaminated Marine Bathing Waters
A. Sattar, N. Habil, S. Jackson, A. Foey, G. Bradley; Univ. of Plymouth, Plymouth, UNITED KINGDOM.

2006 Molecular Versus Culture Methods for Monitoring Recreational Waters
G. N. Stelma, Jr.[1], L. C. Wymer[2], T. Wade[3], A. P. Dufour[1]; [1]US EPA, Natl. Exposure Res. Lab., Cincinnati, OH, [2]US EPA, Natl. Exposure Reasearch Lab., Cincinnati, OH, [3]US EPA, Natl. Hlth.and Environmenta Effects Res. Lab., Research Triangle Park, NC.

2007 Using an Automated Bacterial Identification System to Identify Bacteria from the Rio Grande River
G. Robinson, I. C. Valdez, J. Delgado, J. Mendoza, M. E. Alvarez, A. Vazquez; El Paso Community Coll., El Paso, TX.

2008 Presence of Fecal Indicator Bacteria and Pathogenic Microorganisms at Recreational Beaches in Beaver Lake in Northwest Arkansas
K. E. Gibson, I. Mojica, B. Putman, S. C. Ricke; Univ. of Arkansas, Fayetteville, AR.

2009 Waterborne Pathogens in Recreational Lake Water in Southern Quebec, Canada
R. A. Guy[1], M-J. Champagne[1], P. Berthiaume[1], S. Mutschall[2], E. Taboada[2]; [1]Publ. Hlth.Agency of Canada, St Hyacinthe, QC, CANADA, [2]Publ. Hlth.Agency of Canada, Lethbridge, AB, CANADA.

2010 Growth Potential, Population Structure, and Genetic Relatedness of *Escherichia coli* in Geographically Distinct Soil Environments
M. N. Byappanahalli[1], T. Yan[2], M. J. Hamilton[3], S. Ishii[4], R. S. Fujioka[2], R. L. Whitman[1], M. B. Nevers[1], M. J. Sadowsky[3]; [1]United States Geological Survey, Porter, IN, [2]Univ. of Hawaii at Manoa, Honolulu, HI, [3]Univ. of Minnesota, St. Paul, MN, [4]Hokkaido Univ., Sapporo, JAPAN.

2011 Development and Evaluation of 16S rRNA Gene Targeting *Enterococcus* Genus- and Species-specific Assays
H. Ryu, M. Henson, M. Elk, S. Glassmeyer, J. Santo Domingo; U.S. EPA, Cincinnati, OH.

2012 Plasmid Screening and Antibiotic Resistance Among *Enterococcus spp.* Isolated from Irrigation Waters in Puerto Rico's Farm Lands
M. E. Diaz- Camacho, C. W. Ng-Liu, W. Colon-Guasp, N. M. Rodriguez-Bonano; Univ. Del Este, Carolina, PUERTO RICO.

2013 Influences of Sample Interference and Interference Controls on Quantification of *Enterococci* Fecal Indicator Bacteria in Tropical Marine Water Samples by the qPCR Method
M. Varma, J. Lavender, R. A. Haugland; U.S Environmental Protection Agency, Cincinnati, OH.

2014 Assessment of the Impact of Holding Times on *Enterococci* Levels using a Quantitative Polymerase Chain Reaction (qPCR) Procedure for the Quantitative Detection of *Enterococci* in Marine and Fresh Water Matrices
Y. T. Chambers[1], R. K. Oshiro[2], R. Ghei[1], E. E. King[1], K. M. Miller[1]; [1]CSC, Alexandria, VA, [2]US EPA, Washington, DC.

2015 Increased Detection of Enteroviruses and Adenoviruses from Archived Samples of a US Groundwater Survey, Using Integrated Cell Culture Real-time PCR Assays
B. C. Iker[1], M. Kitajima[1], A. Alum[2], C. P. Gerba[1], I. L. Pepper[1], M. Abbaszadegan[2]; [1]Univ. of Arizona, Tucson, AZ, [2]Arizona State Univ., Tempe, AZ.

2016 Molecular Detection and Genetic Analysis of Human Gastroenteritis Viruses in Wastewater in Southern Arizona
M. Kitajima, B. C. Iker, I. L. Pepper, C. P. Gerba; The Univ. of Arizona, Tucson, AZ.

2017 Rapid Concentration and Detection of Enteric Virus Indicators in Seawater
A. Perez-Mendez[1], B. Bisha[1], J. Chandler[1], M. A. Gutierrez[2], C-I. Wong[3], F-C. Hsu[3], M. Janes[2], **L. D. GOODRIDGE**[1]; [1]Colorado State Univ., FORT COLLINS, CO, [2]Louisiana State Univ., Baton Rouge, LA, [3]Scientific Methods Inc., Granger, IN.

2018 Genogroups of F+ Coliphages Detected by Modified USEPA Method 1601 with Magnesium Ion Enhancement
Y. Yuen, M. Sobsey; Univ. of North Carolina at Chapel Hill, Chapel Hill, NC.

2019 Comparison of Agar and Pectin Based Methods for the Detection of Male Specific Coliphage in Surface Waters
J. A. Guzman, T. T. Chiem, R. C. Alexander; Orange County Publ. Hlth.Lab., Newport Beach, CA.

2020 Use of Whole Genome Amplification to Detect Low Numbers of Protozoa in Environmental Waters
S. E. Staggs, M. W. Ware, S. P. Keely, E. N. Villegas; United States Environmental Protection Agency, Cincinnati, OH.

2021 Rapid and sensitive detection of Giardia cysts from glass slides
J. L. Alonso[1], I. Amoros[1], G. Cuesta[1], Y. Moreno[1], A. Soriano[2]; [1]Univ.t Politecnica de Valencia, Valencia, SPAIN, [2]Gamaser, Valencia, SPAIN.

2022 Human Health Risks from Water-Borne Pathogens in Arenales River, Argentina
A. Kundu[1], R. Poma[2], V. Rajal[2], S. Wuertz[1]; [1]Univ. of California, Davis, CA, [2]Univ. Natl. de Salta, Salta, ARGENTINA.

2023 Occurrence of Waterborne Pathogens in Aquatic Environments in the Kathmandu Valley, Nepal
E. Haramoto[1], S. Shimura[1], T. Nakamura[1], K. Osaka[2], K. Nishida[1], Y. Sakamoto[1]; [1]Univ. of Yamanashi, Kofu, JAPAN, [2]The Univ. of Shiga Prefecture, Hikone, JAPAN.

2024 Monitoring of Fecal Pollution in a Drinking Water Reservoir and Catchment
C-C. Wu[1], H-Y. Lo[1], T-H. Chen[1], Y-H. Ching[2], P. Chiueh[1], **H-h. Tung**[1]; [1]Natl. Taiwan Univ., Taipei, TAIWAN, [2]Tzu Chi Univ., Hualien, TAIWAN.

2025 Don't Drink the Water: Isolation and Molecular Serotyping of *Salmonella* spp. in the Yucatan Peninsula
A. G. Thompson[1], M. Lenczewski[1], M. M. Leal[2]; [1]Northern Illinois Univ., Dekalb, IL, [2]Centro de Investigación Científica de Yucatán, Cancun, MEXICO.

2026 Multilocus Sequence Analysis of *Escherichia* Isolates from Pristine and Contaminated Rivers in Mexico Reveals a High proportion of Novel STs, Contrasting Population Structures, and the Presence of Cryptic Lineages
P. Rodríguez-Bucheli, J. Ramos-Madrigal, P. Vinuesa; Centro de Ciencias Genómicas - UNAM, Cuernavaca, Mor., MEXICO.

2027 Comparison of Cultural and Molecular Fecal Indicator Measurements in Surface Water and Periphyton Biofilms in Artificial Streams
L. A. Peed[1], C. A. Kelty[1], M. Sivaganesan[1], T. Mooney[2], C. Nietch[1], O. C. Shanks[1]; [1]EPA, Cincinnati, OH, [2]Univ. of Cincinnati, Cincinnati, OH.

2028 Household Hygiene Assessment in an Urban, Low-Income Community
K. A. Reynolds[1], **R. G. Sinclair**[2], M. Soto-Beltran[3], M. Molina[4], M. E. Penny[4]; [1]The Univ. of Arizona, Tucson, AZ, [2]Loma Linda Univ., Loma Linda, CA, [3]The Clorox Company, Pleasanton, CA, [4]Inst. de Investigación Nutricional, Lima, PERU.

141 Methods for Detecting and Enumerating Microbes in Environmental Samples (Division Q)

1:00 p.m. – 2:45 p.m.; Poster Hall

2029 Detection of integrase-encoding genes specific for *Enterococcus faecalis-infecting phages*
T. M. Santiago-Rodriguez, M. Urdaneta, G. A. Toranzos; Univ. of Puerto Rico, San Juan, PUERTO RICO.

2030 Electrochemical Biosensor for the Detection of Waterborne Viruses
A. M. Nasser, Sr.[1], D. Ben-Yaacov[12], J. Rishpon[2]; [1]Water Quality Res. Lab., Tel-Aviv, ISRAEL, [2]Tel-Aviv Univ., Tel-Aviv, ISRAEL.

2031 Biochemical Analysis of Positive Samples in a Portable Compartment Bag Test (cbt) for Microbial Water Quality Testing
A. Wang[1], L. McMahan[2], M. Sobsey[1], H. Leker[1], P. Reddi[1]; [1]UNC Gillings Sch. of Global Publ. Hlth., Chapel Hill, NC, [2]Florida Intl. Univ., Miami, FL.

2032 Field Evaluation of a Low-cost Compartmentalized Bag MPN Method for the Detection and Enumeration of *E. coli* in Stored Rainwater Samples Collected in Northeastern Thailand
J. S. Knee[1], L. McMahan[2], N. Dada[3], A. Vannavong[3], H. Overgaard[3], T. Stenström[3,4], M. D. Sobsey[5]; [1]CDC, Atlanta, GA, [2]Florida Intl. Univ., Miami, FL, [3]Norwegian Univ. of Life Sci., Oslo, NORWAY, [4]Swedish Inst. for Infectious Disease Control, Stockholm, SWEDEN, [5]UNC Gillings Sch. of Global Publ. Hlth., Chapel Hill, NC.

2033 Comparison of a Rapid Bioluminescence-Based Assimilable Organic Carbon (AOC) Assay with the Standard Method
M. B. Leddy, R. Bold; Orange County Water District, Fountain Valley, CA.

2034 Smoke and Mirrors: Detecting and Classifying Microbes and Organics Using Deep Ultraviolet Native Fluorescence
E. C. SALAS[1], R. Bhartia[1], W. F. Hug[2], R. Reid[2]; [1]Jet Propulsion Lab., Pasadena, CA, [2]Photon Systems, Inc., Covina, CA.

2035 A Rapid and Inexpensive Method of Detection of Fungi on Historically Significant Materials
A. DeAraujo, N. Konkol, A. Vasanthakumar, R. Mitchell; Harvard Univ., Cambridge, MA.

2036 Droplet Digital PCR: 3rd Generation PCR Provides Improved Detection, Quantification, Identification, and Characterization of Microbial Targets and Novel Approaches for Molecular Microbiology
A. M. McCoy, L. Ugozzoli; Bio-Rad Lab., Hercules, CA.

2037 Use of Imaging Flow Cytometer for Physiological Analysis and Enumeration of Bacteria Cells
Y. Pan, S. Pokropinski; Baxter Hlth.care Corp., Round Lake, IL.

2038 Detection of *Brucella melitensis* and *Bacillus anthracis* using Surface Enhanced Raman Spectroscopy
M. Guelta[1], D. Carmany[2], K. Williams[3]; [1]Edgewood Chemical Biological Ctr., APG, MD, [2]Battelle, APG, MD, [3]Oak Ridge Inst. for Sci. and Ed., APG, MD.

2039 A Fully-Integrated Microdevice for Quantifying Cyanobacteria and Cyanotoxin-Producing Strains in Fresh Water Samples by Real-Time PCR
S. Courtois[1], D. Jary[2], J. Tambosco[3], C. Quiblier[3], J-F. Humbert[4]; [1]Suez Environnement, Le Pecq, FRANCE, [2]CEA-LETI, Grenoble, FRANCE, [3]Museum Natl. d'Histoire Naturelle, Paris, FRANCE, [4]INRA, Paris, FRANCE.

2040 Determining the Effect of Primer Mismatches on Quantitative PCR Accuracy and Developing Guidelines for Design of Primers Targeting Genes with Sequence Variations
B. M. Ledeker, S. K. De Long; Colorado State Univ., Fort Collins, CO.

2041 Improving Specificity in qPCR with Primer Design utilizing *Taq's* Terminal Mismatch Bias
E. S. Wright, L. S. Yilmaz, J. M. Gasser, D. R. Noguera; Univ. of Wisconsin-Madison, Madison, WI.

2042 Parallel Isolation Methods for Non-O157 Shiga Toxin Producing *E. coli* Indicate Bias Towards Different Clinically Important Serotypes
M. Cooley; USDA-Agricultural Res. Service, Albany, CA.

2043 Comparison of Methods for the Detection of Culturable and VBNC *E. coli* O157:H7 in Complex Drinking Water Biofilms
S. A. Wilks, M. S. Giao, C. W. Keevil; Univ. of Southampton, Southampton, UNITED KINGDOM.

2044 Comparison of Double-labeled and Single-labeled Oligonucleotide Probes for In-Situ Quantification of Streptomyces
M. Auw, X. Yi, Z. Zhou; Natl. Univ. of Singapore, Singapore, SINGAPORE.

2045 A Novel Multilocus Sequence Typing Method for *Micrococcus luteus*
B. Verghese, D. H. Smith; Accugenix, Inc, Newark, DE.

2046 Rapid Viability-PCR Method for Detecting Viable *E. coli* in Drinking Water
A. M. Kahler[1], J. Narayanan[1], V. R. Hill[1], K. Seiber[2]; [1]CDC, Atlanta, GA, [2]APHL, Atlanta, GA.

2047 Detection of Viable *E. coli* in Drinking Water Without Culture by Use of Propidium Monoazide and Real-time PCR
N. Jothikumar, A. M. Kahler, K. L. Seiber, V. R. Hill; CDC, Atlanta, GA.

2048 Rapid Monitoring of *Legionella pneumophila* in Cooling Tower Water with a Microfluidic System
N. Yamaguchi, **F. Banno**, M. Nasu; Osaka Univ., Suita, JAPAN.

2049 Molecular Subtyping of *Legionella pneumophila* Directly in Environmental Samples by Multiple-Locus Variable-Number Tandem Repeat Analysis (MLVA)
S. Saleh[1], C. Guyard[2], V. Allen[2], J. Gubbay[2], J. Li[1], S. Weir[3], J. Odumeru[3], S. Chen[1]; [1]Univ. of Guelph, Guelph, ON, CANADA, [2]Publ. Hlth.Ontario, Toronto, ON, CANADA, [3]Ontario Ministry of the Environment, Etobicoke, ON, CANADA.

2050 Evaluation of Three Quantitative PCR Assays for Detection of *Mycobacterium avium*, *Mycobacterium intracellulare* and *Mycobacterium avium* subspecies *paratuberculosis* in Drinking Water Biofilms
D. N. King, E. C. Chern, S. Pfaller; U.S. Environmental Protection Agency, Cincinnati, OH.

2051 The Rapid Qualitative/Quantitative Real-Time Detection of Environmental Mycobacteria spp/TB Using Genus Polymerase Chain Reaction (PCR) Methods
M. P. Schafer, E. Wong; CDC\NIOSH, Cincinnati, OH.

2052 Comparative Genomics Reveals Targets to Quantify Specific Strains of *Bacillus amyloliquefaciens* subsp. *plantarum* in Environmental Samples
A. A. Baker[1], M. E. Davis[1], B. Stahl[2], A. H. Smith[1]; [1]Dupont Nutrition and Hlth., Waukesha, WI, [2]Dupont Nutrition and Hlth., Madison, WI.

2053 Development and Optimization of Real-Time PCR Assays for Detection of Corrosion-inducing Bacteria
A. Chistoserdov, T. Luzan, V. Madrid, M. Rodriguez; UL Lafayette, Lafayette, LA.

2054 Development of Novel 16S rRNA Oligonucleotide Probes to Quantify Methanogens
M. Amir, C. Wu, S. Nagarajan, S. Cao, X. Yi, Z. Zhou; Natl. Univ. of Singapore, Singapore, SINGAPORE.

2055 Improved Detection of Pathogenic *Vibrio parahaemolyticus* from Oyster, Water, and Sediment Using Real-Time PCR
J. L. JONES[1], C. H. M. Luedeke[1,2]; [1]FDA, Gulf Coast Seafood Lab., Dauphin Island, AL, [2]Univ. of Hamburg, Hamburg, GERMANY.

2056 Validation of the Clam *Corbicula fluminea* as a Sentinel of Human Norovirus Contamination in Freshwater Creeks
X. Ye, S. Y. Wang; The Univ. of Southern Mississippi, Hattiesburg, MS.

2057 Use of a Simplified *C. elegans* Assay to Detect Expressed Virulence Factors in Environmental *Enterococcus faecalis* Isolates
J. Middleton, E. M. Myers, M. K. .Gardner, T. Graciano, K. Lettenberger; Fairleigh Dickinson U., Madison, NJ.

2058 Validation of a Rapid Method for Qualitative Detection of Microbial Contamination in a Betamethasone Suspension
T. H. Chrzanowski[1], R. L. Smith[2], J. Madden[3]; [1]Univ. of Texas Arlington, Arlington, TX, [2]Wavefront Consulting, Arlington, TX, [3]Celsis Inc., Chicago, IL.

142 Microbiology of Wastes and Waste Treatment (Division Q)

1:00 p.m. – 2:45 p.m.; Poster Hall

2059 *qnrS* Alleles in Fluoroquinolone-Resistant Gram Negative Bacteria from Wastewater Treatment Plant Effluent and Receiving Stream Sediments
C. R. Cisar, M. Lambros; Northeastern State Univ., Tahlequah, OK.

2060 Elucidating the Functional Impacts of Common Biosolid-derived Organic Contaminants on the Soil Denitrifying *Bacteria Paracoccus Denitrificans* Pd1222 and *Sinorhizobium meliloti 1021*
R. M. Holzem, C. K. Gunsch; Duke Univ., Durham, NC.

2061 Using *Sphingopyxis* Strain KCY1 as a Bioaugmenting Agent to Enhance Biodegradation of Triclosan in Nitrifying Activated Sludge
D. Lee, K-H. Chu; Texas A&M Univ., College Station, TX.

2062 Distinct genotypes of Shiga Toxin-producing *Escherichia coli* (STEC) from Feces of Farm Animals in Culiacan using PFGE and MLVA
B. A. Amézquita-López[1], B. Quiñones[2], M. B. Cooley[2], R. E. Mandrell[2], J. León-Félix[1], N. Castro-del Campo[1], C. Martínez[1], C. Chaidez[1]; [1]Centro de Investigación en Alimentación y Desarrollo, Culiacán, MEXICO, [2]USDA/ARS, Western Regional Res. Ctr., Produce Safety and Microbiol. Res. Unit, Albany, CA.

2063 Simultaneous Degradation of Methane in a Lab-scale Biocover and Non-methane Volatile Organic Compounds
K-e. Moon, T. Kim, K-s. Cho; Ewha Womans Univ., Seoul, KOREA, REPUBLIC OF.

2064 Survival of *Escherichia coli* O157:H7 and Altered Protozoan and Bacterial Communities in Monensin-treated Wastewater from a Dairy Lagoon
S. V. Ravva, C. Z. Sarreal, R. E. Mandrell; USDA, ARS, WRRC, Albany, CA.

2065 Microbial Inhibition by Silver Nanoparticles with Various Coatings
C. A. Gwin[1,2], C. L. Arnaout[1,2], C. K. Gunsch[1,2]; [1]Duke Univ., Durham, NC, [2]CEINT, Durham, NC.

2066 Reduction in Sand Permeability by *Escherichia coli* is Proportional to the Length of the LPS
M. J. Haber, T. A. Kimmel, **L. F. Caslake**; Lafayette Coll., Easton, PA.

2067 Quantification by Fluorescent *in situ* Hybridization of Bacteria Associated with *Malus domestica* Compost in Mexican Apple Farm
D. Garcia-Regalado, **A. Garcia-Triana**; Univ. Autónoma de Chihuahua, Chihuahua, MEXICO.

2068 Biocellulose Membrane Production by *Glucoacetobacter xylinum* from Waste Residues of Fruits and Tea Leaves
D. C. M. Vieira, M. Ishii, **T. C. Vessoni Penna**; Univ. of São Paulo, São Paulo, BRAZIL.

2069 Effects of Biodegradable Plastics on the Predominant Culturable Bacteria Associated with Soil Aggregate Formation and Stability After 9 Months of Incubation in Soil
T. Caesar-TonThat[1], R. Fukui[2], A. J. Caesar[1], R. T. Lartey[1], J. F. Gaskin[1]; [1]USDA-ARS, Sidney, MT, [2]Univ. of Utsunomiya, Utsunomiya, JAPAN.

2070 Comparison of Microbial Community Compositions between Two Anaerobic Digesters Receiving Different Substrates
J. Kim, B. Lee; Univ. of Ulsan, Ulsan, KOREA, REPUBLIC OF.

2071 Detection of an Archaeal *amoA* Gene in an Enrichment Culture from Sewage
R. V. Ferrell, A. Remmert, P. Wedman, S. Askar; Metropolitan State Coll. of Denver, Denver, CO.

2072 Does Increasing Solids Retention Time in the Wastewater Treatment Process Affect the Persistence of Antibiotic Resistance Genes
S. Walston, C. Rock, J. McLain, G. McClain; Univ. of Arizona, Tucson, AZ.

2073 Physiological and Molecular Characterization of Native Bacterial Consortia with Sulfate-Reducing Activity
J. Trebotich, M. Carreno, C. Meza, A. Figueroa, C. Ortiz, M. Wilkens; Univ. de Santiago de Chile, Santiago, CHILE.

2074 Detection and Phylogenetic Analysis of Uncultured Rhodocyclaceae Closely Related to the Phosphate Accumulating Bacteria
P. Promburata[1], M. LaMontagne[2], M. S. Allen[1]; [1]Univ. of North Texas, Denton, TX, [2]AMS Sci., LLC, Pilot Point, TX.

2075 A *Flavobacterium*-Dominant, Nitrite Reducing Biocathode Community Using an External Electricity Source
T. v. Doan[1], **T. Lee**[1], J. M. Tiedje[1,2], J. Park[1]; [1]Yonsei Univ., Seoul, KOREA, REPUBLIC OF, [2]Michigan State Univ., MI.

2076 Deactivation of Bacterial Antibiotic Resistance Genes during Treatment with Commonly-Used Water and Wastewater Disinfectants
P. Zhou[1], S. Li[1], C. Rossier[2], M. C. Dodd[1]; [1]Univ. of Washington, Seattle, WA, [2]École polytechnique fédérale de Lausanne, SWITZERLAND.

2077 How Immigration might Alleviate the Effects of an Influenza Pandemic: A Freshwater Microbiology Story
K. Lehmann[1,2], T. Bell[3], M. J. Bowes[2], D. Bass[4], D. Field[2,1], **A. C. Singer**[2]; [1]Univ. of Oxford, Oxford, UNITED KINGDOM, [2]Ctr. for Ecology and Hydrology, Wallingford, UNITED KINGDOM, [3]Imperial Coll. London, London, UNITED KINGDOM, [4]Natural History Museum, London, UNITED KINGDOM.

2078 Tetracycline Resistant Bacterial Community in Activated Sludge Treating Saline Sewage Revealed by Illumina High-throughput Sequencing
B. LI, X. X. Zhang, T. Zhang; The Univ. of Hong Kong, Hong Kong, CHINA.

2079 Effect of Linear Alkylbenzene Suffocate (las)-bearing Effluents on Okun stream
T. M. Kayode-Isola[1], K. I. T. Eniola[2], B. O. Amechi[3]; [1]Adenuran Ogunsanya Coll. of Ed.,Otto/Ijanikin,P.M.B.007, Festac Town, Lagos, NIGERIA, [2]Joseph Ayo Babalola Univ., Ikeji-Arakeji, P.M.B. 5006, Ilesha Osun State, Ilesha, NIGERIA, [3]Federal Med. Ctr., Umuahia, Umuahia,Abia State, NIGERIA.

2080 Triclosan and its Relationship to Antimicrobial Resistance in Alum Creek
K. Giesting, K. Svitana, J. A. Bennett; Otterbein Univ., Westerville, OH.

2081 Monitoring Microbial Pathogens and Conducting Microbial Risk Assessment in Wastewater Effluent and Receiving Waters
R. E. Danielson[1], A. Olivieri[2], V. Shidell[3]; [1]BioVir Lab., Inc, Benicia, CA, [2]EOA, Inc, Oakland, CA, CA, [3]City of Vacaville, Vacaville, CA.

143 Comparative and Evolutionary Genomics (Division R)

1:00 p.m. – 2:45 p.m.; Poster Hall

2082 Comparative Analysis of Clostridium botulinum Type A Strains
V. Ng, J. Jackson, W-J. Lin; California State Polytechnic Univ., Pomona, Pomona, CA.

2083 Intraspecific Diversification of Periodontal Bacterium *Porphyromonas gingivalis* Clarified by Comparative Mobilome Analysis
T. Watanabe[1], N. Furukawa[1], T. Nozawa[2], C. Aikawa[1], H. Bijaya[1], A. Endo[1], F. Maruyama[1], I. Nakagawa[1]; [1]Tokyo Med. and Dental Univ., Bunkyo-ku, Tokyo, JAPAN, [2]Osaka Univ., Suita-shi, Osaka, JAPAN.

2084 Genome Sequencing and Comparative Genomics of *Rhodococcus* sp. Strain DK17, a Superb Aromatic Hydrocarbon Degrader
M. Yoo[1], D. Kim[2], K. Choi[1], J. Chae[3], G. J. Zylstra[4], E. Kim[1]; [1]Yonsei Univ., Seoul, KOREA, REPUBLIC OF, [2]Korea Polar Res. Inst., Incheon, KOREA, REPUBLIC OF, [3]Chonbuk Natl. Univ., Jeonju, KOREA, REPUBLIC OF, [4]Rutgers Univ., New Brunswick, NJ.

2085 Genomic Analysis of Two Species of the Gram-negative, Endospore-forming Genus *Sporomusa*
A. Poehlein, R. Daniel, **G. Gottschalk**; Univ. of Goettingen, Goettingen, GERMANY.

2086 Identification of Genomic Islands and Unique Functions in *Aeromonas hydrophila* Strains Associated with an Epidemic in Channel Catfish
M. J. Hossain[1], W. Heemstreet[2], G. Waldbieser[3], M. Griffin[4], L. Khoo[5], A. E. Goodwin[6], N. Capps[1], T. Sonstegard[7], S. Schroeder[7], K. Hayden[1], J. S. Terhune[1], M. R. Liles[1]; [1]Auburn Univ., Auburn, AL, [2]Alabama Fish Farming Ctr., Greensboro, AL, [3]USDA, Stoneville, MS, [4]Mississippi State Univ, Stoneville, MS, [5]Auburn Univ., Stoneville, MS, [6]Aquaculture & Fisheries Ctr., AR, [7]USDA, Beltsville, MS.

2087 A Functional Genomic Characterization of Metal-reducing *Pelosinus* spp. isolated from Cr(VI) Contaminated Groundwater
M. Podar[1], J. J. Mosher[1], S. D. Brown[1], D. C. Joyner[2], R. Csencsits[2], T. J. Phelps[1], K. H. Downing[2], T. C. Hazen[1,3], A. P. Arkin[2], A. V. Palumbo[1], D. A. Elias[1]; [1]Oak Ridge Natl. Lab., Oak Ridge, TN, [2]Lawrence Berkeley Natl. Lab., Berkeley, CA, [3]Univ. of Tennessee, Knoxville, TN.

2088 Identifying Potential Next Steps in Adaptation of *Bordetella Pertussis* to Vaccination by High-Throughput Sequencing
M. Bart[1], S. R. Harris[2], **M. van Gent**[1], H. G. J. van der Heide[1], P. W. M. Hermans[3], J. Parkhill[2], F. R. Mooi[1]; [1]RIVM, Bilthoven, NETHERLANDS, [2]The Wellcome Trust Sanger Inst., Hinxton, UNITED KINGDOM, [3]Radboud Univ. Nijmegen Med. Ctr., Nijmegen, NETHERLANDS.

2089 Molecular analysis of recent 2010-2011 U.S. *Cronobacter* clinical isolates
M. L. Kotewicz[1], C. J. Grim[1,2], G. Gopinath[1], K. G. Jarvis[1,2], A. A. Franco[1], L. Hu[1], V. Sathyamoorthy[1], C. Iversen[3], S. Fanning[4], B. D. Tall[1]; [1]US FDA, CFSAN, OARSA, Laurel, MD, [2]Oak Ridge Inst. for Sci. and Ed., Oak Ridge, TN, [3]Nestle Res. Ctr., Lausanne, SWITZERLAND, [4]Univ. Coll., Dublin, Dublin, IRELAND.

2090 *In Situ* Evolutionary Rate Measurements Implicate Human Activity in Bacterial Lineage Divergence
V. J. Denef[1,2], J. F. Banfield[2]; [1]Univ. of Michigan, Ann Arbor, MI, [2]Univ. of California, Berkeley, CA.

2091 Insights into Degradation of Aromatic and Haloalkane Compounds from the Genome of *Geobacter daltonii*
M. A. Aklujkar[1], J. W. Voordeckers[2], J. Kostka[3], A. Kanak[4], K-J. Chin[4], D. R. Lovley[1]; [1]Univ. of Massachusetts, Amherst, Amherst, MA, [2]Univ. of Oklahoma, Norman, OK, [3]Georgia Inst. of Technology, Atlanta, GA, [4]Georgia State Univ., Atlanta, GA.

2092 Genome Evolution in the SAR11 Marine Bacterioplankton Lineage
J. Grote[1], **C. Thrash**[2], M. J. Huggett[1], P. Carini[2], Z. C. Landry[2], S. J. Giovannoni[2], M. S. Rappé[1]; [1]Univ. of Hawaii at Manoa, Kaneohe, HI, [2]Oregon State Univ., Corvallis, OR.

2093 Using Next Generation Sequencing to Characterize a Fungal Outbreak Following the Tornado in Joplin, MO
R. Hilsabeck[1], J. D. Gillece[1], K. Etienne[2], S. R. Lockhart[2], J. Schupp[1], P. Keim[1], E. H. Thompson[3], D. A. Sutton[3], B. J. Park[2], E. Deak[2], D. M. Engelthaler[1]; [1]Translational Genomics Res. Inst., Pathogen Genomics Div., AZ, [2]CDC, Mycotic Diseases Branch, GA, [3]Fungus Testing Lab., Univ. of Texas Hlth.Sci. Ctr., TX.

2094 Whole Genome Sequencing of *Campylobacter iguaniorum* sp. nov. Found in Reptiles
M. J. Gilbert[1], J. A. Wagenaar[1], **W. G. Miller**[2], E. Yee[2], M. Kik[1], B. Duim[1]; [1]Univ. Utrecht, NETHERLANDS, [2]USDA, CA.

2095 Whole Genome Sequencing for Taxonomic Positioning of *Campylobacter fetus testudinum* ssp. nov
M. J. Gilbert[1], W. G. Miller[2], E. Yee[2], B. Duim[1], A. J. Lawson[3], M. J. Blaser[4], J. A. Wagenaar[1]; [1]Utrecht Univ., NETHERLANDS, [2]USDA, CA, [3]Hlth.Protection Agency, UNITED KINGDOM, [4]New York Univ. Sch. of Med., NY.

2096 What can the Genomes of an Infective Ineffective (Fix-) *Frankia* Strain (Eul1c) that is Able to Form Nodules with its Host Plant Tell Us about the Actinorhizal Symbiosis and *Frankia* Evolution?
N. J. Beauchemin[1], M. Gtari[2,1], F. Ghodbhane-Gtari[2,1], T. Furnholm[1], A. Sen[3], L. Wall[4], F. Tavares[5], C. Santos[5], I. Nouioui[2], F. Xu[1], S. Lucas[6], A. Copeland[6], A. Lapidus[6], T. Glavina del Rio[6], H. Tice[6], D. Bruce[6], L. Goodwin[6], S. Pitluck[6], F. Larimer[6], M. L. Land[6], L. Hauser[6], L. S. Tisa[1]; [1]Univ. of New Hampshire, Durham, NH, [2]Faculté des Sci. de Tunis, TUNISIA, [3]Univ. of North Bengal, Siliguri, INDIA, [4]Univ. of Quilmes, ARGENTINA, [5]Instiuto Celular e Aplicada, PORTUGAL, [6]DOE Joint Genome Inst., CA.

2097 Whole Genome Sequencing of *Escherichia coli* Strains Isolated from Domestic Animals
S-H. Yoon, H. Yi, Y-J. Cho, J. Chun; Seoul Natl. Univ., Seoul, KOREA, REPUBLIC OF.

2098 Whole Genome and Plasmid Sequencing Analysis to Elucidate the Epidemiology and Evolution of KPC-producing *Klebsiella pneumoniae*
J. R. Bowers[1], E. M. Driebe[1], B. Kitchel[2], J. K. Rasheed[2], C. C. Roe[1], C. Eberhard[1], B. Limbago[2], A. Knadler[1], J. Gillece[1], R. R. Rimsza[1], K. Wiggins[1], D. M. Engelthaler[1], P. S. Keim[1], D. MacCannell[2]; [1]TGen North, Flagstaff, AZ, [2]CDC, Atlanta, GA.

2099 Comparative and evolutionary genomics of *Salmonella* subspecies
P. T. DESAI[1], S. Porwollik[1], S. Clifton[2], R. Fulton[2], A. Wollam[2], G. Weinstock[2], M. McClelland[1,3]; [1]Vaccine Res. Inst. of San Diego, San Diego, CA, [2]Genome Sequencing Ctr., Washington Univ. Sch. of Med., St Louis, MO, [3]Dept. of Pathology and Lab. Med., Univ. of California Irvine, Irvine, CA.

2100 Evolution of Oxygen-Responsive Metabolic and Regulatory Networks in Enterobacteria
N. T. Perna, J. Apodaca, L. Babujee, V. Balakrishnan, D. J. Baumler, B. S. Biehl, **J. D. Glasner**; UW-Madison, Madison, WI.

2101 Identification of Gene Repertoires Responsible for Persistence of a Global Pathogen Across Niche Dimensions
R. A. Edwards[1], B. Dutilh[1], G. Silva[1], C. C. Thompson[2], C. Lee[3], D. Cuevas[3], J. Spangler[3], V. Sheth[3], T. Ross[3], L. Chimetto[4], G. Andrade[4], M. A. Marin[4], E. A. Dinsdale[1], A. Paulo Vicente[2], T. Harkins[3], F. Thompson[4]; [1]San Diego State Univ., San Diego, CA, [2]Oswaldo Cruz Inst., Rio de Janeiro, BRAZIL, [3]Life Technologies, Beverly, MA, [4]Federal Univ. of Rio de Janeiro, Rio de Janeiro, BRAZIL.

2102 Tiling Array-Based *de novo* SNP Prediction in Microbial Genomes: Measuring Genomic Diversity and Biomarker Identification
J. Gangiredla, M. K. Mammel, S. A. Jackson; US FDA, Laurel, MD.

2103 Pangenomic Analysis of Genetic Variants in gyrA, recG, ligB, and mutM Associated with Fluoroquinolone Resistance
M. A. Evangelista, T. J. Bodine, M. C. Swick, K. M. Carlson, R. J. Hamill, R. Sucgang, L. Zechiedrich; Baylor Coll. of Med., Houston, TX.

2104 Microarray-Based Whole Genome Investigations of Enteric Pathogens: Insight into Evolution and Diversity
S. A. Jackson, I. R. Patel, M. K. Mammel, J. Gangiredla; US FDA, Laurel, MD.

2105 Genome Dynamics and Ecological Specialization in 80 Newly Assembled Strains of *Vibrionaceae*
S. C. Timberlake[1], O. X. Cordero[1], S. P. Preheim[1], M. F. Polz[1], E. J. Alm[1,2,3]; [1]MIT, Cambridge, MA, [2]Broad Inst., Cambridge, MA, [3]VIMSS, Berkeley, CA.

2106 Genomic Variation in *Yersinia pestis* EV76 Live Vaccine Strains
M. Krepps[1], T. Minogue[2], M. Ait-Ichou[1], E. W. Skowronski[3], M. Wolcott[2], **H. S. GIBBONS**[3], C. Rosenzweig[3]; [1]Excet, Inc., Aberdeen Proving Ground, MD, [2]US Army Res. Inst. for Infectious Diseases, Frederick, MD, [3]US Army Edgewood Chemical Biological Ctr., Aberdeen Proving Ground, MD.

144 Molecular Typing, Epidemiology and Surveillance (Division V)

1:00 p.m. – 2:45 p.m.; Poster Hall

2107 Antigenic Peptides of Anthrax Toxin PA Stimulate Lethal Toxin Neutralizing Responses in Mice
V. A. Semenova, P. Svoboda, J. Pohl, H. Li, C. P. Quinn; CDC, Atlanta, GA.

2108 Artemether-Atorvastatin Combination Therapy Show Highest Efficacy in Rescuing Mice with Experimental Cerebral Malaria
N. O. Wilson, W. Solomon, M. Liu, J. Stiles; Morehouse Sch. of Med., Atlanta, GA.

2109 Using Proteomic Tools to Identify Diagnostic Biomarkers for *Mycobacterium avium* subspecies *paratuberculosis*
A. Facciuolo, L. M. Mutharia; Univ. of Guelph, Guelph, ON, CANADA.

2110 Identification of Rd5-encoded *Mycobacterium tuberculosis* Proteins as B-cell Antigens Used for Serodiagnosis of Tuberculosis
S. Zhang; Shanghai Jiao Tong Univ. Sch. of Medcine, CHINA.

2111 Enhanced 8OHdG Expression in *Helicobacter pylori* Positive Gastric Cancers
Y. Raza[1], A. Khan[1], S. Khan[1], J. I. Kazi[2], C. Bernstein[3], S. U. Kazmi[1]; [1]Univ. of Karachi, Karachi, PAKISTAN, [2]Ziauddin Univ. and Hosp., Karachi, PAKISTAN, [3]Univ. of Arizona, Tucson, AZ.

2112 Comparison of the Effects of Carbohydrates on the Virulence Factors of *Clostridium perfringens*
M. Park, F. Rafii; Natl. Ctr. for Toxicological Res., Jefferson, AR.

2113 High Throughput *in vitro* Analysis of Antibody-Mediated Neutralization of *Chlamydial trachomatis* Infectivity
T. Southern, L. Bess, J. Harmon, L. Taylor, L. Kari, H. Caldwell; Rocky Mountain Lab., NIAID, NIH, Hamilton, MT.

2114 Novel Mutations Generated *in vitro* Associated with Vancomycin-Intermediate Resistance in *Staphylococcus aureus*
E. K. Crispell[1], K. D. Passalacqua[2], S. W. Satola[3], M. M. Farley[3], T. D. Read[2]; [1]Atlanta Res. and Ed. Fndn. and Atlanta VA Med. Ctr., Atlanta, GA, [2]Emory Univ. Sch. of Med., Atlanta, GA, [3]Emory Univ. Sch. of Med. & Atlanta VA Med. Ctr., Atlanta, GA.

2115 Plasmablast Frequency and Trafficking Receptor Expression are Altered in Pediatric Ulcerative Colitis
N. Tarlton[1], C. Green[1], A. Wong[2], O. Abramson[2], N. Lazarus[3,4], L. Rott[3,4], M. Bremer[5], E. C. Butcher[3,4], T. Abramson[1]; [1]San Jose State Univ., Dept. of Biology, San Jose, CA, [2]Kaiser Permanente Santa Clara, Santa Clara, CA, [3]Stanford Univ. Sch. of Med., Lab. of Immunology and Vascular Biology, Dept. of Pathology, Stanford, CA, [4]VA Palo Alto Hlth.Care System, Palo Alto, CA, [5]San Jose State Univ., Dept. of Mathematics, San Jose, CA.

2116 Efficacy of Daptomycin against meticillin-resistant *Staphylococcus aureus*(MRSA) in a murine model of haematogenous pulmonary infection
Y. Harada[1,2], K. Yanagihara[1,2], N. Araki[1], Y. Migiyama[1,2], K. Nagaoka[1,2], K. Yamada[1,2], Y. Morinaga[1,2], K. Izumikawa[2], H. Kakeya[2], Y. Yamamoto[2], S. Kamihira[1], S. Kohno[2]; [1]Dept. of Lab. Med., Nagasaki Univ. Graduate Sch. of BioMed. Sci., Nagasaki, JAPAN, [2]Second Dept. of Internal Med., Nagasaki Univ. of Graduate Sch. of BioMed. Sci., Nagasaki, JAPAN.

2117 The Impact of Infectious Disease Consultation on Infective Endocarditis: Outcomes at a Tertiary Care Teaching Hospital
S. W. Keeshin, J. Feinberg; Univ. of Cincinnati, Cincinnati, OH.

2118 Epidemiological Trend and Molecular Characterization of Hepatitis A Virus Isolates in a Tertiary Care Hospital in North India
M. P. Singh, M. Majumdar, P. Gupta, B. Thapa, J. Khurana, B. Budhathoki, R. Ratho; Post Graduate Inst. of Med. Ed. and Res., chandigarh, INDIA.

2119 The Role of *Hartmannella vermiformis* in Shaping Drinking Water Communities: Quantification in Drinking Water and Identification of a Secreted Molecule that Decreases Cultivability of *Legionella pneumophila*
H. Y. Buse, I. T. Struewing, M. J. Donohue, N. J. Ashbolt; US Environmental Protection Agency, Cincinnati, OH.

2120 Development of a Rapid Colorimetric Assay for Detection of Caffeine in Beverages and Body Fluids Using Caffeine Dehydrogenase from *Pseudomonas* sp. CBB1
S. K. Mohanty, C. Yu, M. V. Subramanian; The Univ. of Iowa, Iowa City, IA.

2121 Reference Interval Computation: which method (not) to choose?
I. Y. PAVLOV, J. C. Delgado; ARUP Inst. for Clinical and Experimental Pathology, Salt Lake City, UT.

2122 Association of Preterm Birth with Vaginal Bacteria Identified from Archived Gram Stain Slides
U. Srinivasan[1], A. Wen[1], S. Ponnaluri[1], A. Miles[1], R. Muraglia[1], B. Bucholz[1], Z. Britt[1], K. Oh[1], C. F. Marrs[1], D. Misra[2], B. Foxman[1]; [1]Univ. of Michigan, Ann Arbor, MI, [2]Wayne State Univ., Detroit, MI.

2123 Hepatitis C Virus genotype 3, most prevalent in Karachi, Pakistan
G. Fatima[1], J. Siddiqui[2], S. Kumar[2], **S. U. Kazmi**[3]; [1]Univ. of Karachi and Civil Hosp., Karachi, PAKISTAN, [2]Civil Hosp., Karachi, PAKISTAN, [3]Univ. of Karachi, Karachi, PAKISTAN.

2124 Decoding in the Absence of a Codon by tmRNA and SmpB in the Ribosome
C. Neubauer[1], V. Ramakrishnan[2]; [1]Caltech, Pasadena, CA, [2]MRC Lab. of Molecular Biology, Cambridge, UNITED KINGDOM.

2125 Linezolid Inhibition of Mature Biofilm in Methicillin-resistant *Staphylococcus epidermidis* Clinical Isolates: Comparison with Other Drugs
K. C. Reiter, B. Villa, T. G. S. Paim, C. F. Oliveira, **P. A. d'Azevedo**; UFCSPA, Porto Alegre, BRAZIL.

Tuesday, June 19

10:45 am – 12:30 pm

169 New and Nouveau: Novel Agents and New Ways To Use Old Agents (Division A)

10:45 a.m. – 12:30 p.m.; Poster Hall

2126 Oral Administration of Zinc (Zn) Protects Rabbits Against Shiga Toxin-Producing *E.coli* (STEC) Infection
W. Byrd[1], J. Crane[2], **E. C. Boedeker**[1]; [1]Univ. of New Mexico, Albuquerque, NM, [2]State Univ. of New York, Buffalo, NY.

2127 D-Amino Acids Enhance the Effect of Antibiotics on Bacterial Biofilms *in vitro*
C. J. Sanchez, Jr., D. Romano, K. Akers, R. Woodbury, C. L. Ward, J. C. Wenke; US Army Inst. of Surgical Res., Ft. Sam Houston, TX.

2128 Novel Monocylic β-Lactams with Activity Against β-lactamase Producing *Moraxella catarrhalis*
B. J. Plotkin[1], J. M. Green[1], D. Lloyd[2], T. N. Beck[2], M. I. Konaklieva[2]; [1]Midwestern Univ., Downers Grove, IL, [2]American Univ., Washington, DC.

2129 *In vitro* activity of GSK1322322 with Tentative Microbiological MIC and Disk Diffusion Breakpoints
S. D. Brown[1], M. M. Traczewski[1], D. L. Butler[2], L. A. Miller[2]; [1]Clinical Microbiol. Inst., Inc, Wilsonville, OR, [2]GlaxoSmithKline, Collegeville, PA.

2130 Antimicrobial Activity of the Shield Fabrics Against Common Bacterial Pathogens in Causing Healthcare-Associated Infections in the United States
G. Wang, A. A. Kryszuk; New York Med. Coll., Valhalla, NY.

2131 Enhancing Effect of a Plant Liposome in Combination with Metal Ions on Antimicrobials
M. S. Riazi[1], C. Buisson[2], M. Ravaoarinoro[1], R. Morisset[1]; [1]Univ. of Montreal, CRCHUM, Montreal, QC, CANADA, [2]Aromapharm Ireland Ltd, IRELAND.

2132 Efficacy of Antimicrobial Cocktail for Cleaning and Disinfection of Human Allograft Skin Used for Burn Care Patients
A. Wilson[1], S. Hall[2], K. Snyder[2], R. Richie[2], L. Barnes[2], C. J. Ronholdt[1]; [1]LABS Inc., Centennial, CO, [2]DCI Donors Services, Nashville, TN.

2133 Human Apolipoprotein-E Derived Peptides Provide Novel Antimicrobials for the Coating of Medical Devices
S. Forbes, C. B. Dobson, A. J. McBain; The Univ. of Manchester, Manchester, UNITED KINGDOM.

2134 Glutamylation of Spermine and Spermidine as Potential Target of Antibiotic Development against *Pseudomonas aeruginosa*
X. Yao[1], C. Li[2], J. Zhang[2], C-D. Lu[1]; [1]Georgia State Univ., Atlanta, GA, [2]Chinese Academy of Med. Sci. and Peking Union Med. Coll., Beijing, CHINA.

2135 Alkylpolyamine DS-96 Prevents *Chlamydia trachomatis* Infection by Blocking the Attachment Process
I. Osaka, S. L. Kieweg, P. S. Hefty; Univ. of Kansas, Lawrence, KS.

2136 Interaction with Lipid II Changes the Conformation of the Lantibiotic Bovicin HC5
A. D. Paiva, E. Breukink, H. C. Mantovani; Federal Univ. of Viçosa, Viçosa - MG, BRAZIL.

2137 Antimicrobial Effectiveness of an N-Heterocyclic Silver Carbene Compound (SCC-22) on Growth of Pathogens Associated with Cystic Fibrosis Infections
J. S. Brantner, J. K. Miller, P. O. Wagers, W. J. Youngs, H. T. Badawy, A. Milsted; The Univ. of Akron, Akron, OH.

2138 Inhibition of Biofilm Formation by Orally-associated Bacteria Using Natural Products Inspired Compounds
N. C. Cady[1], S. Kasper[1], J. Baxter[1], A. Rickard[2], R. Musah[3]; [1]Coll. of Nanoscale Sci. & Engineering, Albany, NY, [2]Univ. of Michigan, Ann Arbor, MI, [3]Univ. at Albany, Albany, NY.

2139 *In vitro* Characterization of the Anti-bacterial Activity of SQ109 against *Helicobacter pylori*
M. O. Makobongo[1], L. Einck[2], R. M. Peek[3], D. S. Merrell[1]; [1]Dept. of Microbiol. and Immunology, Uniformed Services Univ., Bethesda, MD, [2]Sequella Inc., Rockville, MD, [3]Div. of Gastroenterology, Vanderbilt Univ. Med. Ctr., Nashville, TN.

2140 In vitro Synergistic Activities of the Double and Triple Combinations of the Novel Ceragenin CSA-13 with Colistin, Tobramycin and Ciprofloxacin against Pseudomonas aeruginosa Strains Isolated from Cystic Fibrosis Patients
C. Bozkurt-Güzel[1], P. B.Savage[2], A. Gerceker[1]; [1]Istanbul Universitiy, Faculty of Pharmacy, Istanbul, TURKEY, [2]Dept. of Chemistry and Biochemistry, Brigham Young Univ., UT.

2141 *in-vitro* Activities of Antimicrobial Cationic Peptides Melittin and Nisin Alone or in Combination with Antibiotics Against Gram Positive Bacteria
S. Dosler, A. A. Gerceker; Istanbul Univ. / Turkiye, Istanbul, TURKEY.

2142 Potential Usage of LTP as a Synergistic Agent for Antibiotic Therapy
U. Habiba[1], A. de Oliveira[2], B. Haghjoo[1], **L. H. Lee**[1], T-C. Chu[2]; [1]Montclair State Univ., Montclair, NJ, [2]Seton Hall Univ., South Orange, NJ.

2143 Bioassay Guided Isolation of Active Compounds Against Clinical Isolates of *Candida* from Patients with Post-Operative Wound Infections
R. Erum[1], F. Samad[2], S. M. A. Hussain[3], S. Faizi[4], S. U. Kazmi[5]; [1]Univ. of Karachi, Karachi, PAKISTAN, [2]Dept. of Microbiol. - Univ. of Karachi, Karachi, PAKISTAN, [3]Abbassi Shaheed Hosp., Karachi, PAKISTAN, [4]HEJ Res. Inst. of Chemistry -Univ. of Karachi, Karachi, PAKISTAN, [5]IIDRL - Univ. of Karachi, Karachi, PAKISTAN.

2144 Antibiotic Properties of Selected North American Lichen Species
G. Shrestha[1,2], J. Raphael[1], L. L. St. Clair[1,2]; [1]Brigham Young Univ., Provo, UT, [2]M L Bean Museum, Brigham Young Univ., Provo, UT.

2145 Select Polyamine Compounds Mimicking the Lipopolysaccharide Interactive Properties of Polymyxin B Inhibit an Early Stage of *Chlamydia trachomatis* Infection
D. P. Simon, I. Osaka, P. S. Hefty; Univ. of Kansas, Lawrence, KS.

2146 Effect of Lemongrass Essential Oil Against *Staphylococcus aureus* Biofilms
E. C. Adukwu, S. C. Allen, C. A. Phillips; Univ. of Northampton, Northampton, UNITED KINGDOM.

2147 Anti-Bacterial Effect of *Camellia, Juglans* and *Hippophae* spp. on Methicillin Resistant Strains of *S. epidermidis* and *S. hemolyticus*
M. Lakhani[1], M. Zulfiqar[1], F. E. Abdullah[2], N. E. Abdulla[3], S. U. Kazmi[4]; [1]Dow Med. Coll., Dow Univ. of Hlth.Sci., Karachi, PAKISTAN, [2]Dr. Essa's Labarotary and Diagnostic Ctr., Karachi, PAKISTAN, [3]Univ. of Texas, Houston, TX, [4]Univ. of Karachi, Karachi, PAKISTAN.

2148 Preliminary Investigation of Telechelic Liquid Natural Rubber Based Coatings for Preventing Biofilm Formation in Biomedical Applications
H. T. Badawy[1], J. S. Brantner[1], T. J. Cutright[1], P. Passetto[2], J-F. Pilard[2], A. Milsted[1]; [1]Univ. of Akron, Akron, OH, [2]Université du Maine, Le Mans, FRANCE.

2149 PVP Coated Silver Nanoparticles as Antimicrobials against Bacteria
K. Vig, P. M. Tiwari, K. Johnson, S. Pillai, S. R. Singh; Alabama State Univ., Montgomery, AL.

2150 Oral Gallium Maltolate Treatment Eradicates *Pseudomonas aeruginosa* Lung Infection in CFTR Knockout Mice
S. Sreedharan[1], G. Lau[2]; [1]Titan Pharmaceuticals, Inc., South San Francisco, CA, [2]Univ. of Illinois at Urbana-Champaign, Urbana-Champaign, IL.

2151 Synthesis, Antibacterial Activity, and Structure-Function Analysis of a Novel Series of Multi-Headed Amphiphiles
J. E. LaDow[1], J. A. Barragan[1], D. J. Moon[1], K. L. Caran[1], K. P. C. Minbiole[2], K. Seifert[1]; [1]James Madison Univ., HARRISONBURG, VA, [2]Villanova Univ., Villanova, PA.

2152 Chitosan-mediated Inhibition of *Pseudomonas aeruginosa* Biofilm Formation in Polyethylene Catheter Tubing
S. L. Pay[1], B. L. Baros[2], D. Fraser-Pitt[3]; [1]Indiana Univ. Sch. of Med. (Work carried out at Edinburgh Napier Univ., Edinburgh, Scotland), Indianapolis, IN, [2]Penn State Shenango, Sharon, PA, [3]Edinburgh Napier Univ., Edinburgh, UNITED KINGDOM.

2153 Theaflavins as Potential Synergistic Agents for Antiseptics
A. de Oliveira, J. Todd, T-C. Chu; Seton Hall Univ., South Orange, NJ.

170 Biofilm Formation and Interactions of Microbial Pathogens within Biofilms I (Division B)

10:45 a.m. – 12:30 p.m.; Poster Hall

2154 Biofilm Formation by Foodborne Pathogens and Their Tolerance to Sanitization
R. Wang, J. L. Bono, N. Kalchayanand, S. Shackelford, D. M. Harhay; U. S. Dept. of Agriculture, Agricultural Res. Service, Roman L. Hruska U.S. Meat Animal Res. Ctr., Clay Center, NE.

2155 Interactions of *Pseudomonas aeruginosa* and *Staphylococcus aureus* in dual-species wound biofilms
S. Deleon, A. Clinton, U. Trivedi, K. Rumbaugh; Texas Tech Hlth.Sci. Ctr., Lubbock, TX.

2156 Development and Validation of a Continuous Culture System for the Stable Maintenance of Sessile Defined Wound Consortia
A. Oates[1], S. Lindsay[2], A. McBain[1]; [1]Univ. of Manchester, Manchester, UNITED KINGDOM, [2]Systagenix, Gargrave, North Yorkshire, UNITED KINGDOM.

2157 The Prevelance of Implant Associated Biofilm Infections
S. Eickhardt[1,2], A. Gheorghe[3], M. Alhede[1], L. Hansen[4], S. J. Sørensen[4], C. Moser[2], M. Givskov[1], S. S. Poulsen[5], H. Hougen[3], N. Høiby[1,2], T. Bjarnsholt[1,2]; [1]The Dept. of Intl. Hlth., Immunology and Microbiol., The Faculty of Hlth.Sci., The Univ. of Copenhagen, Copenhagen, DENMARK, [2]The Dept. of Clinical Microbiol., RigsHosp.et, Copenhagen, DENMARK, [3]The Dept. of Forensic Med., The Faculty of Hlth.Sci., The Univ. of Copenhagen, Copenhagen, DENMARK, [4]The Dept. of Biology, The Faculty of Natural Sci., The Univ. of Copenhagen, Copenhagen, DENMARK, [5]The Dept. of BioMed. Sci., The Faculty of Hlth.Sci., The Univ. of Copenhagen, Copenhagen, DENMARK.

2158 Characterization of Antibiotic Resistance and Biofilm Formation of Clinical and Environmental Strains of *Acinetobacter baumannii*
C. K. Greene, C. Xi; Univ. of Michigan, Sch. of Publ. Hlth., Ann Arbor, MI.

2159 *msa* Regulates Autolysis and Biofilm Development in Community-Acquired MRSA Strain Type USA300
G. S. Sahukhal, M. O. Elasri; The Univ. of Southern Mississippi, Hattiesburg, MS.

2160 Compounds that inhibit biofilm formation of *Staphylococcus aureus*
Y. Yamada[1], C. Otsuka[2], T. Uchida[2], W. Ogawa[3], T. Kuroda[3], T. Tsuchiya[1], S. Shiota[2]; [1]Ritsumeikan Univ., Kusatsu, JAPAN, [2]Shujitu Univ., Okayama, JAPAN, [3]Okayama Univ., Okayama, JAPAN.

2161 Bile Salts Induce Clumping and Biofilm Formation in *Shigella flexneri*
C. S. Faherty[1], D. A. Rasko[2], J. P. Nataro[3], E. M. Barry[1]; [1]Ctr. for Vaccine Dev., Dept. of Med., Univ. of Maryland Sch. of Med., Baltimore, MD, [2]Inst. for Genome Sci., Dept. of Microbiol. and Immunology, Univ. of Maryland Sch. of Med., Baltimore, MD, [3]Dept. of Pediatrics, Univ. of Virginia Sch. of Med., Charlottesville, VA.

2162 Lsr2 and its Involvement in Biofilm-like Growth of *Mycobacterium tuberculosis*
C. Lanza, B. Podell, D. Ackart, J. Kuruvilla, R. Basaraba; Colorado State Univ., Fort Collins, CO.

2163 Investigation on Biofilm Production by Nasal Isolates of *Staphylococcus aureus*
M. A. Symayyah[1], M. A. Naif[1], **S. S. Fatima**[1], T. Yasmin[1], A. Al-Hazimi[1], P. K. Talukdar[2], M. R. Sarker[2], A. Hossain[1]; [1]Coll. of Med., Univ. of Hail, Hail, SAUDI ARABIA, [2]Dept. of BioMed. Sci., Oregon State Univ., Corvallis, OR.

2164 Genes Involved in Tobramycin - Mediated Biofilm Enhancement in *Pseudomonas aeruginosa*
S. A. Alshalchi, M. Taylor, G. G. Anderson; Indiana Univ. –Purdue Univ. Indianapolis, Indianapolis, IN.

2165 Auxotrophy and Biofilm Formation in *Staphylococcus aureus* Small Colony Variant Isolates from Prosthetic Joint Infections
H. L. Tyner[1], K. Greenwood-Quaintance[2], A. Maduka-Ezeh[2], R. Patel[2]; [1]Mayo Clinic Sch. of Graduate Med. Ed., Rochester, MN, [2]Mayo Clinic, Rochester, MN.

2166 Characterising the *in vitro* Biofilm Phenotype of Cystic Fibrosis *Pseudomonas aeruginosa* Clinical Isolates under Varying Environmental Conditions
G. Whitaker[1], V. Urbach[1,2], H. Humphreys[1,3], **N. T. Stevens**[1]; [1]Royal Coll. of Surgeons in Ireland, Dublin, IRELAND, [2]Natl. Children's Res. Ctr., Our Lady's Childrens Hosp., Dublin [12], IRELAND, [3]Beaumont Hosp., Dublin 9, IRELAND.

2167 Influence of Environment on *Listeria monocytogenes* Biofilm Formation and Viability: Comparison of *in situ* Imaging with *ex situ* Quantification
M. S. Giao, C. W. Keevil; Univ. of Southampton, Southampton, UNITED KINGDOM.

2168 Tannin Constituents Block Swarming Motility and Enhance Biofilm Formation in *Pseudomonas aeruginosa*
C. O'May; McGill Univ., Montreal, QC, CANADA.

2169 Influence of Collagen in Biofilm Formation by *Streptococcus mutans* Strains
L. K. Siriani[1], P. H. Rodrigues[1], M. P. A. Mayer[1], J. Abranches[2], **M. R. L. Simionato**[1]; [1]Inst. of BioMed. Sci. - Univ. of São Paulo, São Paulo - SP, BRAZIL, [2]Coll. of Dentistry, Univ. of Rochester Med. Ctr., Rochester, NY.

2170 Curcumin Inhibits Curli-integrated Biofilm Formation in Uropathogenic *E. coli*
J. Y. Lim, L. Cegelski; Stanford Univ., Stanford, CA.

2171 Patterned Biofilm Formation Reveals Critical Information of Bacteria-surface Interactions
S. Hou[1,2], **H. Gu**[1,2], D. Ren[1,2,3,4]; [1]Dept. of BioMed. and Chemical Engineering, Syracuse Univ., Syracuse, NY, [2]Syracuse Biomaterials Inst., Syracuse Univ., Syracuse, NY, [3]Dept. of Civil and Environmental Engineering, Syracuse Univ., Syracuse, NY, [4]Dept. of Biology, Syracuse Univ., Syracuse, NY.

2172 Interspecific Molecular Interactions Between Clinical Isolates of *Pseudomonas aeruginosa* and *Staphylococcus aureus* Retrieved from Adult Cystic Fibrosis Patients
A. Fugère[1], D. Lalonde Séguin[1], G. Mitchell[1], E. Déziel[2], V. Dekimpe[2], A. M. Cantin[1], E. Frost[1], F. Malouin[1]; [1]Université de Sherbrooke, Sherbrooke, QC, CANADA, [2]INRS-Inst. Armand-Frappier, Laval, QC, CANADA.

2173 Development and Characterization of an In Vitro Biofilm Model for Dental Caries
F. Andrade[1], C. E. Graham[1], Z. Vaksman[1], K. Gomez[1], M. Vega-Arroyo[2], Y. Kim[3], R. S. Arvidson[3], A. Luttge[3], C. G. Ambrose[4], G. Tribble[2], S. R. Taylor[2], H. B. Kaplan[1]; [1]Dept. of Microbiol. and Molecular Genetics, Univ. of Texas Med. Sch., Houston, TX, [2]Univ. of Texas Dental Branch, Houston, TX, [3]Dept. of Earth Sci., Rice Univ., Houston, TX, [4]Dept. of Orthopaedic Surgery, Univ. of Texas Med. Sch., Houston, TX.

2174 Pathogenicity of *Staphylococcus* epidermidis in Implant Related Infections
S. PRASAD[1,2], N. Nayak[1], G. Satpathy[1], S. Ramakrishnan[1], T. Nag[1], H. Nag[1]; [1]ALL INDIA Inst. OF Med. Sci.S, NEW DELHI INDIA, INDIA, [2]ALL INDIA Inst. OF Med. Sci.S, INDIA.

2175 Determination of Virulence-Traits Associated with Biofilm Formation in Atypical Enteropathogenic *Escherichia coli* Strains
H. H. Nascimento, L. E. P. Silva, **I. C. A. Scaletsky**; Univ.e Federal de São Paulo, São Paulo, BRAZIL.

2176 Cigarette Smoke Induces Biofilm Formation in *Staphylococcus aureus*
R. Kulkarni, S. Antala, A. Wang, F. A. Amaral, R. Rampersaud, A. J. Ratner; Dept. of Pediatrics, Columbia Univ., New York, NY.

2177 The Antimicrobial Triclosan Influences Community Behavior of Diverse Opportunistic Pathogens
S. GHOSH, B. R. Boles, N. G. Love; Univ. of Michigan, Ann Arbor, MI.

171 Genetics and Genomics of Microbial Pathogens I (Division B)

10:45 a.m. – 12:30 p.m.

2178 *Staphylococcus aureus* Microevolution in the Cystic Fibrosis Airways
N. Hirschhausen[1], U. Nübel[2], A. Goesmann[3], G. Peters[1], B. C. Kahl[1]; [1]Univ. Hosp. Münster, Münster, GERMANY, [2]Robert-Koch-Inst., Wernigerode, GERMANY, [3]CeBiTec, Bielefeld, GERMANY.

2179 Robustness of *Helicobacter pylori* Infection Conferred by Context Variable Redundancy in Cyteine-rich Paralogs
K. Putty[1], S. Marcus[2], P. R. E. Mittl[3], L. E. Bogadi[1], A. M. Hunter[1], S. Arur[4], D. E. Berg[5], P. Sethu[1], **A. Kalia**[4,1]; [1]Univ. of Louisville, Louisville, KY, [2]Univ. of Wisconsin, Madison, Madison, WI, [3]Univ. of Zurich, Zurich, SWITZERLAND, [4]The Univ. of Texas MD Anderson Cancer Ctr., Houston, TX, [5]Washington Univ. Sch. of Med., Saint Louis, MO.

2180 Production of a *Burkholderia cenocepacia* Essential Gene Conditional Expression Library by Random Transposon Mutagenesis
R. A. M. Bloodworth, A. Gislason, S. Atoui, J. Franklin, A. Ling, S. T. Cardona; Univ. of Manitoba, Winnipeg, MB, CANADA.

2181 High Rates of Spontaneous Mutations as an Independent Virulence Factor of Uropathogenic *Escherichia coli* in a Murine Model of Ascending Urinary Tract Infection
L. A. Cooper, H. L. T. Mobley; Univ. of Michigan, Ann Arbor, MI.

2182 Draft Genome Sequence of a Hypervirulent Clinical *Mycobacterium intracellulare* Strain
Y. Tateishi[1,2], Y. Ogura[3], H. Yukio[1], Y. Ozeki[1], Y. Nishiuchi[1], M. Niki[1], T. Hayashi[3], K. Kobayashi[4], S. Matsumoto[1]; [1]Graduate Sch. of Med., Osaka City Univ., Osaka, JAPAN, [2]Natl. Hosp. Organization, Toneyama Hosp., Osaka, JAPAN, [3]Graduate Sch. of Med., Univ. of Miyazaki, Miyazaki, JAPAN, [4]Natl. Inst. of Infectious Diseases, Tokyo, JAPAN.

2183 Proteomic and Genomic Analysis of Attenuated *Nocardia brasiliensis*
L. Vera-Cabrera[1], C. Gonzalez-Carrillo[1], H. G. Garza-Lozano[2], J. Vargas-Villarreal[2], O. Welsh[1], J. Ocampo-Candiani[1], R. Ortiz-Lopez[3], A. Hernandez[3], C. Millan-Saucedo[1], C. Molina-Torres[1], P. Campos-Rivera[1], H. Martinez-Rodriguez[4]; [1]Servicio de Dermatologia, H.U., U.A.N.L., Monterrey, MEXICO, [2]Centro de Investigaciones Biomedicas del Noreste, IMSS, Monterrey, MEXICO, [33]Centro de Investigacion y Desarrollo en Ciencias de la Salud, Univ. Autonoma de Nuevo Leon, Monterrey, MEXICO, [4]Departamento de Bioquimica y Medcina Molecular, Fac. de Med., UANL, Monterrey, MEXICO.

2184 Whole-Genome Sequencing of *Staphylococcus aureus* Laboratory Strain 8325-4 Reveals a High Number of Genetic Changes Compared to its Clinical Parent Strain
K. T. Bæk[1], D. Frees[1], A. Renzoni[2], W. L. Kelley[2]; [1]Univ. of Copenhagen, Frederiksberg, DENMARK, [2]Univ. Hosp. and Med. Sch. of Geneva, Geneva, SWITZERLAND.

2185 Allelic Variation in the Promoter Region of P7, a Gene Found Predominantly Among cag PAI negative *Helicobacter pylori* isolates
A. J. Eclipse, G. Q. Bui, M. H. Forsyth; Coll. of William & Mary, Williamsburg, VA.

2186 Investigation of Prophage in *H. pylori* Clinical Isolates
K. A. Leslie, M. H. Forsyth; Coll. of William and Mary, Williamsburg, VA.

2187 Evolutionary History of CTX Prophage and RS1 Element in *Vibrio cholerae*
S. Y. Choi[1,2], N. A. Hasan[1,2], B. J. Haley[1], J. Chun[3], A. Huq[1], R. R. Colwell[1,2,4,5]; [1]Maryland Pathogen Res. Inst., Univ. of Maryland, College Park, MD, [2]CosmosID Inc., College Park, MD, [3]Sch. of Biological Sci. and Inst. of Microbiol., Seoul Natl. Univ., Seoul, KOREA, REPUBLIC OF, [4]Ctr. for Bioinformatics and Computational Biology, Univ. of Maryland, College Park, MD, [5]John Hopkins Bloomberg Sch. of Publ. Hlth., Baltimore, MD.

2188 New variant of SXT element in *Vibrio cholerae* from environmental samples obtained in Brazil
M. L. da Silva, M. H. Matte, **G. R. Matte**; Sch. of Publ. Hlth.Univ. of Sao Paulo, SãoPaulo, BRAZIL.

2189 Accessory Genomic Elements in a Highly Virulent Strain of *Pseudomonas aeruginosa*
E. A. Ozer, J. P. Allen, A. A. Goodyear, A. R. Hauser; Northwestern Univ. Feinberg Sch. of Med., Chicago, IL.

2190 Comparative Genomics of Clinical and Environmental *Vibrio parahaemolyticus* Reveals New Markers for Improved Virulence Detection in Washington State
J. W. Turner[1,2], C. Berthiaume[2], R. Morales[2], S. Biryukov[1], E. V. Armbrust[2], M. S. Strom[1]; [1]NOAA's Northwest Fisheries Sci. Ctr., Seattle, WA, [2]Univ. of Washington's Ctr. for Environmental Genomics, Seattle, WA.

2191 Genotyping of Uncultured SFG *Rickettsia* Phylotype G021 in *Ixodes pacificus* and Domestic Dogs Using Multi-Spacer Typing and QPCR
K. Vigil, A. Pesqueda; Humboldt State Univ., arcata, CA.

2192 Transfer of Antibiotic Resistance Inactivates CRISPR Interference in Staphylococci
W. Jiang; The Rockefeller Univ., New York, NY.

2193 Change in Gene Expression Levels of the ECF Sigma Factor bov1605 under pH Shift and Oxidative Stress in the Sheep Pathogen Brucella ovis
B. E. Kiehler, S. N. Martinez, M. S. Allen; Univ. of North Texas, Denton, TX.

2194 Regulation of Putative Integrating Conjugative Elements in *Legionella pneumophila*
K. J. Flynn, M. S. Swanson; Univ. of Michigan Med. Sch., Ann Arbor, MI.

2195 Complete Sequencing of a Multi-Drug Resistance Plasmid from *Aeromonas hydrophila* isolated from Thailand
C. S. del Castillo[1], S. W. Nho[1], J. Hikima[1], H. Kondo[2], I. Hirono[2], H. Takeyama[3], T. S. Jung[1], T. Aoki[1,2]; [1]Aquatic Biotechnology Ctr., Coll. of Vet. Med., Gyeongsang Natl. Univ., Jinju, KOREA, REPUBLIC OF, [2]Lab. of Genome Sci., Tokyo Univ. of Marine Sci. and Technology, 4-5-7 Konan, Minato, Tokyo, JAPAN, [3]Dept. of Life Sci. and Med. Bio-Sci., Advanced Sci. and Engineering, Waseda Univ., [1-104] Totsuka, Shinjuku, Tokyo, JAPAN.

2196 Diversity of Genomic Islands Present in Clinical and Environmental Isolates of *Burkholderia pseudomallei*
A. L. Doyle, C. J. Allender, S. M. Spring-Pearson, D. M. Wagner, P. Keim, A. Tuanyok; Northern Arizona Univ., Flagstaff, AZ.

2197 Antigenic Variation in the Relapsing Fever Agent *Borrelia parkeri* from Northern California
S. A. Campeau, A. G. Barbour; Univ. of California, Irvine, CA.

2198 Characterization of Plasticity Zone (PZ) Mutants in *Chlamydia muridarum*
J. H. Newman, **A. M. Roehl**, K. Rajaram, S. Hu, D. E. Nelson; Indiana Univ.-Bloomington, Bloomington, IN.

2199 Transcriptional Regulatory Network in *Pseudomonas aeruginosa*
D. Balasubramanian, S. K. Murugapiran, E. Silva-Herzog, L. Schneper, G. Narasimhan, K. Mathee; Florida Intl. Univ., Miami, FL.

2200 Generalized Transduction by the Pathogenicity Islands of *Staphylococcus aureus*
J. Chen, R. Novick; New York Univ., New York, NY.

2201 Characterization of Microbial Infection in Cystic Fibrosis Clinical Samples using Deep Metagenomic Sequencing
A. Rawat[1], J. M. Schupp[1], J. Bowers[1], M. Saubolle[2], J. Gillece[1], E. M. Driebe[1], D. M. Engelthaler[1], P. Keim[1]; [1]Translational Genomics Res. Inst., Flagstaff, AZ, [2]Banner Hlth., Phoenix, AZ.

2202 Diversity-Generating Retroelements: Target Site Recognition and Distribution in Nature
E. Czornyj, Y. Wang, H. Guo, L. V. Tse, A. Nieh, M. Gingery, D. Arambula, M. Liu, S. Oukil, V. Liu, J. F. Miller; Univ. of California, Los Angeles, Los Angeles, CA.

2203 Comparative Genomics and Strain Diversity of *Propionibacterium acnes*; A Major Commensal in the Human Skin Microbiota
S. Tomida[1], B-H. Chiu[1], L. Nguyen[1], E. Sodergren[2], G. M. Weinstock[2], H. Li[1,3]; [1]Univ. of California, Los Angeles, Los Angeles, CA, [2]The Genome Inst. at Washington Univ., St. Louis, MO, [3]UCLA-DOE Inst. for Genomics and Proteomics, Los Angeles, CA.

2204 A Whole Genome Phylogeny of the Staphylococci
P. J. Planet[1], **A. Narechania**[2], S. Boundy[3], B. Mathema[4], G. Archer[3], B. Kreiswirth[4]; [1]Columbia Univ., New York, NY, [2]American Museum of Natural History, New York, NY, [3]Virginia Commonwealth Univ., Richmond, VA, [4]Publ. Hlth.Res. Inst., UMDNJ, Newark, NJ.

2205 *Vibrio metecus: Vibrio cholerae*'s Cryptic Sister
Y. Boucher[1], M. Turnsek[2], L. Pounder[1], C. L. Tarr[2], M. F. Polz[3]; [1]Univ. of Alberta, Edmonton, AB, CANADA, [2]CDC, Atlanta, GA, [3]Massachusetts Inst. of Technology, Cambridge, MA.

2206 XIP Pherotype Conservation in *Streptococcus mutans*
A. P. Ricomini Filho[1], R. Khan[2], A. A. Del Bel Cury[1], F. C. Petersen[2]; [1]Piracicaba Dental Sch., UNICAMP, Piracicaba, BRAZIL, [2]Univ. of Oslo, Oslo, NORWAY.

172 Secretion Systems, Toxins, and other Secreted Products III (Division B)

10:45 a.m. – 12:30 p.m.

2207 Lcrq represses the *Yersinia pestis* Type III Sectretion by binding LcrH
E. Coate, L. Schoelaub, D. Anderson; Univ. of Missouri-Columbia, Columbia, MO.

2208 Peptide Mimetic of CD28 Dimer Interface that Antagonizes Superantigens Attenuates Necrotizing Fasciitis and Toxic Shock in Mice Caused by *Streptococcus pyogenes*
G. Ramachandran[1], G. Arad[2], R. Levy[2], A. Shirvan[3], R. Shemesh[3], R. Kaempfer[2], A. S. Cross[1]; [1]Univ. of Maryland Med. Sch., Baltimore, MD, [2]The Hebrew Univ.-Hadassah Med. Sch., Jerusalem, ISRAEL, [3]Atox Bio, ISRAEL.

2209 Marine *Vibrio cholerae* Isolates Use a Constitutive Type VI Secretion System to Compete with Bacterial Neighbors
M. Kitaoka[1], **S. T. Miyata**[1], D. Unterweger[1], J. Duran[2], O. Sosa[2], D. Provenzano[2], S. Pukatzki[1]; [1]Univ. of Alberta, Edmonton, AB, CANADA, [2]Univ. of Texas at Brownsville, Brownsville, TX.

2210 The Central Region of the Type III Secretion System Protein YopD is Essential for *Yersinia Pseudotuberculosis* Virulence
W. Adams; Univ. of California Santa Cruz, San Jose, CA.

2211 Gangliosides Mediate the Entry of Botulinum Neurotoxin Serotype C into Neurons
A. P. Karalewitz, Z. Fu, J-J. Kim, J. T. Barbieri; Med. Coll. of Wisconsin, Milwaukee, WI.

2212 Production and Quantification of *Bordetella pertussis* Adenylate Cyclase Toxin *in vitro* and *in vivo*
M. C. Gray[1], T. Merkel[2], C. D. Paddock[3], T. F. Jones[3], J. M. Warfel[2], J. C. Eby[1], G. M. Donato[1], **E. L. Hewlett**[1]; [1]Univ. of Virginia, Charlottesville, VA, [2]Ctr. for Biologics Evaluation and Res., Food and Drug Admin., Bethesda, MD, [3]Ctr. for Disease Control and Prevention, Atlanta, GA.

2213 *Pseudomonas aeruginosa* Rip Protease MucP can Overcome Mutations in a AlgO Periplasmic Protease to Restore Alginate Production in Nonmucoid Revertants
C. Ceballos, L. Florez, I. Lollett, C. Sanchez, R. J. Smiddy, R. T. Sautter, M. Stylianou, L. Schneper, K. Mathee; Florida Intl. Univ., Miami, FL.

2214 In Vivo Toxicity Comparisons of Crude vs. Purified Botulinum Neurotoxin Serotype E Toxins
L. W. Cheng[1], T. D. Henderson, II[1], W. H. Tepp[2], E. A. Johnson[3], E. A. Johnson[2]; [1]USDA, Albany, CA, [2]Univ. of Wisconsin-Madison, Madison, WI, [3]Univ. of Wisconsin-Madison, Madison', CA.

2215 Impact of *Clostridium difficile* Toxin TcdB on Human Peripheral White Blood Cells
S. Barua, J. D. Ballard; Oklahoma Univ. Hlth.Sci. Ctr., Oklahoma City, OK.

2216 Social Aggression during Bacterial Multicellular Behavior
S. D. Himpsl, S. Pickens, J. Zora, J. R. Lindner, C. J. Alteri; H. L. T. Mobley, Univ. of Michigan Med. Sch., Ann Arbor, MI.

2217 Two Posttranslational Regulatory Pathways Control the Activity of a Type VI Secretion System in *Pseudomonas aeruginosa*
J. M. Silverman, L. S. Austin, F. Hsu, R. D. Hood, K. G. Hicks, J. D. Mougous; Univ. of Washington, Seattle, WA.

2218 Biophysical Characterization for Preformulation of Recombinant IpaB from *Shigella flexneri* as a Candidate Subunit Vaccine
S. P. Choudhari, X. Chen, K. P. Pendleton, W. L. Picking; Oklahoma State Univ., Stillwater, OK.

2219 Tetanus Neurotoxin and Botulinum Neurotoxin A Utilize Unique Mechanisms to Enter Neurons of the Central Nervous System
F. C. Blum, A. R. Kroken, J. T. Barbieri; Med. Coll. of Wisconsin, Milwaukee, WI.

2220 Domain mapping and Intracellular Signalling in the Type III Secretion Apparatus of *Chlamydia pneumoniae*
R. C. Clayden, T. L. Leighton, J. B. Mahony; McMaster Univ., Hamilton, ON, CANADA.

2221 Export Signals of the *Pseudomonas aeruginosa* Type III Secretion Translocator PopD
A. Tomalka, C. M. Stopford, P. C. Lee, A. Rietsch; Case Western Reserve Univ., Cleveland, OH.

2222 Essential *Staphylococcus aureus* toxin export system
S. S. Chatterjee[1], H-S. Joo[1], E. R. Fischer[2], G. Y. Cheung[1], M. Otto[1]; [1]Pathogen Molecular Genetics Section, Lab. of Human Bacterial Pathogenesis, NIAID, NIH, Bethesda, MD, [2]Microscopy Unit, Rocky Mountain Lab., NIAID, NIH, Hamilton, MT.

2223 Staphylococcal Bi-Component Leukotoxins LukG/LukH and Panton-Valentine leukocidin (PVL) Have Different Effects on Neutrophils
M. Yanai[1], M. A. Rocha[1], A. Chintalacharuvu[1], K. Chintalacharuvu[1], D. O. Beenhouwer[1,2]; [1]VA Greater Los Angeles, Los Angeles, CA, [2]Univ. of California, Los Angeles, CA.

2224 Penetration of *Staphylococcus aureus* Toxic Shock Syndrome Toxin-1 into Vaginal Mucosa causes Proinflammatory Effects
A. N. Gillman, L. Breshears, M. L. Peterson; Univ. of Minnesota, Minneapolis, MN.

2225 Determining the Prevalence, Contents, and Function of the Gonococcal Genetic Island in *Neisseria meningitidis*
K. L. Woodhams, Z. L. Benet, S. E. Blonsky, K. T. Hackett, J. P. Dillard; Univ. of Wisconsin-Madison, Madison, WI.

2226 Ganglioside binding is a rate-limiting step for the entry of Botulinum Neurotoxin A into neurons
A. R. Kroken, J. T. Barbieri; Med. Coll. of Wisconsin, Milwaukee, WI.

2227 Structural Basis for Type VI Secretion Effector Recognition by a Cognate Immunity Protein
M. Li[1], I. Le Trong[2], M. A. Carl[1], E. T. Larson[3], S. Chou[1], J. De Leon[1], S. L. Dove[4], R. E. Stenkamp[2], J. D. Mougous[1]; [1]Univ. of Washington, Dept. of Microbiol., Seattle, WA, [2]Univ. of Washington, Dept. of Biological Structure, Seattle, WA, [3]Univ. of Washington, Dept. of Biochemistry, Seattle, WA, [4]Div. of Infectious Diseases, Children's Hosp., Harvard Med. Sch., Boston, MA.

2228 Trans-envelope Signaling Leading to H1-T6SS Activation Requires an OM Lipoprotein and an ABC Transporter
M. G. Casabona[1], J. M. Silverman[2], K. Sall[1], Y. Couté[3], D. Grunwald[1], J. D. Mougous[2], S. Elsen[1], I. Attrée[1]; [1]iRTSV, CNRS ERL5261, 38054 GRENOBLE cedex 09, FRANCE, [2]Dept. of Microbiol., Univ. of Washington, Seattle, WA 98195, WA, [3]iRTSV, U1035 INSERM-CEA, 38054 GRENOBLE cedex 09, FRANCE.

2229 Activation of the H2-Type VI Secretion System (H2-T6SS) Cluster in *Pseudomonas aeruginosa*
C. A. Jones, A. Filloux; Imperial Coll. London, London, UNITED KINGDOM.

2230 Characterization of Type III Secretion System (T3SS) from Clinical and Oyster *Vibrio parahaemolyticus* Isolates
C. H. M. Luedeke[1,2], M. Fischer[2], J. L. Jones[1]; [1]Food and Drug Admin., Dauphin Island, AL, [2]Univ. of Hamburg, Hamburg, GERMANY.

2231 An Novel F-Actin-Binding Type III Secretion Effector is Required for *Vibrio parahaemolyticus*-Induced Enterotoxicity
H. Hiyoshi, T. Kodama, K. Saito, K. Gotoh, S. Matsuda, Y. Akeda, T. Honda, T. Iida; Res. Inst. for Microbial Diseases, Osaka Univ., Osaka, JAPAN.

2232 Characterization of Insecticidal Toxin and Pathogenicity of *Pseudomonas taiwanensis* against Insects
W-J. Chen[1,2], J-R. Liu[1,2], M-C. Shih[1,2]; [1]Inst. of Biotechnology, Natl. Taiwan Univ., Taipei, TAIWAN, [2]Agricultural Biotechnology Res. Ctr., Academia Sinica, Taipei, TAIWAN.

173 Detection of C. difficile (Division C)

10:45 a.m. – 12:30 p.m.; Poster Hall

2233 Detection of *Clostridium* difficile Infection and Other Pathogens in Children with Diarrhea by FilmArray GI Pouch
B. Harrel[1], M. Vaughn[1], J. Gardner[1], C. Li[1], R. Wallace[1], R. Crisp[1], **A. Pavia**[2], T. Barney[3], G. Alger[3,2], J. Daly[3,2], M. Rogatcheva[1]; [1]Idaho Technology Inc, Salt Lake City, UT, [2]Univ. of Utah, Salt Lake City, UT, [3]Primary Children's Med. Ctr., Salt Lake City, UT.

2234 Comparison of Two EIA Testing Methodologies, Cytotoxin Neutralization Assay and Loop-Mediated Isothermal DNA Amplification for the Detection of *Clostridium difficile*
S. Milburn[1], B. Conkey[1], G. Peters[1], S. Schofield[1], B. Standon[1], J. I. Stuart[1,2], M. John[1,2], R. Lannigan[1,2], Z. Hussain[1,2]; [1]London Hlth.Sci. Ctr., London, ON, CANADA, [2]Schulich Sch. of Med. at the Univ. of Western Ontario, London, ON, CANADA.

2235 Comparison of the BD Max™ Cdiff Assay (BD Diagnostics, Québec, CAN) for the Direct Detection of the Toxin B Gene to Anaerobic Toxigenic Culture in Two Geographically Diverse Sites
M. Richards[1], D. Fuller[2], P. D. Stamper[3], W. Babiker[1], B. Ellis[1], L. Gluck[1], L. Rosas[1], R. Buckner[2], A. June[2], K. Newcomer[2], J. Talbott[2], S. Bouchard[4], P. Qin[4], T. Karchmer[5], T. E. Davis[2], K. C. Carroll[3,1]; [1]Johns Hopkins Hosp., Baltimore, MD, [2]Dept. of Pathology and Lab. Med., Wishard Hlth.Services, Indianapolis, IN, [3]Johns Hopkins Univ., Baltimore, MD, [4]BD Diagnostics-Infectious Disease, Sparks, MD, [5]BD Diagnostics-Infectious Disease, Sparks, NJ, Baltimore, MD.

2236 Validating a two-step Algorithm for the Idenfification of Toxigenic *Clostridium difficile* in a Community Hospital
R. C. Clark[1], J. M. Miller[2]; [1]Northside Hosp., Atlanta, GA, [2]Microbiol. Technical Services, LLC, Atlanta, GA.

2237 Performance of the Portrait Toxigenic *C. difficile* Assay Compared to the BD GeneOhm Cdiff PCR Assay and Toxigenic Culture for Diagnosing *Clostridium difficile* Infection
G. A. Denys, P. B. Renzi, K. M. Koch, R. F. Relich; Indiana Univ. Hlth. Pathology Lab., Indianapolis, IN.

2238 Clinical Comparison of Great Basin Corporation's Portrait Toxigenic *Clostridium difficile* Assay and Toxigenic Bacterial Culture
J. A. Daly[1], G. Alger[1], N. Fenn[1], M. Western[1], T. Barney[1], R. Grand-Pre[1], M. Dickey[1], A. Phillips[1], K. Korgenski[1], A. Blaschke[2]; [1]Primary Children's Med. Ctr., Salt Lake City, UT, [2]Univ. of Utah, Dept. of Pediatrics, Salt Lake City, UT.

2239 Is GDH EIA a Reliable Screening Test for Toxigenic *C. difficile*?
I. Yeung, T. Tucker, M. Stanley, J. Schapiro, T. Lorey; TPMG Regional Lab., Berkeley, CA.

2240 Multicenter clinical evaluation of the Portrait Toxigenic *C. difficile* Assay for detection of toxigenic *C. difficile* directly from clinical specimens
T-L. A. Mackey[1], K. T. Insyxiengmay[1], J. A. Daly[2], G. Alger[2], G. A. Denys[3], L. R. Peterson[4], S. C. Kehl[5,6], B. W. Buchan[5,1], N. A. Ledeboer[5,1]; [1]Dynacare Lab., Milwaukee, WI, [2]Univ. of Utah, Salt Lake City, UT, [3]Indiana Univ. Hlth.Pathology Lab., Indianapolis, IN, [4]NorthShore Univ. Hlth.System, Evanston, IL, [5]Med. Coll. of Wisconsin, Milwaukee, WI, [6]Children's Hosp. of Wisconsin, Milwaukee, WI.

2241 Comparison of Three Diagnostic Assays for the Detection of Toxigenic *Clostridium difficile* Infection
A. Majury[1], J. Krolik[1], C. Kuca[2], **J. Dien Bard**[1]; [1]Queen's Univ., ON, CANADA, [2]St. Lawrence Coll., ON, CANADA.

2242 Evaluation of an Automated, Real-Time PCR Assay for the Detection of *Clostridium difficile* in Stool Specimens
M. C. Smith[1], A. E. Crist, Jr[1], D. A. Bankert[1], C. M. Vaughn[1], K. S. Young[1], K. H. Fisher[1], S. J. Nelsen[1], S. L. Wetzel[1], S. L. Holtzapple[1], D. A. Marks[1], C. L. Zibura[1], R. M. Patti[2], S. Bouchard[3], P. Qin[3], T. Karchmer[3]; [1]Clinical Microbiol. Lab., York Hosp., York, PA, [2]Wellspan Pharmacy, York Hosp., York, PA, [3]BD Diagnostics-Infectious Disease, Sparks, MD.

2243 Impact of *C. difficile* Laboratory Testing Procedures on Physician Treatment Decisions
M. E. Navas, J. R. DiPersio; Summa Hlth.System, Akron, OH.

2244 Comparison of the IMDx™ *C. difficile* for Abbott m2000™ Assay to Cell Culture Cytoxicity Neutralization (CCNA) and a Two Step Algorithm (TSA) for Detection of Toxigenic *C. difficile*
M. Garrasi, C. Young, D. Newton, **W. D. LEBAR**; Univ. of Michigan Hlth.System, Ann Arbor, MI.

2245 Fully Automated Detection of *Clostridium difficile* by Microfluidic PCR
M. Hug[1], T. Djuric[1], A. Stroehle[2], **M. Altwegg**[1]; [1]Bioanalytica AG, Luzern [6], SWITZERLAND, [2]MCL Lab., Bern, SWITZERLAND.

2246 The Most Efficient, ASM-recommended Algorithm for Diagnosis of *Clostridium difficile* in a High-throughput Laboratory Setting
S. Juretschko[1,2], D. Dryja[1,2]; [1]Kaleida Hlth., Ctr. for Lab. Med., Buffalo, NY, [2]Univ. of Buffalo, Buffalo, NY.

2247 Comparison of *in-vitro* Glutamate Dehydrogenase and Toxin Levels in Different *C. difficile* Strains
J. Kraft, C. Woodward, G. Stroup, S. Elagin; Meridian BioSci., Cincinnati, OH.

2248 Detection of *Clostridium difficile* Toxins A/B and Binary Toxin using Pairs of Slow Off-rate Modified Aptamers
U. A. Ochsner, E. Katilius, D. Maul, L. Gold, N. Janjic; Somalogic, Inc., Boulder, CO.

2249 Development and Evaluation of a Rapid Diagnostic Test for Detection of *Clostridium difficile* Antigen in Faecal Samples
P. Mertens, T. Simon, L. Denorme, T. Leclipteux; CorisBioconcept, Gembloux, BELGIUM.

2250 Fecal Lactoferrin as a Measure of Colonic Inflammation Among Patients Undergoing *Clostridium difficile* Testing
T. Ekhmimi, P. L. Perrotta, **P. R. LaSala**; West Virginia Univ., Morgantown, WV.

2251 Comparison of a New Chromogenic *Clostridium difficile* Culture Medium to a Selective Medium and Toxin Detection by a PCR Based System: Analysis of Culture Positive-Toxin Negative Isolates in a Veteran Population
S. M. Hwang[1], U. Bui[1], J-M. Balada-Llasat[2], X. Qin[3], A. Harrington[3], **J. E. Clarridge, III**[3]; [1]VA Med. Ctr., Seattle, WA, [2]Univ. of Ohio, Columbus, OH, [3]Univ. of Washington, Seattle, WA.

2252 Evaluation of the Analytical Reactivity (Inclusivity) and Specificity (Cross-Reactivity) of the BD MAX Cdiff Assay a New Automated Molecular Assay
C. Lehouillier, N. Paquette, I. Paradis, R. Therrien, C. Roger-Dalbert; BD Diagnostics- Infectious Disease, Quebec, QC, CANADA.

2253 Evaluation of the Analytical Sensitivity (Limit of Detection) of the BD MAX Cdiff Assay a New Automated Molecular Assay
C. Roger-Dalbert, C. Lehouillier, N. Paquette; BD Diagnostics- Infectious Disease, Quebec, QC, CANADA.

174 Diagnostic Virology (Division C)

10:45 a.m. – 12:30 p.m.; Poster Hall

2254 Diagnostic Utility of Polymerase Chain Reaction for the Diagnosis of Genital Herpes
K. Goyal, R. Ratho, A. Kanwar, B. Mishra, M. P. Singh; Post Graduate Inst. of Med. Ed. and Res., Chandigarh, INDIA.

2255 Development of a Novel, Rapid and Extraction Free Molecular Assay for the Detec and 2 and Varicella Zoster Virus in Lesion Specimens
C. J. Lewis[1], M. Hata[1], N. Mohamed[1], V. Armendarez[2], **R. Kelly**[1], R. Lollar[1], T. A. Ranalli[2], T. T. Stenzel[2]; [1]Diagnostic Hybrids/Quidel, Athens, OH, [2]Quidel, San Diego, CA.

2256 Prevalence and Seasonal Distribution of Norovirus Infection in Pediatric Patients
R. R. Chamberland, Ph.D.[1], C. D. Doern[2], G. A. Storch[3], C-A. D. Burnham[3]; [1]Saint Louis Univ., St. Louis, MO, [2]Univ. of Texas Southwestern Med. Ctr., Dallas, TX, [3]Washington Univ. Sch. of Med., St. Louis, MO.

2257 Clinical Significance of Low CMV DNA Levels in Human Plasma
J. Waggoner, B. A. Pinsky; Stanford Univ., Palo Alto, CA.

2258 Preliminary Evaluation of the GenturaDx IDbox™ HSV 1/2 Assay
S. Miller[1], E. Samayoa[1], L. Post[1], C. Wright[1], N. Visomblin[2], A. Ruskin[2], K. Mai[2], S. Deka[2]; [1]UCSF, San Francisco, CA, [2]GenturaDx, Hayward, CA.

2259 Sequencing-Based Genotyping of Mixed Human Papillomavirus Infections Using RipSeq Software
K. D. Tardif[1], K. E. Simmon[2], O. Kommedal[3,4], R. Schlaberg[1,5]; [1]ARUP Inst. for Clinical and Experimental Pathology, Salt Lake City, UT, [2]Isentio US, Sunnyvale, CA, [3]Univ. of Bergen, NORWAY, [4]Isentio AS, Paradis, NORWAY, [5]Univ. of Utah Sch. of Med., Dept. of Pathology, Salt Lake City, UT.

2260 Symptoms Associated with Molecular Viral Detection in the Utah Better Identification of Germs-Longitudinal Viral Epidemiology (BIG-LoVE) Study
C. L. Byington[1], K. Ampofo[1], A. Herbener[1], T. Miller[2], C. Stockman[1], X. Sheng[1], A. T. Pavia[1], **R. Crisp**[2]; [1]Univ. of Utah, Salt Lake City, UT, [2]Idaho Technology, Inc, Salt Lake City, UT.

2261 Possible Suppression of Hepatitis B Virus in HBV/HDV Co-infected Patients
S. Khan, **A. I. Khan**, Z. Zehravi, S. B. Mohsin, A. Khokhar, T. Mushtaq, M. R. Khanani; Dow Univ. of Hlth.Sci., Karachi, PAKISTAN.

2262 Detection of Hepatitis C Virus and Hepatitis B Virus Coinfection Using Polymerase Chain Reaction
Z. Zehravi[1], **S. Khan**[2], S. B. Mohsin[1], A. I. Khan[1], R. Manal[1], M. R. Khanani[1]; [1]Dow Univ. of Hlth.Sci., Karachi, PAKISTAN, [2]Aga Khan Univ., Karachi, PAKISTAN.

2263 Interpretation of Positive CSF PCR for Common Infectious Agents in the United States
A. Bhaskaran, D. Grant, A. Alatoom; Univ. of Texas Southwestern Med. Ctr., Dallas, TX.

2264 Evidence for Viral Reassortment of Vaccine-Derived Rotavirus Infection in Four Immunocompromised Pediatric Patients
S. N. Naccache[1], S. Mijatovic-Rustempasic[2], R. Gautam[2], M. D. Esona[2], M. M. Cortese[2], M. D. Bowen[2], C. Y. Chiu[1,3], S. Miller[1]; [1]Dept. of Lab. Med., Univ. of California, San Francisco, CA, [2]CDC, Atlanta, GA, [3]Dept. of Med., Univ. of California, San Francisco, CA.

2265 Evaluation of a DNA Amplification Assay for Detection and Typing of Herpes Simplex Virus from Clinical Samples
A. E. Crist, Jr.[1], D. A. Bankert[1], T. D. Bell[2], D. H. Sun[3], L. M. Annis[3]; [1]Clinical Microbiol. Lab., York Hosp., York, PA, [2]Dept. of Res., York Hosp., York, PA, [3]South Bend Med. Fndn., South Bend, IN.

2266 A Novel Method for Multiplex Respiratory Viral Detection Using an Electronic Sensor
C. Wojewoda, D. Kohn, L. Doyle, B. Yen-Lieberman; Cleveland Clinic, Cleveland, OH.

2267 Clinical Evaluation of the JBAIDS Influenza A & B Detection Kit and JBAIDS Influenza A Subtyping Kit
K. M. Bourzac[1], **S. Phipps**[1], B. Danboise[2], D. Faixs[3], J. Lane[4], V. Prakash[5], J. Russell[6], P. Beverly[7], J. C. Dabisch[8], B. Lingenfelter[1]; [1]Idaho Technology, Inc., Salt Lake City, UT, [2]Womac Army Med. Ctr., Fayetteville, NC, [3]Naval Hlth.Res. Ctr., San Diego, CA, [4]David Grant Med. Ctr., Farfield, CA, [5]Wright-Patterson Air Force Base, Dayton, OH, [6]Brooke Army Med. Ctr., San Antonio, TX, [7]United States Army Med. Materiel Dev. Activity, Fort Detrick, MD, [8]Joint Project Management Office for Chemical, Biological Med. Systems – Biosurveillance, Frederick, MD.

2268 Efficient Capture and Detection of Enveloped and Non Enveloped RNA and DNA Viruses Using Viro-Adembeads and Silica-Adembeads Magnetic Particles
F. Dorange[1], F. Freund[2], O. Robert[2], S. Godichaud[2], N. Dumey[1], **M. Gaboyard**[2]; [1]Texcell, Evry, FRANCE, [2]Ademtech, Pessac, FRANCE.

2269 Common Respiratory Pathogens Infection in Children with Severe Hand, Foot and Mouth Disease
X. Zhao, D. Zhu, Y. Yao; Beijing youan Hosp., capital Med. Univ., Beijing, CHINA.

2270 Dengue in Brazil: Epidemiology and Diagnosis over 25 Years by a Regional Reference Laboratory
F. B. Dos santos, A. De Filippis, M. Lima, F. Nogueira, N. Faria, J. Simões, S. Sampaio, P. Nunes, D. Lima, B. Gonçalves, C. Santos, C. de Sousa, M. da Silva, R. Nogueira; Oswaldo Cruz Inst., Rio de Janeiro, BRAZIL.

2271 Validation of an EBV Quantitative Assay Using Focus Diagnostics Reagents and 3M Integrated Cyclers: Comparative Analysis on 2 Instruments
R. C. Jerris, H. MacDonald, N. Kalath, D. Rosario, B. Rogers; Children's Hlth.care of Atlanta, Atlanta, GA.

2272 Evaluation of a Highly Sensitive Rapid Test for the Detection of Influenza Virus Types A and B
S. Whittier, S. Desai; Columbia Univ. Med Ctr, New York, NY.

2273 Performance of Epstein-barr Virus Serology Using the Algorithm Based on Three Ebv Enzyme Immuno-assays and Additional Immunoblot Including Avidity Testing to Conclude on One Serum Sample
P. Singer, P. Glasius, F. Vlaspolder; Med. Ctr. Alkmaar, Alkmaar, NETHERLANDS.

2274 Isolation of Respiratory Syncytial Virus (RSV) During "Offset" Months: Is the RSV Season Extending?
E. M. Sordillo[1], W. H. Riley[1,2]; [1]St. Luke's Hosp. Ctr., New York, NY, [2]Beth Israel Med. Ctr., New York, NY.

2275 Performance of POC Fluorescent Immunoasay for Influenza A and B versus Culture and PCR
R. Egan, Ph.D.[1], M. Hale[1], R. Lollar[2], M. Menegus[3], A. Bonner[4], J. Tamerius[1]; [1]Quidel Corp., San Diego, CA, [2]Diagnostic Hybrids Inc., Athens, OH, [3]Univ. of Rochester, Dept. of Microbiol., Rochester, NY, [4]Dell Children's Med. Ctr., Austin, TX.

2276 Quality Assurance Practices for Rapid Influenza Diagnostic Testing in Outpatient Settings
N. Kupka[1], S. Schmaltz[1], S. Barrett[1], B. A. Zehnbauer[2], L. O. Williams[2]; [1]The Joint Commission, Oakbrook Terrace, IL, [2]CDC, Atlanta, GA.

2277 Rapid Influenza Diagnostic Test (RIDT) Use and Antiviral Prescriptions in Outpatient Settings Pre- and Post- H1N1 Pandemic
L. O. Williams[1], S. Schmaltz[2], S. Barrett[2], B. A. Zehnbauer[1], N. Kupka[2]; [1]CDC, Atlanta, GA, [2]The Joint Commission, Oakbrook Terrace, IL.

2278 Comparison of Two FDA-Approved Human Papillomavirus Assays
I. W. Martin, H. B. Steinmetz, C. L. Lefferts, V. E. Johncox, L. J. Dumont, L. J. Tafe, G. J. Tsongalis; Dartmouth-Hitchcock Med. Ctr., Lebanon, NH.

175 STD Pathogens and Methods (Division C)

10:45 a.m. – 12:30 p.m.; Poster Hall

2279 Detection of Late or Latent Syphilis using Reverse Sequence Syphilis Screening Protocol
E. Adler, J. Gilbert, P. Gialanella, **M. H. Levi**; Montefiore Med. Ctr. and the Albert Einstein Coll. of Meicine, Bronx, NY.

2280 Evaluation and Clinical Impact of Equivocal Results when Using Gen-Probe APTIMA TIGRIS DTS COMBO for Detection of *Neisseria gonorrhoeae* and *Chlamydia trachomatis*
T. Ocampo, C. Starkey, M. Katanik, A. Kroeger, K. Marigney, M. Sikorski, S. Schindler, G. W. Procop, G. S. Hall; Cleveland Clinic, Cleveland, OH.

2281 Evaluation of a New Assay to Detect *Trichomonas* vaginalis in Vaginal and Endocervical Specimens
D. M. Berger, D. Hilligoss, C. Hasan, D. Knecht, F. Chen, B. Dellone, T. Purohit, K. Eckert, C. Martinaitis, L. Miller, D. K. Fox; BD Diagnostics, Sparks, MD.

2282 Bacteria in the First Void Urine of Urethritis Patients and Healthy Controls Analyzed by 454 High Throughput Sequencing
P. Ahrens[1], M. Frølund[1], W. Abu Al-Soud[2], A. Wikström[3], P. Lidbrink[3], M. Cullberg[3], S. J. Sørensen[2], J. S. Jensen[1]; [1]Statens Serum Inst., Copenhagen, DENMARK, [2]Dept. of Biology, Univ. of Copenhagen, Copenhagen, DENMARK, [3]Karolinska Univ. Hosp., Stockholm, SWEDEN.

2283 Characterisation of the Vaginal Flora in Women from Greenland
R. Datcu[1], D. Gesink[2], G. Mulvad[3], R. Montgomery-Andersen[4], E. Rink[5], A. Koch[1], P. Ahrens[1], J. Skov Jensen[1]; [1]Statens Serum Inst., Copenhagen, DENMARK, [2]Univ. of Toronto, Dalla Lana Sch. of Publ. Hlth., ON, CANADA, [3]Ctr. for Primary Care, Nuuk, GREENLAND, [4]Univ. of Greenland, Nuuk, GREENLAND, [5]Montana State Univ., Bozeman, MT.

2284 Prevalence of *Chlamydia trachomatis* and *Ureaplasma* Species in Healthy Women
T. Yamazaki[1], M. Matsumoto[1], J. Matsuo[1], K. Abe[2], K. Minami[2], H. Yamaguchi[1]; [1]Hokkaido Univ., Sapporo, JAPAN, [2]Toho Obstetrics & Gynecology Hosp., Sapporo, JAPAN.

2285 Transcription-mediated Amplification-based Screening of Male STI Clinic Patients for *Trichomonas vaginalis*
E. Munson[1], D. Wenten[2], P. Phipps[2], R. Gremminger[2], M. Napierala[1], R. Olson[1], D. Hamer[1]; [1]Wheaton Franciscan Lab., Wauwatosa, WI, [2]STD Specialties Clinic, Milwaukee, WI.

2286 Comparison of Two Amplification Systems with Ribosomal Rna as Target Manually and Full Automated for Detecting *Chlamydia trachomatis* and Neisseria Gonorrhea in Patient Samples
F. Vlaspolder, P. Glasius, Y. Severein, P. Singer; Med. Ctr. Alkmaar, Alkmaar, NETHERLANDS.

2287 Comparison of Commercial Hybridization and Automated Transcription-mediated Amplification Modalities for Detection of High-risk Human Papillomavirus Nucleic Acid
E. Munson, L. Kroeger, S. Balzer, J. Czarnecka, J. Griep, R. Amrhein, **K. Munson**, M. Napierala; Wheaton Franciscan Lab., Wauwatosa, WI.

2288 Evaluation of a Rapid Antigen Test for Detection of *Trichomonas vaginalis* in an Adolescent Female Population
A. Leber[1,2], J. Berry[1], C. Cummins[1], C. Holland-Hall[1,2]; [1]Nationwide Children's Hosp., Columbus, OH, [2]The Ohio State Univ. Coll. of Med., Columbus, OH.

2289 Agreement of Pre-Cytology Samples to Cell Enriched Fractions and the Remaining Liquid in Processed SurePath L-Pap Vials for the Diagnosis of *Chlamydia trachomatis* and *Neisseria gonorrhoeae*
M. A. Chernesky[1], D. Jang[1], E. Portillo[1], M. Smieja[1], J. Kapala[2], C. Doucette[2], J. Sumner[2], R. Ewert[3], C. MacRitchie[4], J. Gilchrist[1]; [1]St. Joseph's Hlth.care/McMaster Univ., Hamilton, ON, CANADA, [2]Gamma-Dynacare Med. Lab., Brampton, ON, CANADA, [3]Evergreen Ctr. for Street Youth, Toronto, ON, CANADA, [4]Hamilton Community Hlth.Ctr., Hamilton, ON, CANADA.

2290 Comparison of the Pap Test to a Molecular Transcription-Mediated Assay for the Detection of *Trichomonas vaginalis*
E. Choi[1], T. E. Davis[1], D. O'Brien[2], P. Lineback[3], S. Pattison[3], D. Schreiber[3], M. Randolph[2], D. D. Fuller[1]; [1]Indiana Univ. Sch. of Med., Indianapolis, IN, [2]Indiana Univ. Hlth., Indianapolis, IN, [3]Wishard Hlth. Services, Indianapolis, IN.

2291 Comparison of the Cepheid GeneXpert CT/NG Assay to Roche Amplicor CT Assay and the Abbott m2000 RealTime CT Assay for Detection of *Chlamydia trachomatis* in Ocular Samples from Tanzania
L. Dize[1], S. West[1], J. A. Williams[2], B. Van Der Pol[3], C. Gaydos[1]; [1]Johns Hopkins Univ., Baltimore, MD, [2]Indiana Univ., Indianapolis, IN, [3]Indiana Univ., Bloomington, IN.

2292 Use of BD *Affirm*™ VPIII Residual Samples to Detect *Chlamydia trachomatis* and *Neisseria gonorrhoeae* by Gen-Probe APTIMA COMBO 2 Assay
W. P. Chamberlain[1], I. Ratkiewicz[1], **P. Hamilton**[1], J. Aslanzadeh[2]; [1]Clinical Lab. Partners, Newington, CT, [2]Hartford Hosp., Hartford, CT.

2293 AlamarBlue (Resazurin) Assay is Effective for Measuring *Chlamydia trachomatis* Infection and Inhibitory Properties of Select Compounds
V. Sridharan, I. Osaka, P. S. Hefty; Univ. of Kansas, Lawrence, KS.

176 Models and Studies of Host-Pathogen Interactions III (Division D)

10:45 a.m. – 12:30 p.m.; Poster Hall

2294 Direct Stimulation of Pulmonary Inflammation by the Plasminogen Activator Protease of Yersinia Pests
L. M. Gielda, A. J. Caulfield, W. W. Lathem; Northwestern Univ., Chicago, IL.

2295 The Type III-Dependent XopN Effector of *Xanthomonas oryzae* pv. *oryzae* Interacts with a Hypothetical Protein OsXNP1 and a Thiamine Synthase as a Virulence Factor in Rice
H. Cheong[1], S. Koh[2], B-M. Lee[3], J. S. Moon[2], I. Hwang[1]; [1]Dept. of Agricultural Biotechnology, Seoul Natl. Univ., Seoul, KOREA, REPUBLIC OF, [2]Plant Systems Engineering Res. Ctr., Korea Res. Inst. of BioSci. and Biotechnology, Daejeon, KOREA, REPUBLIC OF, [3]Natl. Academy of Agricultural Sci., Rural Dev. Admin., Suwon, KOREA, REPUBLIC OF.

2296 Type III Secretion System Needle Proteins' N-terminus conceals a PAMP
D. L. Jessen, P. Osei-Owusu, M. L. Nilles; Univ. of North Dakota, Sch. of Med. and Hlth.Sci., Grand Forks, ND.

2297 Investigation of Dissemination of Inhalational Anthrax in Mice
R. D. Plaut, V. K. Kelly, G. M. Lee, S. Stibitz, T. J. Merkel; Food and Drug Admin., Bethesda, MD.

2298 Neuropathogen Bacterial Peptides Mediated Electrophysiological Impact on K+ Channels of Hippocampal Neuronal Cell of BALB/c Mice
A. Taj[1], **N. Jamil**[1], F. Khan[2], S. Siddiqui[3]; [1]Univ. of Karachi, Karachi, PAKISTAN, [2]Dr. Punjwani Ctr. for Molecular Med. and Drug research Univ. of Karachi, Karachi, PAKISTAN, [3]Dr. Punjwani Ctr. for Molecular Med. and Drug Res. Univ. of Karachi, Karachi, PAKISTAN.

2299 Phage-Mediated Acquisition of a Type III Secreted Effector Protein Boosts Growth of *Salmonella* by Providing Access to a Host-Derived Respiratory Electron Acceptor
C. A. Lopez, S. E. Winter, F. Rivera-Chávez, A. J. Bäumler; Univ. of California, Davis, Davis, CA.

2300 Massive Immune Response to DiphtheriaToxin-Mediated Depletion Complicates the Use of the CD11c-DTRtg Model During Infection
L. Westermark, A. Fahlgren, M. Fällman; Dept. of Molecular Biology, Umea, SWEDEN.

2301 Streptococcal Surface Proteins Activate the Human Contact System and Control its Antibacterial Activity
K. Wollein Waldetoft[1], L. Svensson[1], M. Mörgelin[1], A. I. Olin[1], P. Nitsche-Schmitz[2], L. Björck[1], **I-M. Frick**[1]; [1]Dept of Clinical Sci., Lund Univ., Lund, SWEDEN, [2]Helmholz Ctr. for Infection Res., Braunschweig, GERMANY.

2302 *Campylobacter* fetus Subspecies as Model Organisms for Studying Niche and Host Adaption
H. Sprenger[1,2], S. Wolfgruber[1], S. Kienesberger[1,2,3], G. Gorkiewicz[2], E. L. Zechner[1]; [1]Univ. of Graz, AUSTRIA, [2]Med. Univ. of Graz, AUSTRIA, [3]New York Univ. Sch. of Med., NY.

2303 Bacterial Manipulation of Small Rho GTPases is a Pathogen-Induced Process Detected by the NOD1 Signaling Pathway
A. Keestra, **M. G. Winter**, J. Auburger, S. E. Winter, V. Poon, A. Kim, J. Waldenmaier, A. J. Bäumler; Univ. of California Davis, Davis, CA.

2304 Human Chemokines as Antimicrobial Peptides with Direct Parasiticidal Effect on *Leishmania mexicana in vitro*
S. K. Söbirk[1], M. Mörgelin[1], A. Egesten[2], P. Bates[3], O. Shannon[1], M. Collin[1]; [1]Div. of Infection Med., Dept. of Clinical Sci., Lund Univ., Lund, SWEDEN, [2]Section for Respiratory Med. & Allergology, Dept. of Clinical Sci., Lund Univ., Lund, SWEDEN, [3]Div. of BioMed. and Life Sci., Faculty of Hlth.and Med., Lancaster Univ., Lancaster, UNITED KINGDOM.

2305 Role of the Gallbladder Epithelium in Chronic Typhoid Carriage
G. Gonzalez-Escobedo, J. S. Gunn; The Ohio State Univ., Columbus, OH.

2306 Comparative *In Vitro* Adherence and Survival Modeling of *E. coli* O104:H4, the Causative Agent of the 2011 Outbreak in Germany, and Other Related Strains with Human Cells
C. Tartera, C. A. Elkins; FDA, Laurel, MD.

2307 An Animal Model for Investigating the Virulence of a Shiga Toxin Producing *Escherichia coli* O26:H- Strain in Calves
G. Valdivia Anda[1], P. R. Aranguré-Peraza[1], J. A. Montaraz-Crespo[1], C. Eslava-Campos[2], J. C. Del Río-García[1], A. O. Navarro[2], C. Cuenca-Verde[1], F. H. Alba[1]; [1]Facultad de Estudios Superiores, Cuautitlan, UNAM, Edo. Mexico, MEXICO, [2]UNAM Fac. de Med., DF, MEXICO.

2308 Interaction between *Ralstonia solanacearum* and *Arabidopsis thaliana*
R. H. Yoo[1,2], S. Koh[1], S. Lim[1,2], F. Zhao[1,2], I. Hwang[3], M-C. Yea[4], J. S. Moon[1,2]; [1]Korea Res. Inst. of BioSci. and Biotechnology, Daejeon, KOREA, REPUBLIC OF, [2]Korea Univ. of Sci. and Technology, Daejeon, KOREA, REPUBLIC OF, [3]Seoul Natl. Univ., Seoul, KOREA, REPUBLIC OF, [4]Animal, Plant and Fisheries Quarantine and Inspection Agency, Anyang, KOREA, REPUBLIC OF.

2309 Mutation of the *tonB* Gene Abolishes Both Fitness and Virulence of *Haemophilus influenzae* in the Rat Lung
T. W. Seale, B. K. Cole, D. J. Morton, P. W. Whitby, T. M. VanWagoner, T. L. Stull; Univ. Oklahoma Hlth. Sci. Ctr., Oklahoma City, OK.

2310 *P. gingivalis* Whole Cells Stimulate TLR2/TLR1 Heterodimers through Multiple Agonists
S. Jain, S. R. Coats, R. P. Darveau; Univ. of Washington, Seattle, WA.

2311 *Fusobacterium nucleatum* Infection-induced Periodontal Disease and Atherosclerosis in ApoE^{null} Mice
I. M. Velsko, M. Rivera, S. Chukkapalli, H. Chen, J-Y. Lee, I. Bhattacharyya, A. R. Lucas, K. N. Lakshmyya; Univ. of Florida, Gainesville, FL.

2312 Comparison of Uropathogenic *Escherichia coli* CFT073 and J96 Bacterial Burden in a Combination Diabetic-Urinary Tract Infection Model Using Quantitative PCR
J. L. Enderle, AL Miller, RB Pyles.; UTMB, Galveston, TX.

2313 Estrogen Levels Modulate Urothelial Barriers and Course of Urinary Tract Infection
C. Wang, J. Symington, E. Ma, J. French, M. Anand, M. Schmid, L. Wall, **I. U. Mysorekar**; Washington Univ. Sch. of Med., St. Louis, MO.

2314 Colonization of *Macaca mulatta* with Neisseria: Transmission, Persistence and Horizontal Gene Transfer
N. J. Weyand[1], A. Wertheimer[1], T. Hobbs[2], D. L. Higashi[1], L. Gregston[1], N. Taku[1], S. Planer[2], A. W. Legasse[2], S. W. Wong[2], M. K. Axthelm[2], **M. So**[1]; [1]BIO[5] Insitute, Univ. of Arizona, Tucson, AZ, [2]Oregon Natl. Primate Res. Ctr., OHSU, Beaverton, OR.

2315 *In Vivo* Bottlenecks Occur with *B. anthracis* Regardless of the Portal of Entry
D. E. Lowe, S. M. Ernst, Z. P. Weiner, I. J. Glomski; Univ. of Virginia, Charlottesville, VA.

2316 Host Lysozyme: a Specificity Determinant in the *Euprymna scolopes-Vibrio fischeri* Symbiosis
R. Augustin, N. Kremer, M. J. McFall-Ngai; Univ. of Wisconsin, Dept. of Med. Microbiol. and Immunology, Madison, WI.

2317 Association of *MageeiBacillus indolicus* (BVAB3) with Cervicitis Suggests the Virulence Potential of this Novel Vaginal Bacterium
L. K. Sycuro[1], L. M. Gorgos[2], contributed equally to this work, T. L. Fiedler[1], S. Srinivasan[1], D. N. Fredricks[1], J. M. Marrazzo[3]; [1]Fred Hutchinson Cancer Res. Ctr., Seattle, WA, [2]Infectious Disease Bureau, Publ. Hlth.Div. New Mexico Dept. of Hlth., Sante Fe, NM, [3]Univ. of Washington, Seattle, WA.

2318 Transmission of *Bifidobacterium* strains from mother to infant determined by Multi-Locus Sequencing Typing analysis
H. Makino[1], A. Kushiro[2], E. Ishikawa[2], A. Gawad[1], H. Kubota[1], T. Sakai[1], K. Oishi[1], R. Martin[3], K. B. Amor[4], R. Oozeer[3], J. Knol[3], R. Tanaka[1]; [1]Yakult Honsha European Res. Ctr. for Microbiol., ESV, Gent-Zwijnaarde, BELGIUM, [2]Yakult Central Inst. for Microbiol. Res., Tokyo, JAPAN, [3]Danone Res., Wageningen, NETHERLANDS, [4]Danone Res., SINGAPORE.

2319 Cif, a Virulence Factor of *Pseudomonas aeruginosa* is Tightly Regulated in Lung Infection
A. E. Ballok, A. K. Lindsay, G. A. O'Toole, Jr.; Dartmouth Med. Sch., Hanover, NH.

2320 Microarray Analysis of the Host Factors in Streptococcal Toxic Shock Syndrom E in a Mouse Model
T. Miyoshi-Akiyama[1], K. Ubukata[2], T. Kirikae[1]; [1]Natl. Ctr. for Global Hlth.and Med., Tokyo, JAPAN, [2]Kitasato Univ., Tokyo, JAPAN.

2321 Analysis of Differentially Expressed MicroRNAs and Their Targets in Soybean During *Phytophthora Sojae* Infection
J. T. Wong; Univ. of California, Riverside, Riverside, CA.

177 Immunity and Immunology (Division E)

10:45 a.m. – 12:30 p.m.; Poster Hall

2322 Molecular Pathogenesis of Tubal-Factor Infertility Caused by Bacterial STDs
J. U. Igietseme[1,2], Y. Omosun[2], K. Joseph[1], D. Ellerson[1], J. Partin[1], C. Bandea[1], F. O. Eko[2], C. M. Black[1]; [1]CDC/NCEZID, Atlanta, GA, [2]Morehouse Sch. of Med., Atlanta, GA.

2323 Major Histocompatibility Complex System of Poultry Workers and Their Natural Immunity Against Subtypes of Avian and Swine Influenza Viruses
N. Jamil[1], H. Siraj[1], A. H. Rizvi[2], M. N. Zafar[2]; [1]Univ. of Karachi, Karachi, PAKISTAN, [2]Sindh Inst. of Urology & Transplantation, Karachi, PAKISTAN.

2324 Utilization of a Novel Immunostimulatory Peptide for the Control of GBS Colonization
C. K. N. Cavaco[1], K. A. Patras[1], M. L. Thoman[2], S. D. Sanderson[3], E. L. Morgan[2], K. S. Doran[1]; [1]San Diego State Univ., San Diego, CA, [2]SDSU BioSci. Ctr., San Diego, CA, [3]Sch. of Allied Hlth.Professions, Univ. of Nebraska Med. Ctr., Omaha, NE.

2325 Resistance to Homotypic Challenge Is Observed in Rhesus *MacA*ques After *Chlamydia trachomatis* Genital Tract Infection
Y. Qu[1], C. O'Connell[1], A. Tarantal[2], C. W. Andrews Jr.[3], T. Darville[1,4]; [1]Dept. of Pediatrics, Children's Hosp. of Pittsburgh of UPMC,[15224], Pittsburgh, PA, [2]Dept. of Cell Biology and Human Anatomy, UC Davis, [95817], Sacramento, CA, [3]Milstead Pathology, 30324, Atlanta, GA, [4]Dept. of Immunology, Univ. of Pittsburgh Sch. of Med., 15201, Pittsburgh, PA.

2326 Ecto-5'-nucleotidase (CD73)-inhibition Up-regulates Pro-inflammatory Responses and Nitric Oxide Production after *Salmonella* Antigen Challenge in Murine Splenocytes
M. S. Alam, J. Kuo, M. Pereira, D. Gaines, E. Bigley, K. Williams; Ctr. for Food Safety and Nutrition, FDA, Laurel, MD.

2327 Dietary Fish Oils Protect Against Pneumococcal Pneumonia
C. A. Hinojosa, G. Fernandes, C. J. Orihuela; UTHSCSA, San Antonio, TX.

2328 Use of Surfactant Vesicles as a Safe Generalized Vaccine Platform to Generate Antibody Against Native Lipooligosaccharide
D. C. STEIN, L. Zimmerman, J. Park, L. Stocker, P. DeShong; Univ. of Maryland, COLLEGE PARK, MD.

2329 A Potential Universal Vaccine against Pathogenic *E. coli* Using Attenuated *Salmonella* Expressing *E. coli* Common Pilus
J. T. Maddux, R. Curtiss, III, M. Mellata; Arizona State Univ., Tempe, AZ.

2330 The Prevalence of Autoantibodies (ANA, AMA,ASMA, AGPCA) in Karachi, Pakistan
S. Khan, T. Mushtaq, N. Arshad, T. Kaleem, M. R. Khanani; Dow Univ. of Hlth.Sci., Karachi, PAKISTAN.

2331 Rapid Quantification of Pathogenic Fungi by Cellometer Image-Based Cytometry
L. L. Chan[1], C. A. Berkes[2], A. Wilkinson[2], B. Paradis[1]; [1]Nexcelom BioSci. LLC, Lawrence, MA, [2]Merrimack Coll., North Andover, MA.

2332 A multi-antigen vaccine against pathogenic *Yersinia* utilizing outer membrane vesicles
H. E. Petersen, L. A. Morici, W. Nieves; Tulane Univ., New Orleans, LA.

2333 *Schisandra chinensis* compounds induce HO-1 expression through Nrf2 and has anti-inflammatory activity in *Porphyromonas gingivalis*
S. Park[1], M. Jin[2], H. Kim[2], G. Jin[2], E. Ryu[1], Y. Kim[1], S-J. Lee[2]; [1]Bio-IT Fusion Technology Res. Inst., Pusan Natl. Univ., KOREA, REPUBLIC OF, [2]Dept. of Microbiol., Pusan Natl. Univ., KOREA, REPUBLIC OF.

2334 Attenuated *Yersinia ruckeri* Does Not Efficiently Deliver Plasmid DNA Vaccines to Rainbow Trout
J. Pirkkanen[1], S. Braigen[2,1], A. Dodwell[1], C. H. Thompson[1], R. Vafa[1], R. Thompson[3], J-A. C. Leong[4,5], B. E. Simon[1,5]; [1]The Evergreen State Coll., Olympia, WA, [2]Albert Einstein Coll. of Med., Bronx, NY, [3]US Geological Survey, Western Fisheries Res. Ctr., Seattle, WA, [4]Hawai'i Inst. of Marine Biology, Kne'ohe, HI, [5]Oregon State Univ., Corvallis, OR.

2335 Monoclonal Antibodies to Meningococcal Factor H Binding Protein with Overlapping Epitopes and Discordant Functional Activity
S. Giuntini, P. T. Beernink, D. C. Reason, D. M. Granoff; CHORI, Oakland, CA.

2336 Efficacy of Vaccines Targeting the Poly-N-acetyl Glucosamine Surface Polysaccharide of Shiga Toxin-Producing *E. coli*
X. Lu, D. Skurnik, C. Pozzi, D. Roux, J. Ritchie, M. Waldor, C. Cywes Bentley, G. Pier; Channing Lab., Brigham and Women's Hosp., Harvard Med. Sch., Boston, MA.

2337 Reduced Antimicrobial Cholesteryl Ester Content in Airway Secretions in Cystic Fibrosis
D. Ma[1], J. Tapia[1], R. Rodriguez[1], N. W. Keiser[2], J. A. Bartlett[2], C. M. Ryan[3], K. Faull[3], E. Zemanick[4,5], J. F. Engelhardt[2], P. B. McCray, Jr.[2], E. Porter[1]; [1]CalStateLA, Los Angeles, CA, [2]Univ. of Iowa, Iowa City, IA, [3]UCLA, Los Angeles, CA, [4]Univ. of Colorado Sch. of Med., Aurora, CO, [5]Children's Hosp. Colorado, Aurora, CO.

2338 Novel Function of the Multifaceted Host Defense Protein PLUNC: Carrier for Antimicrobial Cholesteryl Esters in Airway Secretions
B. Martin[1], N. A. Sandoval[1], J. A. Bartlett[2], L. Gakhar[2], D. Ma[1], A. Bakken[2], P. B. McCray, Jr.[2], E. Porter[1]; [1]CSULA, Los Angeles, CA, [2]Univ. of Iowa, Iowa City, IA.

2339 Construction and Evaluation of Live-attenuated Vaccines for *Pseudomonas aeruginosa* Serogroup O11 Strains
W. Wu[1], H. Hong[1], D. Traficante[1], M. Risech[1], **G. P. Priebe**[1,2]; [1]Brigham and Women's Hosp., Boston, MA, [2]Children's Hosp. Boston, Boston, MA.

2340 Vaccination against *Staphylococcus aureus* Antibiotic Resistance Factors with an Adenoviral Vector
R. Khare, M. A. Barry, R. Patel; Mayo Clinic, Rochester, MN.

2341 Development and Comparison of a Panel of Modified CS17 Fimbrial Adhesins Proteins as Components for an Adhesin Vaccine against Enterotoxigenic *E. coli*
Y. Liu[1], M. Maciel, Jr.[1], A. O'Dowd[1], S. Poole[1], J. Rollenhagen[1], S. J. Savarino[1,2]; [1]Naval Med. Res. Ctr., Silver Spring, MD, [2]Dept. of Pediatrics, Uniformed Svcs. Univ. of the Hlth.Sci., Bethesda, MD.

2342 Assays Targeting Inflammation to Differentiate Between Potentially Hazardous and Safe *Pseudomonas* Strains
A. F. Tayabali, K. Nguyen; Hlth.Canada, Ottawa, ON, CANADA.

2343 Study of Various Adjuvants for Anthrax Vaccination
Y. P. Gauthier[1], A. Borel[2], Y. Trescos[1], J. D. Mathieu[1], B. Verrier[2], J-N. Tournier[1]; [1]Inst. de Recherche Biomédicales des Armées, La Tronche, FRANCE, [2]Inst. de Biologie et Chimie des Protéines, Lyon, FRANCE.

2344 Mice Immunized Intranasally with an Attenuated *Escherichia coli* Strain Expressing the Enterotoxigenic *Escherichia coli* (ETEC) CFA/I Antigen Showed a Reduced Inflammatory Response Following ETEC Wild-Type Challenge
W. Byrd, E. C. Boedeker; Univ. of New Mexico, Albuquerque, NM.

2345 Effect of Concurrent Oral Administration of Ciprofloxacin on the Immunogenicity of a Live, Oral Anthrax Vaccine
B. Hanisch, S. Filippova, M. Foote, D. J. Kopecko, **M. Osorio**; CBER-FDA, Bethesda, MD.

2345B TLR2 Knock Out Mice Infected Intranasally with *Coccidioides* Posadasii Get Protected with a Live Attenuated Vaccine
M. d. Jimenez-Alzate[1], C. Pelaez-J[2], C-Y. Hung[1], G. T. Cole[1]; [1]UTSA, San Antonio, TX, [2]Univ. de Antioquia, Medellin, COLOMBIA.

178 Clinical Mycology—Diagnosis, Treatment and Epidemiology (Division F)

10:45 a.m. – 12:30 p.m.; Poster Hall

2346 *In Vitro* Photodynamic Inactivation of *Candida* species and Mouse Fibroblasts with Phenothiazinium Photosensitisers and Red Light
G. B. Rodrigues[1], N. Holman[2], M. D. Baruffi[1], M. Wainwright[2], **G. U. L. Braga**[1]; [1]Univ.e de São Paulo, Ribeirão Preto, BRAZIL, [2]Liverpool John Moores Univ., Liverpool, UNITED KINGDOM.

2347 Detection of *Histoplasma capsulatum* in Clinically-Relevant Formalin-Fixed Paraffin-Embedded Tissue
S. A. Koepsell, S. H. Hinrichs, **P. C. Iwen**; Univ. of Nebraska Med. Ctr., Omaha, NE.

2348 High Multiplex qPCR Platform for Rapid Detection of Fungal Pathogens
K. Madanahally Divakar, J. Lei, M-C. Lee, L. Kong; Primera Dx, Mansfield, MA.

2349 Clinical Spectrum and Epidemiology of the Emerging Yeast *Candida kefyr:* a 7-year Review in a Tertiary Care Center
S. F. Dufresne[1,2], K. A. Marr[1], E. Sydnor[1], S. X. Zhang[1], D. Neofytos[1]; [1]Johns Hopkins Univ., Baltimore, MD, [2]Université de Montréal, Montreal, QC, CANADA.

2350 Identifying the Natural Habitat of *Geomyces destructans*, the Etiologic Agent of Bat Geomycosis (White Nose Syndrome)
V. Chaturvedi, **T. Victor**, J. Okoniewski, X. Li, P. Ren, S. Chaturvedi; Wadsworth Ctr., Albany, NY.

2351 Development and Evaluation of a Slide Agglutination Assay for Detection of Antibody to Blastomyces dermatitidis
W. O. Hatch, A. Griffin, D. Call, T. Bybee, G. M. Scalarone; Idaho State Univ., Pocatello, ID.

2352 A Diagnostic Test that Detects and Discriminates Medically Relevant *Candida* Species within 1 Hour
G. C. Frech, D. Munns, J. Klonoski, A. Raigne, C. Pasko, W. Smith, R. Jenison, B. Hicke; Great Basin Corp., Salt Lake City, UT.

2353 *Cryptococcus gattii* Mimicking Cancer in Rio Grande do Sul, Brazil
A. G. Dall Bello, C. B. Severo, L. S. Guazzelli, F. M. Oliveira, L. C. Severo; UFRGS, Porto Alegre, BRAZIL.

2354 Radioimmunotherapy Treatment of *Cryptococcus neoformans* Does Not Damage Bystander Mammalian Cells
R. A. Bryan[1], Z. Jiang[1], A. Morgenstern[2], F. Bruchertseifer[2], A. Casadevall[1], E. Dadachova[1]; [1]Albert Einstein Coll. of Med., Bronx, NY, [2]Inst. for Transuranium Elements, Karlsruhe, GERMANY.

2355 Nitric Oxide Releasing Nanoparticles for Treatment of *Candida albicans* Burn Infections
C. Macherla[1], **M. Ahmadi**[1,2], D. Sanchez[3], A. J. Friedman[3], J. D. Nosanchuk[3], L. R. Martinez[1,3]; [1]Long Island Univ., Post, Brookville, NY, [2]Adelphi Univ., Garden City, NY, [3]Albert Einstein Coll. of Med., Bronx, NY.

2356 Keratomycosis in El Salvador
L. M. Linares; UJMD, San Salvador, EL SALVADOR.

2357 *Trichosporon Asahii* Outbreak in an Adult Icu: Multidrug Resistance, Clonal Genotype, and Phenotype Switching
X. Li, K. L. Kelsey, E. J. Clement, V. Chaturvedi, S. Chaturvedi; Wadsworth Ctr., Albany, NY.

2358 Sensitivity and Specificity Determinations with Blastomyces dermatitidis Yeast Lysate Antigens: Induction and Detection of Antibodies in Immunized Rabbits
G. M. Scalarone, T. R. Allison, G. M. Scalarone; Idaho State Univ., Pocatello, ID.

2359 Results from the China Hospital Invasive Fungal Surveillance Net 2009-2010: an Analysis of Susceptibilities of Yeast Species to Fluconazole and Voriconazole as Determined by CLSI Standardized Disk Diffusion
WITHDRAWN

2360 Detection and identification of *Candida* "psilosis" in clinical material in the Czech Republic
F. Ruzicka[1], M. Mahelova[1], V. Hola[1], M. Horka[1], R. Kadlec[2]; [1]Med. Faculty, Masaryk Univ., Brno, CZECH REPUBLIC, [2]VUCHS, Pohorelice, CZECH REPUBLIC.

2361 Resistance and Growth of *Fusarium spp.* in Contact Lens Disinfectant Solutions
M. Nikolic, S. Kilvington, A. Lam, N. Brady; Abbott Med. Optics, Santa Ana, CA.

2362 Pathogenicity of Melanin-Deficient Mutants of *Aspergillus fumigatus* after Administration of Antifungal Drugs
M. M. Davila, P. Bayman; Univ. of Puerto Rico, Rio Piedras, PR.

2363 An Assessment of Renal, Liver functions and *Cryptococcus neoformans* seropositivity in HIV-seropositive individuals in Nnamdi Azikiwe University Teaching Hospital, Nnewi
R. C. Chukwuanukwu, P. O. Manafa, C. C. Onyenekwe, E. C. Anetoh, C. M. Chukwuma, A. O. Oluboyo, N. N. Ezekwueme; Nnamdi Azikiwe Univ., Nnewi Campus, Anambra State, NIGERIA.

2364 Evaluation of two Enzyme Immunoassays for the Serological Detection of Coccidioidomycosis
R. Srikumar[1], S. D. Ambegaokar[1], L. de la Maza[1,2]; [1]Univ. of California, Irvine, Med. Ctr., Orange, CA, [2]Univ. of California, Irvine, Irvine, CA.

179 General Microbiology (Division I)

10:45 a.m. – 12:30 p.m.; Poster Hall

2365 Peptide Processing Predictability of a *Bacillus* sp. Al Hakam Cyclodehydratase
N. Q. Trinh[1], J. O. Melby[1,2], D. A. Mitchell[1,2]; [1]Univ. of Illinois at Urbana-Champaign, Urbana, IL, [2]Inst. for Genomic Biology, Urbana, IL.

2366 Overproduction and Easy Recovery of Target Gene Products from Cyanobacteria, Photosynthesizing Microorganisms
M. Asayama[1], A. Takanezawa[1], M. Takahashi[1], S. Numano[1], C. Kitazaki[1], T. Nishizawa[1,2], M. Shirai[1]; [1]Ibaraki Univ., Ibaraki, JAPAN, [2]Univ. of Tokyo, Tokyo, JAPAN.

2367 Influence of Culture Conditions on H2O2 Synthesis by *Lactobacillus jensenii*
A. S. Pohren, S. M. Holt; Western Illinois Univ., Macomb, IL.

2368 Growth and Sucrase Activity of *Leuconostoc* in Defined Media
N. P. Becker, S. M. Holt; Western Illinois Univ., Macomb, IL.

2369 Effects of Metals with Different Oxidation States on *Enterococcus hirae* Growth and Proton-Coupled Membrane Transport
Z. Vardanyan[1], **A. Trchounian**[2]; [1]Dept. of Biophysics, Faculty of Biology, Yerevan State Univ., Yerevan, ARMENIA, [2]Dept. of Biophysics and Dept. of Microbiol. and Biotechnology, Faculty of Biology, Yerevan State Univ., Yerevan, ARMENIA.

2370 The Small RNA GcvB Participates in a Coherent Feedforward Loop to Mediate the Amino Acids and Peptides Uptake during Anaerobic Physiology of *Escherichia coli*
X. Gao; Sch. of Biological Sci., HKU, Hong Kong, HONG KONG.

2371 Growth Promoting Effect of Graphene Oxides Films for *Escherichia coli*
P. Luo; Sherman Coll. of Chiropractic, Spartanburg, SC.

2372 Characterization of Key Elements in Clbp Peptidase Involved in the Synthesis of the Genotoxin Colibactin
A. Cougnoux[1], J. Delmas[1,2], F. Robin[1,2], R. Beyrouthy[1], D. Dubois[3], L. Gibold[3,4], G. Dalmasso[1], R. Bonnet[1,2]; [1]Clermont Université, Université d'Auvergne, M2iSH, BP10448, F-63000 Clermont-Ferrand., Clermont Ferrand, FRANCE, [2]CHU Clermont-Ferrand, Service de Bactériologie, F-63003 Clermont-Ferrand., Clermont Ferrand, FRANCE, [3]Clermont université, M2iSH, UMR Inserm, U1071, usc INRA 2018, Clermont Ferrand, FRANCE, [4]CHU Clermont-Ferrand, Service de Bactériologie, F-63003 Clermont-Ferrand., FRANCE.

2373 The Diversity of *Clostridium perfringens* Strains Isolated from Various Sources and Prevalence of Conjugative Plasmids Among the Strains
F. Rafii, M. Park, J. Deck, R. Nayak; Natl. Ctr. for Toxicological Res., Jefferson, AR.

2374 Structural Analysis of a Glycosyltransferase Required for Glycosylation of a Serine-rich Adhesin in *Streptococcus Agalactiae*
F. ZHU, H. Zhang, H. Wu; UAB, Birmingham, AL.

2375 The Antimicrobial Effect of Metallic Nanoparticles on the Growth of *Streptococcus pneumoniae*
R. K. Bibbs, R. D. Harris, S. R. Singh, V. A. Dennis, M. T. Coats; Alabama State Univ., Montgomery, AL.

2376 Cyclic Voltammetric, Fluorescence and Biological Analysis of Pyorubrin (Aeruginosin A), the Secreted Red Pigment of *Pseudomonas aeruginosa*
S. Su, E. A. Abu, R. E. Boissy, W. R. Heineman, D. J. Hassett; Univ. of Cincinnati, Cincinnati, OH.

2377 How Monomer Availability Shifts Physiology of Fungi During Plant Polymer Decomposition
S. F. Hsu, N. Clark, L. G. Leff, C. B. Blackwood; Kent State Univ., Kent, OH.

2378 Molecular Mechanisms of Morpholinos-based Diagnostics
Y. Liu[1], P. Gong[2], W. Qiao[1], D. Irving[1], R. Levicky[1]; [1]Polytechnic Inst. of New York Univ., New York, NY, [2]Columbia Univ., New York, NY.

2379 The Development of New Culture Method for Unculturable Soil Bacteria
J. Kim, V. H. Pham Thi; Kyonggi Univ., Suwon, KOREA, REPUBLIC OF.

2380 Characterization of Antagonistic Activity Expressed by *Shigella sonnei*
P. L. Oliveira[1], P. P. Magalhaes[1], M. A. B. Sousa[1,2], J. S. Oliveira[1], R. A. Leao[1], J. P. R. Silva[1], L. P. Silva[3], E. N. Mendes[1], M. M. Santoro[1], M. P. Bemquerer[3], **L. M. Farias**[1]; [1]Univ.e Federal de Minas Gerais, Belo Horizonte, BRAZIL, [2]Inst. Hermes Pardini, Belo Horizonte, BRAZIL, [3]EMBRAPA, Brasilia, BRAZIL.

2381 Molecular Identification of Filamentous Fungi Isolated from Documentary Material of the Archive of Bogota (Colombia)
J. Rivera[1], M. Paez[1], M. A. Tolosa[2], N. I. Castillo[3], **M. L. Posada-Buitrago**[4,2]; [1]Archivo de Bogota, Bogota, COLOMBIA, [2]Centro Internacional de Fisica, Bogota, COLOMBIA, [3]FCB, Univ. Antonio Nariño, Bogota, COLOMBIA, [4]FCNM, Univ. del Rosario, Bogota, COLOMBIA.

2382 The Use of a Non-Aqueous Osmium Solution and Osmium Vapor for the Inactivation and Preservation of Microorganisms in Dry, Powdered Samples for Examination by Electron Microscopy
R. K. Pope, C. Brantner, R. Hannah, S. Lehman, M. Firmani; NBACC, Fort Detrick, MD.

2383 Antimicrobial Activity of Aqueous Extracts of Isostichopus badionotus from the Coast of Yucatán, México
F. F. Moguel[1], E. Ortiz[2], R. Rodriguez[1], L. Olivera[1]; [1]Centro de Investigacion y de Estudios Avanzados del IPN, Merida, MEXICO, [2]Inst. Tecnologico de Mérida, Merida, MEXICO.

2384 Comparison of DNA Extraction Methods for Bifidobacteria in Fecal Matter
M. Ryazantseva, K. M. Kalanetra, C. Masarweh, D. A. Mills; Univ. of California, Davis, Davis, CA.

2385 The Antimicrobial Effects of Brewed Coffee Extracts and Their Metal Chelating Properties
E. Bouchard[1], K. Kennedy[1], M. Oulé[1], É. Dako[2], **A-M. Bernier**[1]; [1]Université de Saint-Boniface, Winnipeg, MB, CANADA, [2]Université de Moncton, Moncton, NB, CANADA.

2386 Vesicle Production by the Gram-Positive Bacterium *Bacillus subtilis*
L. C. Brown, A. Casadevall; Albert Einstein Coll. of Med., Bronx, NY.

2387 A Survey of University Students' Hand Hygiene Knowledge, Attitudes, Practices. Do We Need a Hand Hygiene Campaign?
M. Friesen, D. de Moissac, M. Couliby, C. Mourant, K. Van Den Bussche, R. Brière, A-M. Bernier; Université de Saint-Boniface, Winnipeg, MB, CANADA.

2388 Chromosomal Complementation Using Tn7 Transposon Vectors in *Enterobacteriaceae*
S. Crépin[1], J. Harel[2], **C. M. Dozois**[1]; [1]INRS-Inst. Armand-Frappier, Laval, QC, CANADA, [2]Université de Montréal, St-Hyacinthe, QC, CANADA.

2389 Evaluation of Genomic Methods for Rapid Detection and Identification of Bacterial and Mycotic Contaminants in Biologics
S. A. Wilson David, S. Parveen, J. L. Kenney, W. M. McCormick, R. K. Gupta; NIH / FDA, Kensington, MD.

2390 Antimicrobial Activity of Laban, an Arabic Yogurt
H. Anaqrah, D. L. Elmendorf; Saint Xavier Univ., Chicago, IL.

2391 Identification of Cellulolytic Filamentous Fungi Isolated from Heritage Documents of the Archive of Bogota (Colombia)
J. Rivera[1], J. C. Ochoa[1], M. Paez[1], M. L. Posada-Buitrago[2,3]; [1]Archivo de Bogota, Bogota, COLOMBIA, [2]Univ. del Rosario, Bogota, COLOMBIA, [3]Centro Internacional de Fisica, Bogota, COLOMBIA.

2392 Effect of Short Time Adhesion on Bacterial Respiration Assessed at Single Cell Level
J. Geng[1], C. Beloin[2], J-M. Ghigo[2], **N. Henry**[1]; [1]Inst. Curie, Paris, FRANCE, [2]Inst. Pasteur, Paris, FRANCE.

2393 *Rhodococcus* Deamidase of Pup (Dop) Involves in both the Removing Pup from Pupylated Proteins and the Degradation of Pup
H-Y. Yun[1], N. Tamura[2], T. Tamura[2]; [1]Hokkaido Univ., Sapporo, JAPAN, [2]AIST, Sapporo, JAPAN.

2394 Association Between Microbial Diversity in Periodontal Disease and Vascular Function
K. Schwarzberg, R. Le, B. Bharti, R. A. Gottlieb, S. T. Kelley; San Diego State Univ., San Diego, CA.

180 Microbial Responses to Stress and Environmental Stimuli I (Division I)

10:45 a.m. – 12:30 p.m.

2395 Effect of Nicotine in Cigarette on Bacteria
R. Chung[1], V. Hsu[2], R. Wong[1], J. Chan[1]; [1]California State Polytechnic Univ., Pomona, CA, [2]Diamond Bar High Sch., Diamond Bar, CA.

2396 Protein Acetylation in Procaryotes Increases Stress Resistance
Q. Ma[1], P. Pai[2], D. H. Russell[2], T. K. Wood[3]; [1]Tianjin Inst. of Industrial Biotechnology, Chinese Academy of Sci., Tianjin, CHINA, [2]Dept. of Chemistry, Texas A&M Univ., College Station, TX, [3]Dept. of Chemical Engineering, The Pennsylvania State Univ., PA.

2397 Regulation of the *Escherichia coli* Alternative Sigma Factor, σ^E, under Nutrient Limitation Conditions
S. Gopalkrishnan; The Pennsylvania State Univ., State College, PA.

2398 Photoreceptors in Chemotrophic Organisms: The Case of *Acinetobacter* sp
WITHDRAWN

2399 FPSS, Small Molecule Inhibitor of σB, Inhibits Induction of σB Activity by Environmental, Energy, and Cold Stresses in *Bacillus Subtilis*
D. Ringus, M. Wiedmann, K. J. Boor; Cornell Univ., Ithaca, NY.

2400 The Purple Non-sulfur Bacterium *Rhodopseudomonas palustris* Strain TIE-1 Displays Circadian Clock Properties upon Oxygen Entrainment
P. Ma[1,2], S. H. Zinder[1,3], D. H. Buckley[1,3], C. H. Johnson[2]; [1]Marine Biological Lab., Woods Hole, MA, [2]Vanderbilt Univ., Nashville, TN, [3]Cornell Univ., Ithaca, NY.

2401 Utilization of Alternative Carbon Sources by Strains of *Serratia marcescens*
K. Angriani, W. J. Kenyon; Univ. of West Georgia, Carrollton, GA.

2402 Properties and Functions of Manganese Catalases of *Bacillus* pumilus Spore Coat
A. Checinska, M. Burbank, A. J. Paszczynski; Univ. of Idaho, Moscow, ID.

2403 A Rhamnose-Regulated Arginine Decarboxylase System Increases Survival of Acid-Sensitive Vaccine Strains of *Salmonella* Typhi During Low pH Challenge
K. E. Brenneman, C. Willingham, J. C. Jensen, W. Kong, R. Curtiss, III, K. L. Roland; Arizona State Univ., Tempe, AZ.

2404 Characterization and Regulation of the Siderophore-Mediated Iron Uptake and Ferric Iron Transport System in the Algae-Associated *Marinobacter* algicola Strain DG893
A. Gärdes[1], N. Kastner[1], D. H. Green[2], C. J. Carrano[1]; [1]San Diego State Univ., San Diego, CA, [2]Scottish Association for Marine Sci., Scotland, UNITED KINGDOM.

2405 Characterization of Sporulation Histidine Kinases of Paeni-*Bacillus* polymyxa
S-K. Choi, S-Y. Park, S-H. Park; KRIBB, Daejon, KOREA, REPUBLIC OF.

2406 Characterization of Osmotic-induced Filaments of *Salmonella enterica*
Z. L. Pratt[1], B. Chen[1,2], B. T. Gietman[1,2], C. W. Kaspar[1,2], A. C. L. Wong[1,2]; [1]Dept. of Bacteriology, Univ. of Wisconsin-Madison, Madison, WI, [2]Food Res. Inst., Univ. of Wisconsin-Madison, Madison, WI.

2407 Role and New Targets for the Membrane Stress Response System BaeSR in *Salmonella* Typhimurium
C. Appia-Ayme, E. Patrick, G. Rowley; UEA, Norwich, UNITED KINGDOM.

2408 Tolerance of Methanogens to Heat (104 0C) Desiccation in an Air Atmosphere
U. H. Bhattad1, K. Cherukuri[1], P. Mathai[1], **A. E. Schauer-Gimenez**[2], J. S. Maki[1], D. H. Zitomer[1]; [1]Marquette Univ., Milwaukee, WI, [2]Mango Materials, Palo Alto, CA.

2409 Molecular Basis of Adaptation to Salt in *Desulfovibrio vulgaris* in an Evolutionary Context
A. Zhou[1], Z. He[1], E. Baidoo[2], K. Hillesland[3], M. P. Joachimiak[4], J. K. Baumohl[2], P. Benke[2], A. Mukhopadhyay[2], G. M. Zane[5], P. S. Dehal[2], J. D. Wall[5], A. P. Arkin[2], D. Stahl[3], T. C. Hazen[4], J. Zhou[1]; [1]Univ. of Oklahoma, Norman, OK, [2]Lawrence Berkeley Natl. Lab., Berkeley, CA, [3]Univ. of Washington, Seattle, WA, [4]Lawrence Berkeley Natl. Lab., Berekley, CA, [5]Univ. of Missouri, Columbia, MO.

2410 Live Cell Identification of Redox Regulated Dithiol Sensors in *Synechococcus* sp. PCC7002 by Chemical Probes
N. C. Sadler, A. T. Wright, M. P. Lewis, M. R. Melnicki, E. A. Hill, S. Datta, E. M. Zink, A. E. Konopka, A. S. Beliaev; Pacific Northwest Natl. Lab., Richland, WA.

2411 Characterization of Thiol/Disulfide redox system from *Leptospirillum ferriphilum* DSM 14647
WITHDRAWN

2412 Effect of Temporary Heating on Thermophilic Growth and CO Oxidation
C. E. King, G. M. King; Louisiana State Univ., Baton Rouge, LA.

2413 Methicillin-Resistant *Staphylococcus aureus* Displays Increased Susceptibility to Methicillin following Exposure to Nonthermal Plasma
J. R. Ferrell, C. J. Woolverton; Kent State Univ., Kent, OH.

2414 Utilization of Xenosiderophores in *Bacteroides*
A. S. Krykunivsky, **E. R. Rocha**; Dept. of Microbiol. and Immunology, East Carolina Univ. Brody Sch. of Med., Greenville, NC.

2415 The Role of the LytSR Two-Component Regulatory System in Adaptations to Cationic Antimicrobial Peptides in *Staphylococcus aureus*
S-J. Yang[1,2], K. W. Bayles[3], M. R. Yeaman[1,2], Y. Q. Xiong[1,2], A. S. Bayer[1,2]; [1]Harbor-UCLA, Torrance, CA, [2]David Geffen Sch. of Med. at UCLA, CA, [3]Univ. of Nebraska Med. Ctr., Omaha, NE.

2416 Changes in Soil Bacterial Community Structure with Increasing Disturbance Frequency
M. Kim[1], E. Heo[2], J. Chun[1], J. M. Adams[1]; [1]Biological Sci., Seoul Natl. Univ., Seoul, KOREA, REPUBLIC OF, [2]Civil and Environmental Engineering, Yonsei Univ., Seoul, KOREA, REPUBLIC OF.

2417 The Impact of Antibiotic Exposure on the Protein Profile of Outer Membrane Vesicles Produced by Resistant Strains of *Klebsiella pneumoniae*
M. Cleghorn, J. Costner, L. Hancik, K. Smyth, **T. N. Ellis**; Univ. of North Florida, Jacksonville, FL.

2418 Evaluation of Biosurfactants Produced by Yeast Isolated from Contaminated Soils
C. I. Saenz-Marta, J. C. Espinoza-Hicks, M. R. Peralta-Pérez, B. E. Rivera-Chavira, **G. V. Nevárez-Moorillón**; Univ. Autonoma de Chihuahua, Chihuahua, Chih., MEXICO.

2419 Peptoid Inhibits Essential Cellular Functions Through Unspecific Binding to DNA in *S. aureus*
S. Gottschalk, H. Ingmer, **L. E. Thomsen**; Univ. of Copenhagen, Frederiksberg, DENMARK.

2420 OtnA-OntB Modulate Capsular Polysaccharide and Polymyxin B Resistance in *Vibrio parahaemolyticus*
K. Mawatari, Y. Isumi, M. Hirayama, M. Maetani, T. Yamamoto, S. Hayashida, H. Iba, M. Aihara, T. Shimohata, A. Takahashi; Hlth.BioSci., the Univ. of Tokushima Graduate Sch., Tokushima, JAPAN.

181 Physiology, Metabolism and Enzymology I (Division K)

10:45 a.m. – 12:30 p.m.; Poster Hall

2421 Glutamic Acid-95 in the NqrE Subunit of the Na+-Pumping NADH:Quinone Oxidoreductase from *Vibrio cholerae* is Essential for Sodium Binding
J. J. Cho, B. Barquera, O. Juárez, D. Cook; Rensselaer Polytechnic Inst., Troy, NY.

2422 Purification, Cloning, and Characterization of a Cold-adapted Extracellular Esterase from the Psychrotrophic Bacterium *Pseudomonas mandelii* JR-1
C. Lee, J. Kim, S-H. Jang; Daegu Univ., Gyeongsan, KOREA, REPUBLIC OF.

2423 Role of Different Hydrogenases in H2 Production Activity by *Escherichia coli* During Mixed Carbon Fermentation at Low pH
K. Trchounian, A. Trchounian; Yerevan State Univ., Yerevan, ARMENIA.

2424 L-glucose Catabolism of *Paracoccus* Sp. 43p
T. Shimizu; Tsukuba Univ., Tsukuba, JAPAN.

2425 Regulation of *Escherichia coli* Anaerobic Fermentative Growth and Metabolism by Environment Redox Potential: Sensing, Effects and Mechanisms
A. Vassilian, **A. Trchounian**; Yerevan State Univ., Yerevan, ARMENIA.

2426 Characterization of Prokaryotic Types I and III Pantothenate Kinases from *Bacillus subtilis*
Y. Ogata[1], M. Asayama[1,2], Y. Tokutake[2], S. Chohnan[1,2]; [1]Ibaraki Univ. Coll. of Agriculture, Ibaraki, JAPAN, [2]Tokyo Univ. of Agriculture and Technology, Tokyo, JAPAN.

2427 Modification of the Acyl-CoA Cycling Method for Analysis of CoA Pools
Y. Tokutake[1,2], A. Saijo[3], W. Lio[1], Y. Ogata[3], A. Toyoda[1,3], S. Chohnan[1,3]; [1]Tokyo Univ. of Agriculture and Technology, Tokyo, JAPAN, [2]JSPS Res. Fellow, JAPAN, [3]Ibaraki Univ. Coll. of Agriculture, Ibaraki, JAPAN.

2428 CoaS (Formerly YhhK) is an Acetyl-CoA Sensor that is Required for Aspartate Decarboxylase (PanD) Autocleavage Under Physiological Conditions
T. Stuecker, K. Hodge, J. Escalante-Semerena; Univ. of Wisconsin, Madison, WI.

2429 Crystal Structure of UreI, the Proton-Gated Urea Channel of the Gastric Pathogen *Helicobacter pylori*
G. Sachs[1], D. Strugatsky[1], R. McNulty[2], K. Munson[1], S. Soltis[3], H. Luecke[2]; [1]UCLA/VA Greater Los Angeles Hlth.care System, Los Angeles, CA, [2]Univ. of California at Irvine, Irvine, CA, [3]Stanford Synchrontron Radiation Lightsource, Menlo Park, CA.

2430 Trehalose-related Gene Deletions in *Fusarium verticillioides*
B. A. Boudreau[1], T. M. Larson[2], D. W. Brown[2], M. Busman[2], E. S. Roberts[1], D. Nall[1], K. L. McQuade[1]; [1]Bradley Univ., Peoria, IL, [2]USDA-ARS, NCAUR, Peoria, IL.

2431 Purification and Characterization of Phosphonoglycans from *Glycomyces* sp. NRRL B-16210 and *Stackebrandtia nassauensis* NRRL B-16338
X. Yu[1,2], N. P. Price[3], W. W. Metcalf[1,2]; [1]Dept. of Microbiol., Univ. of Illinois at Urbana-Champaign, Urbana, IL, [2]Inst. for Genomic Biology, Univ. of Illinois at Urbana-Champaign, Urbana, IL, [3]Natl. Ctr. for Agricultural Utilization Res. (NCAUR), USDA-ARS, Peoria, IL.

2432 High-throughput Medium Optimization for *recA*lcitrant Microorganisms *Via* 13C-labeling Approach
L. He, L. You, Y. Tang; Washington Univ. in St. Louis, St. Louis, MO.

2433 The Molecular Basis of Specificity in the Biosynthesis of Vitamin B12 and its Analogs
T. S. Crofts, A. B. Hazra, J. L. A. Tran, E. C. Seth, M. E. Taga; Univ. of California, Berkeley, Berkeley, CA.

2434 Development of a Model Microbial Community for a Systems Biology Level Assessment of Metal-reduction
J. G. Moberly[1], T. J. Phelps[1], M. Podar[1], S. D. Brown[1], Z. K. Yang[1], M. M. Drake[1], T. C. Hazen[1,2], A. P. Arkin[3], A. V. Palumbo[1], D. A. Elias[1]; [1]Oak Ridge Natl. Lab., Oak Ridge, TN, [2]Univ. of Tennessee, Knoxville, TN, [3]Lawrence Berkeley Natl. Lab., Berkeley, CA.

2435 Screening and Characterization of Indole Acetic Acid from Microalgae
A. Ilavarasi[1], M. Shatheesh Kumar[2], N. Al-Harbi[3], **M. Gunasekaran**[4], N. Thajuddin[2]; [1]Bharathidasn Univ., Tiruchirappalli 620 024, INDIA, [2]Bharathidasan Univ., Tiruchirappalli 620 024, INDIA, [3]King Saud Univ., Riyadh 11451, SAUDI ARABIA, [4]Fisk Univ., Nashville, TN.

2436 A unique biotic/abiotic metabolism: Mechanistic studies of nitrate-dependent iron oxidation by *Acidovorax ebreus* strain TPSY
H. K. Carlson, I. C. Clark, A. T. Iavarone, R. A. Melnyk, J. D. Coates; Univ. of California, Berkeley, CA.

2437 A Mechanistic Understanding of Anthraquinone-2,6-disulfonate Oxidation Coupled to Perchlorate Reduction by *Azospira Suillum* PS
I. C. Clark, H. K. Carlson, R. A. Melnyk, S. W. Hermanowicz, J. D. Coates; UC Berkeley, Berkeley, CA.

2438 Genetic Analysis of the Upper Phenylacetate Catabolic Pathway in the Production of Tropodithietic Acid by *Phaeobacter gallaeciensis*
M. Berger[1], N. L. Brock[2], H. Liesegang[3], M. Dogs[1], I. Preuth[1], M. Simon[1], J. S. Dickschat[2], **T. Brinkhoff**[1]; [1]Univ. of Oldenburg, Oldenburg, GERMANY, [2]Technical Univ. Braunschweig, Braunschweig, GERMANY, [3]Univ. of Goettingen, Goettingen, GERMANY.

2439 Phenazines Differentially Affect Anaerobic Survival and Antimicrobial Resistance of *Pseudomonas* Bacteria *Via* Promoting Fe(III) Reduction
Y. Wang, X. Sui, H. Zheng, A. Rahman; Northwestern Univ., Evanston, IL.

2440 Dissimilatory Phosphite Oxidation in Wastewater Enrichments
I. A. Figueroa, J. D. Coates; UC Berkeley, Berkeley, CA.

2441 Enzymes Involved in Syntrophic Butyrate Oxidation in *Syntrophomonas wolfei*
B. R. Crable[1], J. R. Sieber[1], A. M. Henstra[2], R. R. O. Loo[2], J. A. Loo[2], R. P. Gunsalus[2], M. J. McInerney[1]; [1]Univ. of Oklahoma, Norman, OK, [2]Univ. of California - Los Angeles, Los Angeles, CA.

2442 Biochemical characterization of ferredoxin-NADP+ Reductase interaction with flavodoxin in *Pseudomonas putida*
J. Yeom, **W. Park**; Korea Univ., Seoul, KOREA, REPUBLIC OF.

2443 Alternative Electron Transfer Systems in *Desulfovibrio*-Methanogen Assemblies: Case Study of *Desulfovibrio* alaskensis str. G20-Methanogen Cocultures Grown on Lactate
B. Meyer[1], J. Kuehl[2], A. Deutschbauer[2], M. Price[2], A. Arkin[2], T. Hazen[3], D. Stahl[1]; [1]Univ. of Washington, Seattle, WA, [2]Lawrence Berkeley Natl. Lab., Berkeley, CA, [3]Univ. of Tennessee, Knoxville, TN.

2444 From Antagonism to Synergism: Roles of Different Phenazines in Bacterial-Fungal Interactions between *Pseudomonas aeruginosa* and *Aspergillus fumigatus*
H. Zheng, M. Liew, X. Lu, Y. Wang; Northwestern Univ., EVANSTON, IL.

2445 Redox Homeostasis Is Correlated with Anaerobic Survival in *Pseudomonas aeruginosa* and Mediated by Endogenous Phenazine Molecules
S. E. Kern[1,2], N. R. Glasser[1], D. K. Newman[1]; [1]California Inst. of Technology, Pasadena, CA, [2]Massachusetts Inst. of Technology, Cambridge, MA.

2446 RubisCO: One Enzyme for Distinct Carbon and Sulfur Metabolic Pathways
S. Dey, J. Singh, F. R. Tabita; Ohio State Univ., Columbus, OH.

2447 Structural Investigation of Phenol and *p*-cresol Activation in the Heterodimeric ArsAB Protein Involved in Phenolic-cobamide Biosynthesis in *Sporomusa ovata*
C. H. Chan, S. A. Newmister, I. Rayment, J. C. Escalante-Semerena; Univ. of Wisconsin, Madison, WI.

2448 Cloning and Partial Characterization of Alkylphenol Catabolic Genes from *Acinetobacter* sp. OP5 Grown on Long-chain Alkylphenols
T. N. Nguyen[1], **S-L. HUANG**[2,1]; [1]Inst. of Systems Biology and Bioinformatics, Natl. Central Univ., Chung-li, TAIWAN, [2]Dept. of Life Sciecnes, Natl. Central Univ., Chung-li, TAIWAN.

2449 *Escherichia coli* Deficient in an Isoaspartyl Protein Repair Enzyme Increase the Persister Fraction by a phoU-dependent Pathway
J. Ahn, J. E. Visick; North Central Coll., Naperville, IL.

182 Ecological Genomics and Microbial Genomes (Division N)

10:45 a.m. – 12:30 p.m.; Poster Hall

2450 Genomic Delineation of Bacillus atrophaeus variants
M. D. Krepps[1], M. Schoenberger[2], S. Broomall[3], L. A. McNew[3], E. W. Skowronski[3], C. Rosenzweig[3], H. S. Gibbons[3]; [1]Excet, Inc., Aberdeen Proving Ground, MD, [2]Sci. and Math Academy, Aberdeen High Sch., Aberdeen, MD, [3]US Army Edgewood Chemical Biological Ctr., Aberdeen Proving Ground, MD.

2451 *Sphingomonas wittichii* Strain RW1 Genome-wide Gene Expression Shifts in Response to Dioxins and Clay
B. Chai[1], T. V. Tsoi[1], S. Iwai[2], C. Liu[1], C. Gu[3], T. A. Johnson[1], J. A. Fish[1], B. J. Teppen[1], S. A. Hashsham[1], S. A. Boyd[1], J. R. Cole[1], J. M. Tiedje[1]; [1]Michigan State Univ., East Lansing, MI, [2]Univ. of California San Francisco, San Francisco, CA, [3]Nanjing Univ., Nanjing, CHINA.

2452 Population Genomics of *Mastigocladus laminosus:* Divergence with Gene Flow
C. Wall, **S. R. Miller**; Univ. of Montana, Missoula, MT.

2453 Genomic and physiological characterization of bacteria from the genus *Rhodanobacter*
S. Green[1], O. Prakash[2], P. Jasrotia[3], K. Jordan[4], L. Katz[5], L. Rishishwar[4], C. Schadt[6], S. Brooks[6], **J. Kostka**[4]; [1]Univ. of Illinois at Chicago, Chicago, IL, [2]Natl. Ctr. for Cell Sci., Pune, INDIA, [3]Florida State Univ., Tallahassee, FL, [4]Georgia Inst. of Technology, Atlanta, GA, [5]CDC, Atlanta, GA, [6]Oak Ridge Natl. Lab, Oak Ridge, TN.

2454 Genome Sequence Analysis of Multiple Bacterial Strains Isolated from the *Populus* Microbiome
D. A. Pelletier[1], T-Y. S. Lu[1], C. W. Schadt[1], T. V. Karpinets[1], S. M. Utturkar[1], S. D. Brown[1], P. K. Lankford[1], M. L. Land[1], A. L. Schaefer[2], C. S. Harwood[2], M. J. Doktycz[1]; [1]Oak Ridge Natl. Lab., Oak Ridge, TN, [2]Univ. of Washington, Seattle, WA.

2455 Functional Characterization of Plant Litter Decomposing Microbial Communities by High-Throughput Functional Metagenomics
M. Nyyssonen[1], C. Weihe[2], M. L. Goulden[3], K. K. Treseder[2], J. B. H. Martiny[2], A. C. Martiny[2,3], S. D. Allison[2,3], E. L. Brodie[1]; [1]Ecology Dept., Earth Sci. Div., Lawrence Berkeley Natl. Lab., Berkeley, CA, [2]Dept. of Ecology and Evolutionary Biology, Univ. of California, Irvine, CA, [3]Dept. of Earth System Sci., Univ. of California, Irvine, CA.

2456 Metabolic Interactions of an Alkane-Oxidizing Methanogenic Consortium Revealed by Single Cell Sequencing and Metatranscriptomics
M. Embree[1], H. Nagarajan[1], Z. Hailat[2], H. Chitsaz[2], K. Zengler[1]; [1]Univ. of California, San Diego, La Jolla, CA, [2]Wayne State Univ., Detroit, MI.

2457 Novel Mechanisms for Anaerobic Activation of Alkanes and Toluene in Ferroglobus placidus
D. E. Holmes[1], **J. Rocheleau**[1], C. Risso[2], M. Aklujar[2], J. Smith[2], L. Giloteaux[2], D. R. Lovley[2]; [1]Western New England Univ., Springfield, MA, [2]Univ. of Massachusetts Amherst, Amherst, MA.

2458 Metagenomic Insights into Evolution of a Heavy Metal-Contaminated Groundwater Microbial Community
C. L. Hemme[1], Y. Deng[1], T. J. Gentry[2], M. W. Fields[3], L. Wu[1], S. Green-Tringe[4], D. B. Watson[5], Z. He[1], P. Chain[6], T. C. Hazen[7], J. M. Tiedje[8], E. M. Rubin[4], J. Zhou[1]; [1]Univ. of Oklahoma, Norman, OK, [2]Texas A&M Univ., College Station, TX, [3]Montana State Univ., Bozeman, MT, [4]Joint Genome Inst., Walnut Creek, CA, [5]Oak Ridge Natl. Lab., Oak Ridge, TN, [6]Los Alamos Natl. Lab., Los Alamos, NM, [7]Univ. of Tennessee, Knoxville, TN, [8]Michigan State Univ., East Lansing, MI.

2459 Metagenomic binning and characterization of Marine Euryarchaea from the Gulf of Maine without a Representative Genome
R. Sachdeva, J. F. Heidelberg; Univ. of Southern California, Los Angeles, CA.

2460 Effects of dissolved organic matter on microbial community growth, succession, and gene expression
A. K. Sharma[1], J. W. Becker[1], J. A. Bryant[1], E. A. Ottesen[1], D. J. Repeta[2], E. F. DeLong[1]; [1]Massachusetts Inst. of Technology, Cambridge, MA, [2]Woods Hole Oceanographic Inst., Woods Hole, MA.

2461 Microbial Diversity Study of Natural Water from the Rio Grande
B. A. Strietelmeier, G. B. Smith; New Mexico State Univ., Las Cruces, NM.

2462 Estimating Richness from Phage Metagenomes
H. K. ALLEN[1], J. Bunge[2], J. A. Foster[3], T. B. Stanton[1]; [1]USDA/ARS/Natl. Animal Disease Ctr., Ames, IA, [2]Cornell Univ., Ithaca, NY, [3]Univ. of Idaho, Moscow, ID.

2463 What Microbial Ecology Can Learn from a Tortoise and a Hare
S. E. Jones, S. Emrich, D. Liu, E. Zeng, W. Zhang; Univ. of Notre Dame, Notre Dame, IN.

2464 Quantifying the Functional Variation of Microbial Communities using Operational Protein Families
T. J. Sharpton[1], G. Jospin[2], M. G. I. Langille[3], J. A. Eisen[2], K. S. Pollard[1,4]; [1]J. David Gladstone Inst.s, San Francisco, CA, [2]Univ. of California, Davis, CA, [3]Dalhousie Univ., Halifax, NS, CANADA, [4]Univ. of California, San Francisco, CA.

183 Microbial Interactions: Populations, Communities, Plants, and Animals I (Division N)

10:45 a.m. – 12:30 p.m.; Poster Hall

2465 A Temporal Examination of the Microbial Community within the Extrapallial Fluid of the Eastern Oyster, *Crassostrea virginica*
E. G. Sakowski, S. Polson, K. E. Wommack; Univ. of Delaware, Newark, DE.

2466 Sargassum Rafts: Oceanic Hotspots for Copiotrophic Bacteria
R. A. LONG, S. L. M. Franco; Univ. of South Carolina, COLUMBIA, SC.

2467 The Role of the *Scs* Operon in Copper Tolerance of Kelp Bacteria
J. Busch, T. Matthews, E. Dinsdale; San Diego State Univ., San Diego, CA.

2468 The Identification of Bacteria that Induce Morphological Formation in the Protoplasts of the Red Alga *Porphyra yezoensis*
Y. Fukui[1], M. Abe[2], M. Kobayashi[3], M. Satomi[4]; [1]Natl. Res. Inst. of Fisheries Sci., Fisheries Res. Agency, Yokohama, JAPAN, [2]Natl. Fisheries Univ., JAPAN, [3]Seikai Natl. Fisheries Res. Inst., JAPAN, [4]Natl. Res. Inst. of Fisheries Sci., Fisheries Res. Agency, JAPAN.

2469 Specific Epibacterial Community on Marine Macroalgae: Distribution Pattern of the Roseobacter-Clade
M. Dogs, V. Lünsmann, R. Gohl, M. Simon, T. Brinkhoff; Inst. for chemistry and biology of the marine environment (ICBM), Univ. of Oldenburg, Oldenburg, GERMANY.

2470 Diel correlation between bacterioplankton community structures and concentrations of DFAA and polyamines in Gray's Reef National Marine Sanctuary
X. Lu, C. Clevinger, X. Mou; Biological Sci. Dept., Kent State Univ., Kent, OH.

2471 Phylogenetic Diversity and Antimicrobial Activity of Cultivable Fungi Associated with Antarctic Marine Sponges
I. Vaca[1], M. Henriquez[1], R. Chavez[2], J. Norambuena[1], A. Beiza[1], F. Maza[1], P. Ubilla[2]; [1]Univ. de Chile, Santiago de Chile, CHILE, [2]Univ. de Santiago de Chile, Santiago de Chile, CHILE.

2472 Differential Immune Response in the Reef Building Coral, *Acropora millepora,* to Two Ecologically Relevant Bacteria
T. Brown[1], D. Bourne[2], M. Rodriguez-Lanetty[1]; [1]Univ. of Louisiana at Lafayette, Lafayette, LA, [2]Australia Inst. of Marine Sci., Queensland, AUSTRALIA.

2473 Structure and Stability of Microbial Assemblages in Seasonal Lake Ice, Miquelon Lake, Central Alberta
A. Bramucci, S. Han, J. Beckers, C. Haas, B. Lanoil; Univ. of Alberta, Edmonton, AB, CANADA.

2474 Extracellular Protein Profile of *Staphylococcus aureus* RN4220 containing the *agr*-like *lamBD* System of *LactoBacillus plantarum* WCFS1
H. Liu, Y. Gao, L. Yu, M. E. Hart; Natl. Ctr. for Toxicological Res., Jefferson, AR.

2475 Biosurfactant Production on Plants
A. Y. Burch[1], V. Zeisler[2], P. T. Do[1], L. Schreiber[2], T. V. Suslow[3], S. E. Lindow[1]; [1]Univ. of California, Berkeley, Berkeley, CA, [2]Univ. of Bonn, Bonn, GERMANY, [3]Univ. of California, Davis, Davis, CA.

2476 Dominance of Gram Positives in the Root Endophytic Bacterial Community of Native Plants
J-H. Han[1], K. Lee[2], S. Kim[1]; [1]Chungnam Natl. Univ., Daejeon, KOREA, REPUBLIC OF, [2]Korea Res. Inst. of BioSci. and Biotechnology, Daejeon, KOREA, REPUBLIC OF.

2477 Housekeeping Gene Sequences Suggest Two Highly Divergent Clades within the *Burkholderia* Genus
R. Walker[1], G. O'Hara[2], L. Brau[2], E. Watkin[1]; [1]Curtin Univeristy, Bentley, AUSTRALIA, [2]Murdoch Univ., Murdoch, AUSTRALIA.

2478 Characterization of Bacterial Endophytes Associated with *Solanum tuberosum* in Irrigated Cropping Systems
B. B. Pageni[1], N. Z. Lupwayi[1], F. J. Larney[1], L. M. Kawchuk[1], D. C. Pearson[1], R. E. Blackshaw[1], Y. T. Gan[2]; [1]Agriculture and Agri-Food Canada, Lethbridge Res. Ctr., Lethbridge, AB, CANADA, [2]Agriculture and Agri-Food Canada, Semiarid Prairie Agricultural Res. Ctr., Swift Current, SK, CANADA.

2479 Allee Effects in Experimental Microbial Systems
R. B. Kaul[1], A. M. Kramer[1], F. C. Dobbs[2], J. M. Drake[1]; [1]Univ. of Georgia, Athens, GA, [2]Old Dominion Univ., Northfolk, VA.

2480 Bacterial Endophytes for the Invasive Plant *Spathodea campanulata* in Puerto Rico
X. Espada[1], L. Paiva Viégas[2], J. Laffontaine[1], L. M. Garcia-Orta[1], J. R. Pérez-Jiménez[1]; [1]Univ. del Turabo, Gurabo, PR, [2]Univ.e Estadual do Norte Fluminense, Campos de Goytacazes, BRAZIL.

2481 *Bacillus cereus*-Induced Systemic Resistance of Plants Requires the Bacterial Gene Encoding a Putative Glucose-Specific IIABC Component
C-Y. Chen; Natl. Taiwan Univ., Taipei, TAIWAN.

2482 Responses of Soil Microbial Communities to Elevated Ozone and Wheat Cultivars Revealed by GeoChip-Based Analyses
X. Li[1,2], Y. Deng[1], Q. Li[2], C. Lu[2], J. Wang[2], H. Zhang[3], J. Zhu[4], J. D. Van Nostrand[1], J. Zhou[1], Z. He[1]; [1]The Univ. of Oklahoma, Norman, OK, [2]Inst. of Applied Ecology, the Chinese Academy of Sci., Shenyang 110164, CHINA, [3]Inst. of Applied Ecology, the Chinese Academy of Sci., Shenyang 110164, CHINA, [4]Inst. of Soil Sci. the Chinese Academy of Sci., Nanjing 210008, CHINA.

2483 Methionine Sulfoxide Reductases in *Vibrio fischeri*'s Oxidative Stress Response
Z. Flores-Cruz, E. V. Stabb; Univ. of Georgia, Athens, GA.

2484 Isolation and Characterization of Osmotolerant Microbes from Floral Nectars
T. L. Kurz, D. B. Moore, **M. A. Schneegurt**; Wichita State Univ., Wichita, KS.

2485 Biofilm Formation of Phosphate Solubilizing Bacteria on Hyphae of Arbuscular Mycorrhizal Fungi as a Strategy for Phosphate Translocation to Potato Plants
B. R. Fernandez-Casanova, D. Uribe-Velez, **A. Rodriguez**; Univ. Natl. de Colombia, Bogota, COLOMBIA.

2486 Microbial Community Analysis of Petroleum Contaminated Soil at a Long-term, Cold Climate Phytoremediation Test Site
C. P. Kasanke, M. C. Leewis, M. B. Leigh; Inst. of Arctic Biology (IAB), Fairbanks, AK.

2487 GeoChip-based Analysis of Microbial Functional Communities in Response to Exotic *Ageratina adenophora* Invasion
X. Lu[1,2], W. Liu[1], J. Guo[1], **J. Zhang**[1], Z. He[2], J. D. Van Nostrand[2], J. Zhou[2], F. Wan[1]; [1]Inst. of Plant Protection, Chinese Academy of Agricultural Sci., Beijing, CHINA, [2]Inst. for Environmental Genomics and Dept. of Botany and Microbiol., Univ. of Oklahoma, Norman, OK.

2488 Characterization of NO-inducing Lipid A from *Mesorhizobium* loti lipopolysaccharide
M. Hashimoto, Y. Youhei, Y. Suda, E-i. Murakami, M. Nagata, K-i. Kucho, M. Abe, T. Uchiumi; Kagoshima Univ., Kagoshima, JAPAN.

2489 Integrated Genome-Scale Modeling of Syntrophic Consortia Reveals Microbial Community Dynamics and Mechanisms of Electron Transfer
H. Nagarajan[1], M. Embree[1], A. M. Feist[1], A. E. Rotaru[2], P. M. Shrestha[2], D. R. Lovley[2], K. Zengler[1]; [1]Univ. of California San Diego, La Jolla, CA, [2]Univ. of Massachusetts, Amherst, MA.

2490 Reduced Abundance of Arbuscular Mycorrhizal Fungi and Soil Carbon Storage is Correlated with Cheat Grass Invasion of Sagebrush Steppe
C. F. Weber[1], G. M. King[2], S. Lockhart[1]; [1]Idaho State Univ., Pocatello, ID, [2]Louisiana State Univ., Baton Rouge, LA.

2491 Novel Bacteria Associated with Marine Tunicates
L. C. Blasiak[1,2], R. T. Hill[1], D. H. Buckley[3,2], S. H. Zinder[3,2]; [1]Inst. of Marine and Environmental Sci., UMCES, Baltimore, MD, [2]Marine Biological Lab., Woods Hole, MA, [3]Cornell Univ., Ithaca, NY.

184 Molecular Microbiology Ecology: Communities and Organisms III (Division N)

10:45 a.m. – 12:30 p.m.; Poster Hall

2492 Shotgun DNA Polymerase Phylogeny *recA*pitulates Virioplankton Biology
H. F. Schmidt[1], E. G. Sakowski[1], S. J. Williamson[2], S. W. Polson[1], K. E. Wommack[1]; [1]Univ. of Delaware, Newark, DE, [2]Lake Pend Oreille Waterkeeper, Sandpoint, ID.

2493 Evaluation of Human Pathogens in Surface Waters of Haiti
A. M. Kahler[1], B. J. Haley[2], B. J. Mull[1], J. Narayanan[1], A. Chen[2], N. C. Purcell[1], R. R. Colwell[2], **A. Huq**[2], V. R. Hill[1]; [1]CDC, Atlanta, GA, [2]Univ. of Maryland, College Park, MD.

2494 Enteric Bioluminescent *Vibrio* in Marine Fish May Not Correlate to the Proximal Planktonic Environment
G. B. Severin[1], E. R. Bolton[1], E. O'Grady[2], C. F. Wimpee[1]; [1]Univ. of Wisconsin-Milwaukee, Milwaukee, WI, [2]Coll. of Lake County, Grayslake, IL.

2495 Diel Periodicity in Aquatic Hypersaline Microbial Communities in Lake Tyrrell, Victoria, Australia
K. Andrade[1], J. Logemann[2], J. B. Emerson[1], C. S. Miller[1], B. C. Thomas[1], J. Brocks[3], K. Heidelberg[4], J. F. Banfield[1]; [1]Univ. of California, Berkeley, Berkeley, CA, [2]Carl von Ossietzky Univ., Oldenburg, GERMANY, [3]Australian Natl. Univ., Canberra, AUSTRALIA, [4]Univ. of Southern California, Los Angeles, CA.

2496 Extremophile Microbial Communities: Where Do They Come From? A Phylogenetic Approach
WITHDRAWN

2497 Comparative Metagenomic and Metaproteomic Analyses of Marine Biofilms
D. Hajkova[1], W. J. Hervey, IV[1], R. W. Li[2], Z. Wang[3], N. Lebedev[3], J. R. Deschamps[3], A. W. Kusterbeck[3], **G. J. Vora**[3]; [1]Natl. Res. Council, Washington, DC, [2]United States Dept. of Agriculture, Beltsville, MD, [3]Naval Res. Lab., Washington, DC.

2498 Community Composition and Intracellular Architecture of Anaerobic Methane Consuming Microbial Consortia
S. E. McGlynn[1], A. E. Dekas[1], T. J. Deerinck[2], S. Sun[2], K. Chourey[3], C. Pan[3], R. L. Hettich[3], M. H. Ellisman[2], V. J. Orphan[1]; [1]California Inst. of Tech, Pasadena, CA, [2]Univ. of California San Diego, San Diego, CA, [3]Oak Ridge Natl. Lab, Oak Ridge, TN.

2499 Honey Bee Pathogens in East Africa
T. L. Baumgarten, H. M. Patch, C. M. Grozinger; Pennsylvania State Univ., State College, PA.

2500 Microbial Diversity in a Circumneutral Appalachian Spring
D. H. Huber, T. Mpabanga, D. Sharma, N. Aryal, N. Montenegro-Garcia, E. Chavarria; West Virginia State Univ., Institute, WV.

2501 Identifying the Functions of Phenotypically Silent Bacterial Spore Proteins
V. Pahalawatta[1], J. J. Kelly[2], J. Gilbert[3], A. Driks[1]; [1]Loyola Med. Ctr., Maywood, IL, [2]Loyola Univ., Chicago, IL, [3]Argonne Natl. Lab., Lemont, IL.

2502 Microbial Communities in Agricultural Soils Are Poised for Nitrous Oxide Production
T. K. TEAL[1], V. Gomez-Alvarez[2], T. M. Schmidt[1]; [1]Michigan State Univ., East Lansing, MI, [2]Enivronmental Protection Agency ORD-NERL, Cincinnati, OH.

2503 Interactive effects of Clipping Practice and Experimental Warming on Soil Microbial Communities in a Tallgrass Prairie
K. Xue[1], J. Xie[1], Y. Deng[1], L. Wu[1], Z. He[1], J. Van Nostrand[1], **T. Yuan**[1], Y. Luo[2], J. Zhou[1]; [1]Inst. for Environmental Genomics, NORMAN, OK, [2]Univ. of Oklahoma, NORMAN, OK.

2504 Two-stage Bioreactor for the Production of Poly-β-hydroxyalkanoates
E. M. Clarke[1], J. Smoot[2], R. H. Findlay[1]; [1]Univ. of Alabama, Tuscaloosa, AL, [2]C/e-Solutions Inc., Woodland, AL.

2505 Pyomelanin Production by *Penicillium chrysogenum*
A. Vasanthakumar[1], A. DeAraujo[1], J. Mazurek[2], M. Schilling[2], R. Mitchell[1]; [1]Harvard Univ., Cambridge, MA, [2]Getty Conservation Inst., Los Angeles, CA.

2506 New Tools for New Questions: Combining Fluorescence Microscopy, Phenotype Microarrays, and Comparative Genomics to Better Understand the Ecology of *Campylobacter*
B. B. Oakley, J. Line; USDA ARS, Athens, GA.

2507 Tools for Eco-functional Gene Analysis
J. A. Fish, **Q. Wang**, B. Chai, D. M. McGarrell, J. Quensen, C. T. Brown, Y. Sun, J. M. Tiedje, J. R. Cole; Michigan State Univ., East Lansing, MI.

2508 *Burkholderia cepacia* complex Species from Polycyclic Aromatic Hydrocarbon Impacted Soils
K. Brown-Smith, K. Ruegg, **G. M. COLORES**; CENTRAL MICHIGAN Univ., MOUNT PLEASANT, MI.

2509 Phosphate Scavenging and Uptake in the Unicellular Green Alga *Micromonas*
E. N. Reistetter[1], A. J. Limardo[1], D. Klimov[1], Z. Kolber[2], A. Z. Worden[1]; [1]Monterey Bay Aquarium Res. Inst., Moss Landing, CA, [2]Univ. of California Santa Cruz, Santa Cruz, CA.

2510 Development of a Novel Model for Competitive Growth of Bacteria
H. Fujikawa[1,2], K. Munakata[1], S. Zaher[1,2]; [1]Tokyo Univ. of Agriculture and Technology, Fuchu, Tokyo, JAPAN, [2]Gifu Graduate Sch., JAPAN.

185 Antibiotics, Antimicrobials, and Mycotoxins (Division O)

10:45 a.m. – 12:30 p.m.; Poster Hall

2511 Site Directed Mutagenesis of Mutacin 1140 and Its Effect on Bactericidal Activity
S. Wilson-Stanford, **J. Escano**, W. Cromwell, L. Smith; Texas A&M, College Station, TX.

2512 Novel antibacterial polypeptide produced by Lacto*Bacillus* paracasei strain NRRL B-50314
S. Liu; USDA, ARS, NCAUR, Peoria, IL.

2513 Enhanced Recovery and Characterization of a Tryptamine Related Antibiotic from KwaZulu-Natal Soil
V. I. Okudoh, F. M. Wallis; Univ. of KwaZulu-Natal, Pietermaritzburg, SOUTH AFRICA.

2514 Multiplex PCR for Detection of Deletions in and near the Aflatoxin Gene Cluster in *Aspergillus flavus*
K. A. Callicott, P. J. Cotty; Agricultural Res. Service, United States Dept. of Agriculture, Sch. of Plant Sci., Univ. of Arizona, Tucson, AZ.

2515 Inhibition of Metallo-β-lactamases from Antibiotic-resistant Bacteria
S. R. Schlesinger, **S-K. Kim**; Baylor Univ., Waco, TX.

2516 Applications of a Novel Bioflavonoid-based, Natural Biocide Extracted from Bitter Oranges
E. M. Waters, **M. A. Sharkey**, J. P. O'Gara; UCD Sch. of Biomolecular & BioMed. Sci., Dublin, IRELAND.

2517 Discovery of Novel Nitroaromatic Antibiotics by Genome Mining
K-S. Ju, W. Metcalf; Univ. of Illinois, Urbana, IL.

2518 *Aspergillus flavus* Velvet Proteins of VeA and VelB Are Required for Conidiation in the Dark But Not under Light
P-K. Chang, L. Scharfenstein, P. Li, K. Ehrlich; Southern Regional Res. Ctr., ARS, USDA, New Orleans, LA.

2519 Discovery and Characterization of an Antimycin Biosynthetic Gene Cluster in a Leaf-cutter Ant Symbiont
R. F. Seipke, M. I. Hutchings; Univ. of East Anglia, Norwich, UNITED KINGDOM.

2520 Liquid Formulations Sustaining the Viability of a Superior Yeast Strain *Pichia anomala* WRL-076 for Mycotoxin Control
S. T. Hua[1], B. J. Hernlem[1], W. Yokoyama[1], D. E. Parfitt[2], S. L. Sarreal[1]; [1]USDA-ARS, Western Regional Res. Ctr., Albany, CA, [2]Univ. of Calif. Davis, Davis, CA.

2521 A New Protein Antimicrobial Isolated from the Genome of an Uncharacterized Soil *Streptomycete*
H. FARRIS, H. SKAER, G. ROBBINS, A. STEINBERG; The MITRE Corp., McLean, VA.

2522 Controlling Bacterial Persister Cells with Brominated Furanones
J. Pan, A. Bahar, H. Syed, D. Ren; Syracuse Univ., Syracuse, NY.

2523 Antimicrobial Activity and Antagonistic Potential of Higher Fungi from Northeast México
C. E. Hernández Luna[1], S. N. López Treviño[1], S. M. Acosta García[1], J. F. Contreras Cordero[1], J. S. García Alvarado[1], L. Villarreal Treviño[1], R. Rodríguez Guerra[2], S. M. Salcedo Martínez[1]; [1]Facultad de Ciencias Biologicas UANL, San Nicolas de los Garza, N.L., MEXICO, [2]INIFAP-CEGET, Gral. Terán, N.L., MEXICO.

2524 Identification of an *Aspergillus flavus* Polyketide Synthase Gene that Encodes a Sclerotia-Specific Pigment
J. W. Cary[1], P. Y. Harris-Coward[1], B. Su[1], S. Shantappa[2], A. M. Calvo[2]; [1]USDA/ARS/SRRC, New Orleans, LA, [2]Northern Illinois Univ., DeKalb, IL.

2525 Exploiting Adaptive Laboratory Evolution of *Streptomyces clavuligerus* for Antibiotic Discovery and Overproduction
P. Charusanti, N. L. Fong, H. Nagarajan, A. R. Pereira, H. J. Li, E. A. Abate, Y. Su, W. H. Gerwick, B. O. Palsson; Univ. of California, San Diego, La Jolla, CA.

2526 Mechanism of Inhibition to *Aspergillus flavus* Growth and Aflatoxin Formation in Germinating Peanut
H. Zhang[1], X. Meng[2], **J. Yu**[3]; [1]Liaoning Univ., Shenyang, CHINA, [2]Shenyang Agricultural Univ., Shenyang, CHINA, [3]USDA/ARS, New Orleans, LA.

186 Foodborne Pathogen: Isolation, Detection and Control (Division P)

10:45 a.m. – 12:30 p.m.; Poster Hall

2527 Antibacterial Effects of Plant-Derived Extracts on Methicillin-Resistant *Staphylococcus aureus*
X. Su[1], A. B. Howell[2], **D. H. D'Souza**[1]; [1]The Univ. of Tennessee-Knoxville, Knoxville, TN, [2]Rutgers Univ., Chatsworth, NJ.

2528 The Potential for Pathogen Contamination from Slaughter to Process
R. S. Schoenborn; Marian Univ., Fond du Lac, WI.

2529 Comparing the Efficacy of Five *Listeria* Selective Media in Recovering Untreated and UVC-treated *Listeria monocytogenes* Recovered from Artificially Inoculated Ready to Eat Chicken Slices
A. Hamidi Oskouei, P. Lovatt, G. Meerdink; Univ. of Lincoln, Holbeach, UNITED KINGDOM.

2530 Rapid Detection of *Escherichia coli 0157:H7* and *Salmonella* spp. in Hamburger and Lettuce Using a Liquid Crystal Biosensor
C. H. Stumpf[1], W. Zhao[1], C. Ammons[1], G. D. Niehaus[2]; [1]Crystal Diagnostics, Rootstown, OH, [2]Northeastern Ohio Med. Univ., Rootstown, OH.

2531 Pathogen Detection in Food Microbiology Laboratories: an Analysis of Proficiency Test Performance
C. C. Snabes[1], D. C. Edson[1], S. Empson[1], L. D. Massey[2]; [1]American Proficiency Inst., Traverse City, MI, [2]N/A, Pomona, MO.

2532 Detection of *Salmonella* in Animal Feed Samples by qPCR
F. H. Benahmed[1], C. M. Cheng[2], S. Gaines[1], K. S. Chen[2], M. A. Rasmussen[1]; [1]U.S. FDA, Laurel, MD, [2]U.S. FDA, Irvine, CA.

2533 Interlaboratory Validation for a Real-Time PCR *Salmonella* Detection Method Using the ABI 7500 FAST System
C-M. Cheng[1], T. Doran[2], W. Lin[2], K-S. Chen[1], D. Williams-Hill[1], R. Pamboukian[2]; [1]Food and Drug Admin., Irvine, CA, [2]Food and Drug Admin., Rockville, MD.

2534 Method to Concentrate and Detect *E. coli* 0157:H7 in High Organic Load Lettuce Wash
S. Magana, S. M. Schlemmer, D. V. Lim; Univ. of South Florida, Tampa, FL.

2535 *Campylobacter*: Prevalence and Antimicrobial Susceptibility from Retail Poultry Meats, NARMS 2010
S. R. Young, C. Henderson, J. Abbott, S. Friedman, E. Tong, P. F. McDermott, S. Zhao, a. the NARMS Working group; Food and Drug Admin., Baltimore, MD.

2536 A Prediction System for Rapid Identification of *Salmonella* Serotypes Based on Pulsed-field Gel Electrophoresis Fingerprints
W. Zou[1], W-J. Lin[2], K. B. Hise[3], H-C. Chen[1], C. Keys[4], J. J. Chen[1]; [1]DHHS/FDA/NCTR, Jefferson, AR, [2]Dept. of Applied Mathematics, Feng Chia Univ., Taichung, TAIWAN, [3]PulseNet Database Unit, Enteric Diseases Lab. Branch, Div. of Foodborne, Waterborne, and Environmental Diseases, Natl. Ctr. for Emerging and Zoonotic Infectious Diseases, CDC (CDC), Atlanta, GA, [44]Div. of Microbiol., Office of Regulatory Sci., CFSAN, FDA, College Park, MD.

2537 Improved TaqMan Real-Time Assays for Detecting Hepatitis A Virus
K. Chou, D. Williams-Hill; US FDA, Irvine, CA.

2538 Rapid Detection and Typing of Foodborne Pathogens by Genome Sequence Scanning
WITHDRAWN

2539 Selective Recovery by Different Culture Methods of Shiga Toxin-Producing *Escherichia coli* Genotypes from a Major Produce Production Region in California
B. Quiñones[1], M. B. Cooley[1], M. S. Swimley[1], D. Carychao[1], K. Nguyen[1], R. Patel[1], E. R. Atwill[2], M. Jay-Russell[3], R. E. Mandrell[1]; [1]US Dept. of Agriculture-ARS, Western Regional Res. Ctr., Produce Safety & Microbiol., Albany, CA, [2]Sch. of Vet. Med. and Western Inst. for Food Safety and Security, Univ. of California at Davis, Davis, CA, [3]Sch. of Vet. Med. and Western Inst. for Food Safety and Security, Davis, CA.

2540 Detection and Isolation of Non-O157 STECs in Foods
A. Lin[1], L. M. Clotilde[1], C. Bernard, IV[2], L. Nguyen[3], J. A. Kase[4], I. Son[4], J. M. Carter[2], C. R. Lauzon[3]; [1]FDA San Francisco District, Alameda, CA, [2]USDA Agricultural Res. Service, Albany, CA, [3]CSU East Bay, Hayward, CA, [4]FDA CFSAN, College Park, MD.

2541 Development of Egg-yolk derived IgY against *Campylobacter jejuni* Colonization Associated Proteins for Use in Passive Imunotherapy
S. R. Al-Adwani[1], R. Crespo[1], C. Casavant[1], D. H. Shah[1,2]; [1]Washington State Univ., Pullman, WA, [2]Paul Allen Sch. for Global Animal Hlth., Pullman, WA.

2542 Single Tube Nested Real-time RT-PCR for Foodborne Viruses Detection
Y. Hu[1], I. Arsov[2]; [1]FDA, Jamaica, NY, [2]York Coll., Jamaica, NY.

2543 Bacteriophage Amplified Bioluminescent Sensing of Enterohemorrhagic *Escherichia coli*
J. Carswell[1], P. Jegier[1], K. Sen[2], C. Beasley[1], A. Smartt[1], A. Layton[1], G. Sayler[1], S. Ripp[1]; [1]Univ. of Tennessee, Knoxville, TN, [2]Office of Water, U.S. EPA, Cincinnati, OH.

2544 Endemic *Salmonella* Contamination of the Virginian Eastern Shore Tomato Production Environment
R. L. Bell[1], J. Zheng[1], S. Allard[1], E. W. Burrows[1], C. Y. Wang[1], G. C. Arce[1], T. Muruvanda[1], C. E. Keys[1], D. Melka[1], M. W. Allard[1], S. Rideout[2], E. W. Brown[1]; [1]FDA, College Park, MD, [2]Virginia Tech, Painter, VA.

2545 Evaluation of Regional Risks for *Salmonella* Contamination of Irrigation Water from Mixed Produce Farming
Z. luo[1], P. Adams[2], G. Gu[1], A. Van Bruggen[1], G. Velidis[2], **A. C. Wright**[1]; [1]Univ. of Florida, Gainesville, FL, [2]Univ. of Georgia, Tifton, GA.

2546 Multiplex Diagnostic Assay Development for Differentiation of Norovirus Genogroups
A. Power; Lawrence Livermore Natl. Lab., Livermore, CA.

2547 Microbead-based Assays for Simultaneous Detection of Various *E. coli* Serogroups
C. Bernard, IV[1], L. M. Clotilde[2], A. Lin[2], G. L. Hartman[2], A. Salvador[1], C. Lauzon[3], M. Muldoon[4], K. Lindpaintner[4], D. K. Lau[2], J. M. Carter[1]; [1]USDA, Albany, CA, [2]FDA, Alameda, CA, [3]CSUEB, Hayward, CA, [4]SDIX, Newark, DE.

2548 Development of a biphasic medium for detection of Shiga toxin- producing *E. coli* using *Tetrahymena thermophila*
A. Salvador[1], L. M. Clotilde[2], C. Bernard IV[1], C. Crowe[3], D. Berger[3], A. Lin[2], G. Hartman[2], D. Lau[2], C. Lauzon[4], J. M. Carter[1]; [1]USDA, Albany, CA, [2]FDA, Alameada, CA, [3]Hardy Diagnostics, Santa Maria, CA, [4]CSUEB, Hayward, CA.

2549 Increased Differentiation of *Salmonella enterica* Serovars Using Three Gene PCR-RFLP Analysis and the Agilent 2100 Bioanalyzer
Á. A. Soler-García, A. J. De Jesús, E. W. Brown; US FDA-Ctr. for Food Safety & Applied Nutrition, College Park, MD.

2550 PMA/Real-time PCR Assay for Rapid and Selective Detection of Low Number of Viable *Salmonella* from Food
J-Q. Chen, **B. Li**; FDA, Laurel, MD.

2551 The Susceptibility of Important Foodborne Pathogens to Shalgam Juice
WITHDRAWN

2552 Characterization of *Vibrio* spp. on CPC+, CHROMagar Vibrio, and TCBS, and Proposed Cross-Plating Method for Isolation of *Vibrio vulnificus* from Environmental Samples
T. C. Williams, B. A. Froelich, J. D. Oliver; Univ. of North Carolina at Charlotte, Charlotte, NC.

2553 Real-Time PCR Assay for Rapid and Simultaneous Detection of Enterohemorrhagic *Escherichia coli* (EHEC) of O157:H7 and Other Serotypes
K-S. Chen[1], C-M. Cheng[1], W. Lin[2]; [1]FDA, Irvine, CA, [2]FDA, Rockville, MD.

2554 Detection of Intentional Food Contamination: Multiplexed Diagnostic Assays Applied to the Detection of Bio-threat Agents in Complex Matrices
WITHDRAWN

2555 CDC Protocol for Rapid Detection of *Cronobacter sakazakii* from Powdered Infant Formula
B. J. Jensen, J. Noble-Wang; Ctr.s for Disease Control & Prevention, Atlanta, GA.

2556 Enumeration of Sublethally Injured *Escherichia coli* Using Selective Agar Overlays versus Commercial Methods
A. R. Smith, A. Ellison, R. Heckler, J. L. McKillip; Ball State Univ., Muncie, IN.

187 Bioenergy (Division Q)

10:45 a.m. – 12:30 p.m.; Poster Hall

2557 Discrimination between Fe (II) and Fe (III) Effects on Redox Potential and Biohydrogen Photoproduction by *Rhodobacter sphaeroides*
L. Hakobyan[1], L. Gabrielyan[1], **A. Trchounian**[2]; [1]Dept. of Biophysics, Biological Faculty, Yerevan State Univ., Yerevan, ARMENIA, [2]Dept. of Biophysics, Dept. of Microbiol. and Biotechnology, Biological Faculty, Yerevan State Univ., Yerevan, ARMENIA.

2558 Metabolic Engineering of the Cyanobacterium Synechocystis 6803 for Isobutanol Biosynthesis
A. M. Varman, A. Y. Nguyen, Y. Xiao, H. Pakrasi, Y. J. Tang; Washington Univ. in St. Louis, St. Louis, MO.

2559 Changes in Microbial Community and Increased Biomethane Production Rate from Anaereobic Digestion of Various Waste Blends
N. Navaratnam[1], R. L. Morris[2], J. Maki[3], D. H. Zitomer[1]; [1]Dept. of Civil, Construction and Environmental Engineering, Marquette Univ., Milwaukee, WI, [2]Microbiol. and Molecular Genetics, Michigan State Univ., East Lansing, MI, [3]Dept. of Biological Sci., Marquette Univ., Milwaukee, WI.

2560 Molecular Analysis of Microbial Community Structure in Open Ponds for Algal Biodiesel Production
P. K. Wagley, M. A. Schneegurt; Wichita State Univ., Wichita, KS.

2561 Direct Fermentation of Lignocellulosic Biomass by Cellulase- and Laccase I-displaying Yeast
J. G. Bae[1], A. Nakanishi[1], K. Fukai[1], N. Tokumoto[1], K. Kuroda[1], J. Ogawa[1], M. Nakatani[2], S. Shimizu[1], M. Ueda[1]; [1]Kyoto Univ., Kyoto, JAPAN, [2]Daiwa Kasei, Shiga, JAPAN.

2562 *Shewanella frigidimarina* Microbial Fuel Cells
L. A. FITZGERALD[1], E. R. Petersen[2], R. I. Ray[3], B. J. Little[3], L. J. Nadeau[4], G. R. Johnson[4], B. R. Ringeisen[1], J. C. Biffinger[1]; [1]Naval Res. Lab., Washington, DC, [2]Nova Res., Alexandria, VA, [3]Naval Res. Lab., Stennis Space Center, MS, [4]Air Force Res. Lab., Tyndall Air Force Base, FL.

2563 Effects of pH on *Shewanella* spp. Fatty Acid Profiles
E. R. Petersen[1], L. Fitzgerald[2], K. Myers[1], J. Cramer[2], R. Morris[2], A. Malanoski[2], J. Biffinger[2]; [1]Nova Res., Inc., Alexandria, VA, [2]United States Naval Res. Lab., Washington, DC.

2564 Microbial Electrochemical Cells as Novel Selective Enrichment Tools for Photosynthetic Anode-Respiring Bacteria
J. P. Badalamenti, C. I. Torres, R. Krajmalnik-Brown; Swette Ctr. for Environmental Biotechnology, The Biodesign Inst., Arizona State Univ., Tempe, AZ.

2565 *Shewanella* spp. Display Disparate Phenotypes in Bioelectrochemical Systems Operating as Cathodes
J. L. Burns, S. Strycharz-Glaven, L. M. Tender; US Naval Res. Lab., Washington, DC.

2566 Isolation and Characterization of *Clostridium thermocellum* F811 for Effective Cellulosic Saccharification under Thermophilic Conditions
L. Chen, A. Wang, C. Xu, L. Zhao, L. Wang; harbin Inst. of technology, Harbin, CHINA.

2567 Biodiesel Production from Algal Lipid Using an Environment-Friendly Acyl Acceptor, Dimethyl Carbonate
S-G. Woo[1,2], J. Lee[1,2], J. Park[1,2]; [1]Yonsei Univ., Seoul, KOREA, REPUBLIC OF, [2]WCU center for Green Metagenomics, Seoul, KOREA, REPUBLIC OF.

2568 Optimized Microbial Community Structure in Anaerobic Digesters Increases Bioenergy Generation
B. Bocher, D. Zitomer; Marquette Univ., Milwaukee, WI.

2569 Diatom Biofuel Viability: an Investigation on Si:C:N Required for Optimal Lipid Accumulation
K. M. Moll, B. M. Peyton; Montana State Univ., Bozeman, MT.

2570 Selection and Characterization of Active Cellulases Against Oil Palm Empty Fruit Bunch from a Colombian Native Endophytes Library
L. M. Palma, L. M. Medina, L. F. Cabezas, I. Bahamon, A. F. González, S. Restrepo; Univ. de los Andes, Bogotá, COLOMBIA.

2571 Screening for High Efficient Ethanol Producing Yeast to Improve Ethanol Fermentation from Sugarcane Leaves by Ssf Process
R. Jutakanoke[1], A. Akaracharanya[1], A. Tanasupawat[2]; [1]Dept. of Microbiol., Faculty of Sci., Chulalongkorn Univ., Bangkok 10330, Bangkok, THAILAND, [2]Dept. of Biochemistry and Microbiol., Faculty of Pharmaceutical Sci., Chulalongkorn Univ., Bangkok 10330, Bangkok, THAILAND.

2572 Raman and FTIR Spectroscopy for Ethanol Fermentation Monitoring and Component Quantification
S. Gray, H. Lamb, S. Peretti; North Carolina State Univ., Raleigh, NC.

2573 Degradation of Lignin and Ligninesulfonic Acid by a Microbial Consortium from Decomposing Wood
S. McNeal, D. L. Elmendorf; Saint Xavier Univ., Chicago, IL.

2574 Lignocellulosic Biomass Degradation through a Microbially driven Fenton Reaction
R. Sekar, T. DiChristina; Georgia Inst. of Technology, Atlanta, GA.

2575 Establishment of Gene Transformation Technique of Marine Pennate Diatom *Fistulifera* sp. strain JPCC DA0580 for Effective Biodiesel Production
M. Muto, M. Tanaka, M. Nemoto, T. Yoshino, T. Matsunaga, T. Tanaka; Tokyo Univ. of Agriculture and Technology, Tokyo, JAPAN.

2576 Adaptive Evolution of *Eubacterium limosum* KIST612 toward Overproduction of Fermentation Products
S. Park[1], D. Kim[1], S. Choi[1], T. Kim[1], I-G. Choi[2], I. Chang[1]; [1]Gwangju Inst. of Sci. and Technology, Gwangju, KOREA, REPUBLIC OF, [2]Korea Univ., Seoul, KOREA, REPUBLIC OF.

2577 Characterization of Cellulolytic Extracts Produced by Native Strains Isolated from Nixtamalization Subproducts
M. A. Martínez-Olivas[1], R. Márquez-Meléndez[1], G. V. Nevárez-Moorillón[1], S. Arévalo-Gallegos[1], O. Paredes-López[2], Q. Rascón-Cruz[1]; [1]Univ. Autónoma de Chihuahua, Chihuahua, MEXICO, [2]CINVESTAV Irapuato, Irapuato, MEXICO.

2578 Characterization of Oleaginous Yeast Species from Phaff Yeast Culture Collection
I. R. Sitepu[1,2], L. Ignatia[1], R. Sestric[3], K. Boundy-Mills[1]; [1]Phaff Yeast Culture Collection, Food Sci. and Technology, UC Davis, Davis, CA, [2]Forestry Res. and Dev. Agency, Ministry of Forestry, Bogor, INDONESIA, [3]Univ. of Manitoba, Saskatchewan, MB, CANADA.

188 Microbes and Metals (Division Q)

10:45 a.m. – 12:30 p.m.; Poster Hall

2579 Vanadium Removal And Reduction From Biostimulated Sediments And Affects On Bacterial Community Composition
A. Yelton, K. Wrighton, K. Handley, J. Banfield; Univ. of California, Berkeley, Berkeley, CA.

2580 Cultivable Antibiotic and Mercury Resistant Bacteria on Sites Contaminated with Trichloroethylene and Polychlorinated Biphenyls
S. K. Walia[1], S. W. Rana[2], J. Rana[1], B. Joshi[3], N. Bhutani[3], A. Kumar[4], S. Walia[3]; [1]Henry Ford Hosp., Detroit, MI, [2]KEI, Wayne State Univ., Detroit, MI, [3]Oakland Univ., Rochester, MI, [4]KEI, Wayne State Univ., Dtroit, MI.

2581 Kinetic of Lead Biosorption by *Saccharomyces cerevisiae*
E. Rodriguez Cantu, R. Miranda, C. Sosa, C. Saenz, R. Roldan, G. Dimas; Univ. Autonoma de Nuevo Leon, San Nicolas, MEXICO.

2582 Metagenomic and Meta-transcriptomic Analysis of Chromate-Reducing Flow-Through Columns
E. L. Brodie, U. Karaoz, H. Lim, R. Han, L. Yang, H. R. Beller; Lawrence Berkeley Natl. Lab., Berkeley, CA.

2583 Copper Resistance, Uptake and Localization in Bacteria Isolated from the Abandoned Nacimiento Copper Mine, New Mexico
D. P. Delgado, T. M. Noble, R. M. Plunkett; New Mexico Highlands Univ., Las Vegas, NM.

2584 Geochip-based Analysis of Functional Microbial Communities in Bioleaching Systems
X. Zhou[1,2], T. Yuan[2], L. Wu[2], Z. He[2], J. D. Van Nostrand[2], G. Qiu[1], J. Zhou[2], X. Liu[1]; [1]Sch. of mineral processing and bioengineering,Central South Univ., Changsha, CHINA, [2]Inst. for Environmental Genomics, Dept. of Botany and Microbiol., Norman, OK.

2585 Chromium-Binding Capacity of *LysiniBacillus sphaericus* S-Layer Protein
L. C. Lozano[1], J. A. Ayala[2], J. Dussán[1]; [1]Univerisidad de los Andes, Bogota, COLOMBIA, [2]Centro de Biología Molecular Severo Ochoa, Madrid, SPAIN.

2586 Dynamic Changes of Microbial Communities in Response to Stimulation with Emulsified Vegetable Oil for U(VI) Reduction at a Contaminated Aquifer
P. Zhang [1], W-M. Wu[2], J. Van Nostrand[1], Y. Deng[1], Z. He[1], **D. Curtis**[1], T. Gihring[3], G. Zhang[3], C. Schadt[3], D. Watson[3], P. Jardine[3], C. Criddle[2], S. Brooks[3], T. Marsh[4], J. Tiedje[4], T. Hazen[3], J. Zhou[1]; [1]The Univeristy of Oklahoma, Norman, OK, [2]Stanford Univ., Stanford, CA, [3]Oak Ridge Natl. Lab, Oak Ridge, TN, [4]Michigan State Univeristy, East Lansing, MI.

2587 Biocorrosion and Biofouling in Metal Alloys Used in Heat Exchangers
P. Russi[1], M. Ohanian[2], M. J. Pianzzola[1], **R. J. Menes**[3]; [1]Faculty of Chemistry. UDELAR, Montevideo, URUGUAY, [2]Faculty of Engineering. UDELAR, Montevideo, URUGUAY, [3]Faculty of Chemistry and Sci. UDELAR, Montevideo, URUGUAY.

2588 Building Multi-scale Mechanistic Model for Assessing Uranium Bioremediation Performance under Significantly Different Conditions
J. Zhao, R. Mahadevan; Univ. of Toronto, Toronto, ON, CANADA.

2589 Study of Mass Transfer in the Biosorption in a Continuous Packed Bed Column Reactor of Cadmium
V. Almaguer-Cantú, L. H. Morales-Ramos, K. Arevalo-Niño; Inst. de Biotecnología, Facultad de Ciencias Biológicas, U.A.N.L., San Nicolás de los Garza, N.L., MEXICO.

2590 Crab Shell Amendments Support More Diverse Bacterial and Archaeal Communities in Sulfate-Reducing Columns Treating Acid Mine Drainage
Y. Lin[1], C. E. Newcombe[2], R. A. Brennan[1]; [1]The Pennsylvania State Univ., State College, PA, [2]EA Engineering, Sci., and Technology, Inc., Edgewood, MD.

2591 H2s Production by Bsr Isolated in Villa Wetlands for Dam Peruvian Treatment
S. Gutierrez; San Marcos Univ., Lima, PERU.

2592 Possible Influence of Protozoa on Anaerobic Groundwater Bioremediation
D. E. Holmes[1], L. Giloteaux[2], C. Thompson[2], T. Roper[2], J. Rocheleau[1], D. Beaulieu[1], R. Dubay[1], G. Tourigny[1], J. Luxton[1], D. R. Lovley[2]; [1]Western New England Univ., Springfield, MA, [2]Univ. of Massachusetts Amherst, Amherst, MA.

2593 Rhizospheric and non Rhizospheric Fungus Isolated from Mine Tailings and Contaminated Soils, Tolerant to High Concentrations of Copper
L. N. Muñoz-Castellanos, L. Castillo-Morales, L. F. Hinojos-Faudoa, I. P. Grajeda-Uribe, R. Peralta-Pérez, V. Nevárez-Moorillón, L. Ballinas-Casarrubias; Univ. Autónoma de Chihuahua, Chihuahua, Chihuahua, MEXICO.

2594 The Effects of Microbial Denitrification on Ligand-Enhanced Abiotic Iron Oxidation
S. Kopf, D. K. Newman; California Inst. of Technology, Pasadena, CA.

2595 Characterization of a Cadmium-Resistant Plant Growth Promoting Rhizobacterium and its Potential on Increasing Plant Root Elongation under a Cadmium Toxic Condition
B. Prapagdee[1], S. Mongkolsuk[2,3]; [1]Faculty of Environment and Resource Studies, Nakhonpathom, THAILAND, [2]Faculty of Sci., Bangkok, THAILAND, [3]Chulabhorn Res. Inst., Bangkok, THAILAND.

2596 Bacterial Taxonomic Diversity in a Heavy-Metal Contaminated Soil in Central Pennsylvania
B. Eardly, M. Danton, H. Louch, T. Mysliwiec; Penn State Berks Coll., Reading, PA.

2597 Cyanobacterial Metal Uptake Systems
L. Hudek[1], B. A. Neilan[2], L. Ackland[1]; [1]Deakin Univ., Melbourne, AUSTRALIA, [2]Univ. of New South Wales, Sydney, AUSTRALIA.

2598 Novel Cell Envelope Proteins Related to Copper Resistance in *AcidithioBacillus ferrooxidans* ATCC 23270
R. J. Almarcegui[1], C. Navarro[1], A. Paradela[2], C. A. Jerez[1]; [1]Faculty of Sci., and ICDB, Univ. of Chile, Santiago, CHILE, [2]Proteomics Lab., Natl. Biotechnology Ctr., Madrid, SPAIN.

2599 Molecular Analysis of Sediment Microbial Communities Affected by Heavy Metal Contamination in San Francisco Bay, California
S. L. Molloy[1], S. Mihaltcheva[1], A. Luengen[2]; [1]CSU East Bay, Hayward, CA, [2]UC San Francisco, CA.

189 Microbiology of Water for Human Uses (Division Q)

10:45 a.m. – 12:30 p.m.; Poster Hall

2600 Long-Term Laboratory Study of Virus Removal From Household Drinking Water Filters Using Granular Media
A. A. Torkelson, K. L. Nelson; Univ. of California-Berkeley, Berkeley, CA.

2601 Inactivation of MS2 Using Advanced Oxidation Process
S. P. Sherchan; Univ. of Arizona, Tucson, AZ.

2602 Bactericidal Effect of Ultraviolet Light with a Combination of Different Wavelengths
M. Aihara, T. Shimohata, K. Mawatari, A. Takahashi; The Univ. of Tokushima Graduate Sch., Tokushima, JAPAN.

2603 Efficiency of a Bio-Coagulant for Household Water Treatment in Developing Countries
A. Soros[1], L. Casanova[2], M. Sobsey[1]; [1]Univ. of North Carolina-Chapel Hill, Chapel Hill, NC, [2]Georgia State Univ., Atlanta, GA.

2604 Copper and Zinc Ions and Solid Particles to Disinfect Microbiologically Contaminated Water
A. S. Komandur, A. Malone, M. D. Sobsey; Univ. of North Carolina, CHAPEL HILL, NC.

2605 Antimicrobial Effects of Non-Chlorine Copper and Zinc Compounds on *E. coli* ATCC11229 and *V. cholerae* BAA-2163
W. Burmeister[1], B. K. Johnson[2], A. J. Hoogewerf[2]; [1]Clean Water Environmental, Grand Rapids, MI, [2]Calvin Coll., Grand Rapids, MI.

2606 Evaluating the Impact of Monochloramine on Ammonia-Oxidizing Bacteria in Lab-Scale Annular Reactors Using the Nitrification Index
K. A. Schrantz[1], J. G. Pressman[1], D. B. Oerther[2], D. G. Wahman[1]; [1]US EPA, Cincinnati, OH, [2]Missouri Univ. of Sci. and Technology, Rolla, MO.

2607 Evaluation of a Point-of-Use (POU) Based in Gravity Ultrafiltration Water Treatment for Household Use in Homes of Culiacan
A. A. Gastelum[1], C. Martinez[1], Y. Lugo-Melchor[2], J. León-Felix[1], N. Castro-del Campo[1], J. Valdez-Torres[1], C. Gerba[3], C. Chaidez[1]; [1]Centro de Investigacion en Alimentacion y Desarrollo, Culiacan, MEXICO, [2]Centro de Investigación y Asistencia en Tecnología y Diseño del Estado de Jalisco, Guadalajara, MEXICO, [3]Univ. of Arizona, Tucson, AZ.

2608 Evaluation of the "Llaveoz" Water Purification System in One of the Poorest Municipalities of Mexico
J. Gutierrez-Jimenez[1], F. Cassassuce[2], L. Martinez-de la Cruz[1], J. de Aquino-Lopez[1], J. Hernandez-Shilon[1], M. Schlie-Guzman[1]; [1]Univ. de Ciencias y Artes de Chiapas, Tuxtla Gutierrez, MEXICO, [2]Inst. de Tecnologias Rurales A.C., La Paz, Baja California, MEXICO.

2609 *Legionella* contamination in potable water cisterns in the Navajo Nation
C. E. Lucas[1], N. A. Kozak[1], M. W. Murphy[1], Y. Barney[2], E. Brown[1], J. M. Winchell[1]; [1]CDC, Atlanta, GA, [2]Navajo Nation Environmental Protection Agency, Window Rock, AZ.

2610 Presence of *Legionella* in Water Distribution System Biofilms
D. O. Schwake, A. Alum, M. Abbaszadegan; Arizona State Univ., Tempe, AZ.

2611 Rapid Detection of *Legionella* spp. from Environmental Water Samples Using Loop-Mediated Isothermal Amplification (LAMP)
J. L. Baron[1], J. E. Stout[1,2], A. Vats[3], V. L. Yu[1,2]; [1]Univ. of Pittsburgh, Pittsburgh, PA, [2]Special Pathogens Lab., Pittsburgh, PA, [3]Children's Hosp. of Pittsburgh, Pittsburgh, PA.

2612 Laboratory Preparedness: A Multi-Laboratory Validation of Non-typhoidal *Salmonella* in Drinking and Surface Water
L. Mapp; Environmental Protection Agency, Washington, DC.

2613 Bacterial Populations Persistent in Drinking Water Distribution Systems
Y. Zhang, **Q. He**; The Univ. of Tennessee, Knoxville, TN.

2614 Detection of Microbial DNA in Spiked Drinking Water Biofilms Samples by Nanofluidic Real-time PCR
S. Waller[1], E. Grigorenko[2], S. Patel[2], M. Pryor[3]; [1]Sustainable Systems LLC, Chicago, IL, [2]Life Technologies, Inc, Beverly, MA, [3]Pinellas County Utility, Tampa, FL.

2615 Occurrence of Mycobacteria in Source and Finished Water Obtained from Drinking Water Treatment Plants in the U.S
S. Pfaller[1], D. King[1], E. Furlong[2], D. Kolpin[3], S. Glassmeyer[1]; [1]U.S. Environmental Protection Agency, Cincinnati, OH, [2]U.S. Geological Survey, Denver, CO, [3]U.S. Geological Survey, Iowa City, IA.

2616 Antibiotic Resistance Profile of *Enterococcus* Species Isolated from Untreated Drinking Water Sources
J. O. Oluyege, G. O. Odeyemi; Ekiti State Univ. Ado-Ekiti, Ado-Ekiti, NIGERIA.

2617 Investigating *Salmonella* and *Campylobacter* Incidence and Prevalence in a Mixed Use Watershed
E. Vereen, Jr.[1,2], R. Lowrance[2], M. Jenkins[3], P. Adams[4], S. Rajeev[4], E. Lipp[1]; [1]Univ. of Georgia, Athens, GA, [2]USDA-ARS, Tifton, GA, [3]USDA-ARS, Watkinsville, GA, [4]Univ. of Georgia, Tifton, GA.

2618 Fecal Contaminants in Shellfish and Shellfish-harvesting Areas Puerto Rico
H. Minnigh[1], G. Ramírez Toro[2], K. Ballester[3], J. Levine[4]; [1]The Gabriella and Paul Rosenbaum Fdn., Lajas, PR, [2]CECIA, UIPR, San Germán, PR, [3]PHP Dept., Coll. of Vet. Med., NCSU, Raleigh, NC, [4]PHP Dept., Coll. of Vet. Med.a, NCSU, Raleigh, NC.

2619 Multidrug-Resistant *Staphylococcus* sp. Isolated from Sand at a Tropical Beach and a Beach Impacted by Non-Point Source Pollution
S. M. Hatcher[1], E. Prevette[1], C. Heaney[2], T. Wade[3], J. Stewart[1]; [1]Univ. of North Carolina at Chapel Hill, Chapel Hill, NC, [2]Johns Hopkins Bloomberg Sch. of Publ. Hlth., Baltimore, MD, [3]U.S. Environmental Protection Agency, NC.

2620 Prevalence of mecA and Methicilin-Resistant *Enterococci* in Tropical Environmental Recreational Waters and Sand
J. I. Rivera Perez; Univ. of Puerto Rico- Rio Piedras, San Juan, PR.

2621 The Potential Association between Toxin-Producing Cyanobacteria and Fecal Contamination in Lake Erie Beach Waters
C. Lee, J. W. Marion, J. Lee; The Ohio State Univ., Columbus, OH.

2622 Cyanobacteria and *Legionella* in Fresh Beach Waters: a Hidden Public Health Risk under Current Beach Monitoring Systems
J. Lee, C. Lee; Ohio State Univ., Columbus, OH.

2623 Public Health Risk Associated with Exposure to Algal Toxins in Western Washington Freshwater Lakes
J. Billingham[1], J. Hardy[2], J. S. Meschke[1]; [1]Univ. of Washington, Seattle, WA, [2]Washington State Dept. of Hlth., Seattle, WA.

2624 Prevalence of Antibiotic Resistance and Virulence Factors in the Viral and Bacterial Fractions of Tropical Recreational Marine Waters
T. M. Santiago-Rodriguez, J. I. Rivera, M. Coradin, J. M. Carrasquillo, G. A. Toranzos; Univ. of Puerto Rico, Rio Piedras, PUERTO RICO.

190 Computational Genomics, Databases and Software (Division R)

10:45 a.m. – 12:30 p.m.; Poster Hall

2625 A Whole Cell Model of *Mycoplasma genitalium* Elucidates Mechanisms of Bacterial Growth
J. R. Karr, J. C. Sanghvi, D. N. Macklin, J. M. Jacobs, M. W. Covert; Stanford Univ., Stanford, CA.

2626 The Ribosomal Database Project
Q. Wang, B. Chai, J. A. Fish, D. M. McGarrell, C. T. Brown, Y. Sun, J. M. Tiedje, **J. R. Cole**; Michigan State Univ., East Lansing, MI.

2627 The BioCyc Collection of Pathway/Genome Databases
R. Caspi[1], T. Altman[1], C. A. Fulcher[1], P. Subhraveti[1], A. Kothari[1], M. Krummenacker[1], M. Latendresse[1], L. A. Mueller[2], Q. Ong[1], S. Paley[1], M. Travers[1], D. Weerasinghe[1], P. D. Karp[1]; [1]SRI Intl., Menlo Park, CA, [2]Boyce Thompson Inst. for Plant Res., Ithaca, NY.

2628 Systems Biology Resources for Infectious Disease Research of Enteropathogens, Influenza, and Severe Acute Respiratory Syndrome Associated Coronavirus
D. R. Hyduke[1], G. L. Law[2], K. M. Waters[3], J. E. McDermott[3], G. A. Anderson[3], T. Owens[2], R. Green[2], C. Ansong[3], T. O. Metz[3], R. D. Smith[3], Systems Virology Center, M. G. Katze[2], Center for Systems Biology of Enteropathogens, J. N. Adkins[3]; [1]Univ. of California, San Diego, La Jolla, CA, [2]Univ. of Washington, Seattle, WA, [3]Pacific Northwest Natl. Lab., Richland, WA.

2629 Relevance Network Inference Methods for Constructing Biological Molecular Networks
X. Zhi, Y. Qin, Y. Deng, Q. Tu, Z. He, J. Zhou; Univ. of Oklahoma, Norman, OK.

2630 Calypso - A Web Application for Visualizing and Comparing Multiple 16S rDNA Samples
L. Krause; Queensland Inst. of Med. Res., Brisbane, AUSTRALIA.

2631 Efficient Phylogenetic Analysis and Comparison of Microbial Communities using the *pplacer* Software Suite
F. A. Matsen, IV[1], A. Gallagher[1], N. G. Hoffman[2,1], S. Srinivasan[1], M. Morgan[1], D. Fredricks[1,2]; [1]Fred Hutchinson Cancer Res. Ctr., Seattle, WA, [2]Univ. of Washington, Seattle, WA.

2632 Porteco: A Portal for *E. coli* Resources, with an Emphasis on Exploring Omics Datasets
J. Demeter[1], J. C. Hu[2], P. D. Karp[3], D. A. Siegele[4], **P. Thomas**[5]; [1]Stanford Univ., Stanford, CA, [2]Texas A&M Univ., College Station, TX, [3]SRI Intl., Menlo Park, CA, [4]Texas A&M Univ, College Station, TX, [5]Univ. of Southern California, Los Angeles, CA.

2633 phyloseq: Integrated Analysis of Phylogenetic Sequencing Projects with a New Bioconductor/R Package
P. J. McMurdie, S. Holmes; Stanford Univ., Stanford, CA.

2634 Microbial Energy Processes Gene Ontology (MENGO): Development of Terms and Annotation for Energy-Related Microbial Genomes
E. Purwantini[1], T. Torto-Alalibo[1], J. C. Setubal[1,2], B. M. Tyler[1,3], B. Mukhopadhyay[1]; [1]Virginia Bioinformatics Inst., Virginia Tech, Blacksburg, VA, [2]Dept. of Biochemistry, Inst. of Chemistry, University of São Paulo, BRAZIL, [3]Ctr. for Genome Res. and Biocomputing, Oregon State University, Corvallis, OR.

2635 Developing a Java Based Program for Calculating Ani Values and Ani Trees
S. Park[1], Y-J. Cho[2], H. Yi[2], S-H. Yoon[2], J. Chun[2]; [1]Interdisciplinary Program in Bioinformatics,Seoul Natl. Univ., Seoul, KOREA, REPUBLIC OF, [2]Sch. of Biological Sci., Seoul Natl. Univ., Seoul, KOREA, REPUBLIC OF.

2636 PanCoreGen: Microbial Genome Analysis Software
S. Paul, E. V. Linardopoulu, E. V. Sokurenko, S. Chattopadhyay; Univ. of Washington, SEATTLE, WA.

2637 Community Cyberinfrastructure for Advanced Microbial Ecology Research and Analysis - the CAMERA Resource
S. Sun, F, J. Chen, W. Li, I. Altinatas, A. Lin, S. Peltier, E. Allen, M. Ellisman, J. Grethe, J. Wooley; UCSD, La Jolla, CA.

2638 A Database of Sequence Determinants of Antibiotic Resistance Annotated with a new Ontology of Antibiotic Resistance Mechanisms, Genes, and Drug Targets
U. Karaoz[1], M. Volegova[2], R. Srinivasen[3], S. V. Lynch[3], E. L. Brodie[1]; [1]Lawrence Berkeley Natl. Lab., Berkeley, CA, [2]Univ. of California Berkeley, Berkeley, CA, [3]UCSF, San Francisco, CA.

2639 Comparison of Phylogenetic Analysis between Reference-based SNP Approach and Gene-based SNP Approach
Y. Luo[1], E. A. Strain[1], C. Li[2], M. Hoffmann[3], G. Cao[4], C. Wang[2], M. W. Allard[2], E. W. Brown[2]; [1]Div. of Publ. Hlth.and Biostatistics, Office of Food Defense, Communication and Emergency Response, Ctr. for Food Safety and Nutrition, U.S. Food and Drug Admin., College Park, MD, [2]Div. of Microbiol., Office of Regulatory Sci., Ctr. for Food Safety and Nutrition, U.S. Food and Drug Admin., College Park, MD, [3]Div. of Animal and Food Microbiol., Office of Res., Ctr. for Vet. Med., U.S. Food and Drug Admin., Laurel, MD, [4]Joint Inst. for Food Safety and Applied Nutrition, Univ. of Maryland, College Park, MD.

2640 Continuous Validation of Diagnostic *In-House* Real Time PCR Assays by Monitoring Appearance of Primer/Probe Sequences in International DNA Sequence Databases
M. N. Skov[1], S. V. Hoegh[1], T. G. Jensen[1], J. D. Bendtsen[2], M. Kemp[1]; [1]Dept. of Clinical Microbiol., Odense Univ. Hosp., Odense, DENMARK, [2]CLC bio, Aarhus, DENMARK.

2641 Comparative Analysis of Feature Frequency Profiles and Single Nucleotide Polymorphisms for Determining *Escherichia coli* and *Shigella* Strain Relationships Based on Topological Data Analysis
J. L. Lewis[1], M. K. Mammel[1], D. W. Lacher[1], A. Johnson[2], P. Y. Lum[2], C. A. Elkins[1]; [1]FDA, Laurel, MD, [2]Ayasdi Inc, Palo Alto, CA.

2642 Computational Detection of ncRNAs Reveals Widespread Fluoride Resistance
Z. S. Weinberg, R. R. Breaker; HHMI and Yale Univ., New Haven, CT.

2643 Development of Molecular Diagnostics Using Universal Bio-signature Detection Array Technology in Host Pathogen Forensics
S. J. Shallom[1], L. J. McIver[1], L. G. Adams[2], H. R. Garner[1]; [1]Virginia Bioinformatics Inst., Virginia Tech, Blacksburg, VA, [2]Dept. of Vet. Pathobiology, Texas A&M Univ., College Station, TX.

2644 Evolution of Restriction Sites in Bacterial Genomes
E. Kussell, **L. Qian**; New York Univ., New York, NY.

2645 Predicting Genes Responsible for Phenotypic Differences in *Pseudomonas* Using Gene Clustering
M. D. Barton, H. A. Barton; Univ. of Akron, Akron, OH.

2646 Biological discovery through associative biclustering of diverse data types
M. P. Joachimak[1], C. Tuglus[2], M. van der Laan[2], A. P. Arkin[1]; [1]Physical BioSci.s Div., Lawrence Berkeley Natl. Lab., Berkeley, CA, [2]Dept. of Biostatics, Univ. of California, Berkeley, Berkeley, CA.

2647 Genome Sequencing of endosymbiotic bacteria *Streptomyces* Sp. from Antartic Lichen Using SMRT Technology
S. Kim[1], H. Park[2], J-E. Lee[1]; [1]DNA Link, Seoul, KOREA, REPUBLIC OF, [2]Korea Polar Res. Inst., Seoul, KOREA, REPUBLIC OF.

2648 Genome Sequencing of five Microbial Genomes Using SMRT Technology
S. Kim[1], S. Shin[2], H. Park[2], J-E. Lee[1]; [1]DNA Link, Seoul, KOREA, REPUBLIC OF, [2]Korea Polar Res. Inst., Seoul, KOREA, REPUBLIC OF.

2649 Identification and Use of Adaptive Genetic Networks as Predictors for Bacterial Domestication
Y. Shamoo[1], V. P. Prakash[1], G. Saxer[1], T. P. Yeh[1], H. Gibbons[2]; [1]Rice Univ., Houston, TX, [2]US Army Edgewood Chemical Biological Ctr., Aberdeen, MD.

2650 The Core and Unique Proteins of Haloarchaea
M. D. Capes[1,2], P. DasSarma[1,2], S. DasSarma[1,2]; [1]Dept. of Microbiol. & Immunology, Univ. of Maryland, Baltimore, MD, [2]Inst. of Marine and Environmental Technology, Univ. System of Maryland, Baltimore, MD.

2651 Pan-PCR, a Computational Method that Designs PCR Targets to Distinguish Bacterial Strains Based on Whole Genome Sequence Data
J. Yang, E. Snitkin, A. Zelazny, J. Segre; NIH, Bethesda, MD.

191 Mycobacterial Genetics, Biochemistry, Virulence, Latency, and Pathogenesis (Division U)

10:45 a.m. – 12:30 p.m.; Poster Hall

2652 Large Scale Identification of Small RNAs in *Mycobacterium tuberculosis*
S. A. Marcus, K. F. Mitchell, A. M. Talaat; Univ. of Wisconsin, Madison, Madison, WI.

2653 Long Range Transcriptional Control of the *espACD-Rv3613c-Rv3612c* Operon Necessary for Virulence-Critical ESX-1 Secretion in *Mycobacterium tuberculosis*
D. M. Hunt[1], N. P. Sweeney[1], L. Mori[1], R. H. Whalan[1], I. Comas[1], L. Norman[1], T. Cortes[1], K. B. Arnvig[1], E. O. Davis[1], M. Stapleton[2], J. Green[2], **R. S. Buxton**[1]; [1]MRC Natl. Inst. for Med. Res., London, UNITED KINGDOM, [2]Univ. of Sheffield, Sheffield, UNITED KINGDOM.

2654 Transcription Level of Genes Involved in Biosynthesis of Sulfolipid and Polyacyltrehaloses in *Mycobacterium tuberculosis* Grown in Hypoxic Conditions
J. E. Rodriguez[1], R. Hernandez-Pando[2], C. Helguera-Repetto[3], J. Gonzalez y Merchand[3], C. Y. Soto[1]; [1]Univ. Natl. de Colombia, Bogota, COLOMBIA, [2]Inst. Natl. de Ciencias Medicas y Nutricion "Salvador Zubiran", Mexico D. F., MEXICO, [3]Escuela Natl. de Ciencias Biologicas - Inst. Politecnico Natl., Mexico D. F., MEXICO.

2655 The Role of Eukaryotic-like Serine/Threonine Protein Kinases in the *Mycobacterium tuberculosis* Latency Switch
C. M. Ortega[1,2], R. Liao[1], D. Sherman[1,2], C. Grundner[1,2]; [1]Seattle BioMed. Res. Inst., Seattle, WA, [2]Univ. of Washington, Seattle, WA.

2656 The Effects of Glutathione and its Derivatives on the Survival of *Mycobacterium* bovis-BCG Vegetative and Persistent Organisms
N. D. Patel, M. A. Peteroy-Kelly; Pace Univ. - NYC, New York, NY.

2657 The Polyphosphate Kinase Gene MT3329 Is Required for Optimal *Mycobacterium tuberculosis* Growth *In Vitro* and in Mouse Lungs
Y-M. Chuang, P. C. Karakousis; Dept. of Med., Johns Hopkins Univ. Sch. of Med., Baltimore, MD.

2658 Alteration of Metabolism by *whiB6* in Response to Host Niche Enhances the Ability of *M. tuberculosis* to Enter Latency and Tolerate Antibiotics
B. Weinrick[1,2], D. Sambandan[1], T. Hartman[1], S. Tiwari[1], W. R. Jacobs, Jr.[1,2]; [1]Albert Einstein Coll. of Med., Bronx, NY, [2]Howard Hughes Med. Inst., Bronx, NY.

2659 Inorganic Polyphosphate Accumulation Leads to Antibiotic Tolerance and Increased Survival of *Mycobacterium tuberculosis* Under Stress Conditions
Y-M. Chuang, **P. C. Karakousis**; Johns Hopkins Univ. Sch. of Med., Baltimore, MD.

2660 Isolation and Characterization of the Phosphatidylserine Synthetase Knock-out Mutants of Mycobacteria
S. Maeda[1], N. Nakata[2], T. Naka[3,4], M. Kai[2], N. Fujiwara[3]; [1]The Res. Inst. of Tuberculosis, Tokyo, JAPAN, [2]Leprosy Res. Ctr., Natl. Inst. of Infectious Diseases, Tokyo, JAPAN, [3]Osaka City Univ. Graduate Sch. of Med., Osaka, JAPAN, [4]MBR Co. Ltd., Osaka, JAPAN.

2661 Computational Modeling of Genetic Requirements for *Mycobacterium tuberculosis* Persistence *In Vivo* and Experimental Validation in Murine Lungs
N. K. Dutta[1], B. Veeramani[2,3], G. Lamichhane[1], J. Bader[2,3], P. C. Karakousis[1,4]; [1]Ctr. for Tuberculosis Res., Dept. of Med., Johns Hopkins Univ., Baltimore, MD, [2]Dept. of BioMed. Engineering,Johns Hopkins Univ., Baltimore, MD, [3]High-Throughput Biology Ctr., Johns Hopkins Sch. of Med.,Johns Hopkins Univ., Baltimore, MD, [4]Dept. of Intl. Hlth., Johns Hopkins Bloomberg Sch. of Publ. Hlth., Johns Hopkins Univ., Baltimore, MD.

2662 Ant4 from Corynephage P1201 Interacts with Global Transcriptional Regulator RamA in *Corynebacterium Glutamicum* NCHU 87078 for Expression Control of Genes in Central Carbohydrate Metabolism
Y-c. Kuan[1], B-S. Huang[1], S-C. Chen[2], C-M. Chiang[2], C-C. Chen[3], W-H. Hsu[1], H-Y. Hu[4]; [1]Natl. Chung Hsing Univ., Taichung, TAIWAN, [2]Natl. Sun Yat-Sen Univ., Kaohsiung, Taiwan, Kaohsiung, TAIWAN, [3]Simpson Biotech Co., Ltd., Taoyuan County 333, Taiwan, Taoyuan, TAIWAN, [4]Hung Kuang Univ., Taichung, Taiwan, Taichung, TAIWAN.

2663 Deletion of Glycopeptidolipids in *Mycobacterium smegmatis* J15cs Strain and its Host Responses
N. Fujiwara[1], T. Naka[1,2], M. Ayata[1], M. Ogawa[3], K. Fukuda[3], S. Maeda[4], H. Ogura[1], M. Shibata[1,5], Y. Ogura[6], T. Hayashi[6], H. Taniguchi[3]; [1]Osaka City Univ. Graduate Sch. of Med., Osaka, JAPAN, [2]MBR Co. Ltd., Osaka, JAPAN, [3]Sch. of Med., Univ. of Occupational and Environmental Hlth., Kitakyusyu, JAPAN, [4]The Res. Inst. of Tuberculosis, Japan Anti-Tuberculosis Association, Tokyo, JAPAN, [5]Kio Univ., Nara, JAPAN, [6]Frontier Sci. Res. Ctr., Univ. of Miyazaki, Miyazaki, JAPAN.

2664 Significance of Lipomannan and Lipoarabinomannan for the Integrity of Mycobacterial Cell Wall
Y. S. Morita[1], T. Fukuda[2], T. Matsumura[3], M. Ato[3], K. Kobayashi[3], Y. Maeda[2], T. Kinoshita[2]; [1]Univ. of Massachusetts, Amherst, MA, [2]Osaka Univ., Osaka, JAPAN, [3]Natl. Inst. of Infectious Diseases, Tokyo, JAPAN.

2665 The Role of PDIMs and PGLs in Virulence and Immunogenicity of BCG Vaccine Strains
V. Tran, J. Liu; Univ. of Toronto, Toronto, ON, CANADA.

2666 Lipid Phenotypes of Two Distinct Subpopulations of *Mycobacterium bovis Bacillus* Calmette-Guérin Tokyo 172 Substrain and their Host Responses
T. Naka[1,2], S. Maeda[3], M. Niki[1], N. Ohara[4], S. Yamamoto[5], I. Yano[5], J. Maeyama[6], H. Ogura[1], K. Kobayashi[6], M. Shibata[1,7], N. Fujiwara[1]; [1]Osaka City Univ. Graduate Sch. of Med., Osaka, JAPAN, [2]MBR Co. Ltd., Osaka, JAPAN, [3]The Res. Inst. of Tuberculosis, Japan Anti-Tuberculosis Association, Tokyo, JAPAN, [4]Okayama Univ. Graduate Sch. of Med. Dent. Pharm. Sci., Okayama, JAPAN, [5]Japan BCG Lab., Tokyo, JAPAN, [6]Natl. Inst. of Infectious Diseases, Tokyo, JAPAN, [7]Kio Univ., Nara, JAPAN.

2667 Identification of new genes associated to multidrug-resistance in *Mycobacterium tuberculosis*
K. Penuelas-Urquides[1,2], **L. González-Escalante**[1,2], L. Villarreal-Treviño[3], B. Silva-Ramírez[1], J. Dávila-Velderrain[4], S. Said-Fernández[5], M. Bermúdez de León[1]; [1]Mexican Social Security Inst., Monterrey, MEXICO, [2]Microbiol. Graduate Program, Faculty of Biological Sci. at Autonomus Univ. of Nuevo Leon, San Nicolás de los Garza, N.L., MEXICO, [3]Faculty of Biological Sci., Autonomus Univ. of Nuevo Leon, San Nicolás de los Garza, N.L., MEXICO, [4]Ctr. of Complexity Sci. C[3], Natl. Autonomus Univ. of Mexico, Mexico City, MEXICO, [5]Faculty of Med., Autonomus Univ. of Nuevo Leon, Monterrey,N.L., MEXICO.

2668 *IspA* (Rv1539) Gene of *Mycobacterium tuberculosis*: A Candidate Drug Target ?
R. Pathak; Vallabhbhai Patel Chest Inst., Univ. of Delhi, India, Delhi, INDIA.

2669 A Coenzyme F420-dependent Enzyme Generates Ketomycolic Acids in *Mycobacterium tuberculosis* and it is a New Target for a Tuberculosis Drug PA-824
E. Purwantini[1], **B. Mukhopadhyay**[1,2,3]; [1]Virginia Bioinformatics Inst., Virginia Tech, Blacksburg, VA, [2]Dept.s of Biochemistry, Virginia Tech, Blacksburg, VA, [3]Dept. of Biological Sci., Virginia Tech, Blacksburg, VA.

2670 A Novel Regulatory Network for Drug Resistance in Mycobacteria
J. Bowman, G. Hatfull, **P. Ghosh**; Univ. of Pittsburgh, Pittsburgh, PA.

2671 Genomic Variation in the DNA Degradation Locus of *Mycobacterium abscessus*
S. T. Howard, K. L. Newman, S. McNulty, B. A. Brown-Elliott, L. Bridge, R. J. Wallace, Jr.; Univ. of Texas Hlth.Sci. Ctr. at Tyler, Tyler, TX.

2672 Assessment of a Novel CNS TB Vaccine Using Molecular Imaging
C. Skerry, J. Harper, M. Pinn, P. C. Karakousis, S. K. Jain; Johns Hopkins Univ., Baltimore, MD.

2673 Novel approaches towards successful Recombinant BCG Vaccines
K. Velmurugan, R. Chang, J. Manoranjan, M. Fitzpatrick, C. Bourne, Z. Syed, D. Laddy, A. Teymouri, D. Hokey, D. Veerabadran, N. Cadieux, T. Evans; Aeras, Rockville, MD.

2674 IgM Anti-phospholipid Antibody Response in Cornell Mouse Model of Tuberculosis
A. Goodridge[1,2], T. Zhang[2], T. Miyata[3,2], M. Masuzawa[2], A. Iavarone[2], S. Lu[2], L. W. Riley[2]; [1]INDICASAT-AIP, City of Knowledge, PANAMA, [2]Univ. of California, Berkeley, CA, [3]Kitasato Univ., Kanagawa, JAPAN.

2675 Host Response to *Mycobacterium avium subsp. paratuberculosis* Infection Depends upon Epithelium Processing
E. A. Lamont, W. W. Xu, S. Sreevatsan; Univ. of Minnesota, Saint Paul, MN.

2676 Identification of a Novel Immunostimulatory Rv2882c Protein from *Mycobacterium tuberculosis* Culture Filtrate Proteins and its Biological Activity in Macrophages
H-G. Choi, B. Eui-Hong, K. Woo Sik, K. Jong-Seok, W. Jake, K. Kwangwook, S. Sung Jae, K. Hwa-Jung; Res. Inst. for Med. Sci., Coll. of Med., Chungnam Natl. Univ., Daejeon, KOREA, REPUBLIC OF.

Tuesday, June 19

1:00 p.m. – 2:45 p.m.

195 How the Drugs Attack the Bugs: Mechanisms of Action of Antimicrobials (Division A)

1:00 p.m. – 2:45 p.m.; Poster Hall

2677 A Mammalian Homolog of Antimicrobial and Antimalarial Drug Target IspD Lacks MEP Cytidyltransferase Activity
M. H. Black, A. R. Odom; Washington Univ. in St. Louis, St. Louis, MO.

2678 Leishmania LHR1 Mediates Heme Acquisition
R. L. Renberg, C. Huynh, A. R. Flannery, N. W. Andrews; Univ. of Maryland, Coll. Park, College Park, MD.

2679 Characterization of the interaction between Human Alpha Defensins and Lipid II
A. M. J. J. Bonvin[1], E. Breukink[2], **E. de Leeuw**[3]; [1]Utrecht Univ., Faculty of Sci., Utrecht, NETHERLANDS, [2]Utrecht Univeristy, Faculty of Sci., Utrecht, NETHERLANDS, [3]Inst. of Human Virology of the Univ. of Maryland Baltimore Sch. of Med., Baltimore, MD.

2680 Effects of Sub-inhibitory Concentrations of Antimicrobial Agents on *Escherichia coli* O157:H7 Shiga Toxin Release and Role of SOS Response
F. Nassar, A. Sabra, M-T. Khairallah, E. Rahal, G. M. Matar; American Univ. of Beirut, New York, NY.

2681 Identification of Cyclic Peptide Inhibitors of the σE-RybB Pathway
S. A. El-Mowafi, J. W. Tomsho, S. E. Ades, K. C. Keiler; Pennsylvania State Univ., University Park, PA.

2682 Ciclopirox Blocks Growth of Multidrug-Resistant *E. coli, K. pneumoniae,* and *A. baumannii* Clinical Isolates
K. M. Carlson, A. Chou, G. Cheng, R. L. Atmar, R. J. Hamill, Y. Song, L. Zechiedrich; Baylor Coll. of Med., Houston, TX.

2683 Development of Type III Secretion System Inhibitors Using Computational Modeling to Increase Efficacy and Provide Post Exposure Protection in a Cell Culture Model
D. Carmany[1], K. Williams[2], V. Funk[3], T. Henderson[3]; [1]Edgewood Chemical Biological Ctr., Battelle, APG, MD, [2]Edgewood Chemical Biological Ctr., ORISE, APG, MD, [3]Edgewood Chemical Biological Ctr., APG, MD.

2684 Detection of Covalent Gyrase-DNA Complex in *Escherichia coli*
S. Aedo, Y-C. Tse-Dinh; New York Med. Coll., Valhalla, NY.

2685 Silver Enhances the Activity and Broadens the Spectrum of Antibiotics against Gram-negative Bacteria
J. R. Morones[1,2,3], J. A. Winkler[2], C. S. Spina[4,3], J. J. Collins[1,2,3]; [1]Howard Hughes Med. Inst., Boston, MA, [2]Boston Univ., Boston, MA, [3]Wyss Inst. Harvard Univ., Boston, MA, [4]Boston Med. Sch., Boston, MA.

2686 The Effect of Meropenem on Ultra-structure of *Mycobacterium tuberculosis Cell Wall*
K. Arora[1], H. I. M. Boshoff[1], V. Nair[2], E. R. Fischer[2], C. E. Barry[1]; [1]NIH, Bethesda, MD, [2]NIH, Hamilton, MT.

2687 Properties of a Selective Inhibitor of Bacterial NAD+-dependent DNA Ligases with Efficacy in a Gram-positive Mouse-Infection Model
R. Lange, J-P. Surivet, N. Ekambaram, A. Athanasiou, L. Prade, A. Chambovey, A. Knezevic, D. Sabato, D. Ritz, M. Gaertner, H. Locher, P. Seiler, M. Enderlin, M. Boehme, C. Kohl, C. Hubschwerlen, W. Keck; Actelion Pharmaceuticals Ltd., Allschwil, SWITZERLAND.

2688 Diminished Competitive Fitness of Small-Colony Variants of *Staphylococcus aureus* Formed by Sublethal Exposure to Triclosan
J. Latimer, S. Forbes, A. J. McBain; Univ. of Manchester, Manchester, UNITED KINGDOM.

2689 Investigation of the Antimicrobial Effects of Statins on Staphylococcal Bacteria and their Synergistic Effects when Combined with Antimicrobials
K. M. Randel, J. T. Gray, H. Hulsebus, M. K. Henry; Des Moines Univ., Des Moines, IA.

2690 Effect of Antimicrobial Peptides on ATPase Activity and Proton Pumping in Plasma Membrane Vesicles Obtained from Mycobacteria
P. A. Santos, L. M. Salazar, **C. Y. Soto**; Univ. Natl. de Colombia, Bogota, COLOMBIA.

2691 Ultrastructural, Molecular and Proteomic Evaluation of the Antibacterial Effects of Silver Coated-Carbon Nanotubes
S. R. Pillai[1], S. Jain[1], M. Miller[2], A. Hundley[1], K. Vig[1], L. Pannell[3], V. Dennis[1], S. Singh[1]; [1]Ctr. for Nanobiotechnology Res., Alabama State Univ., Montgomery, AL, [2]Dept. of Biological Sci., Auburn, AL, [3]Mitchell Cancer Res. Inst., Univ. of South Alabama, Mobile, AL.

2692 Regulation of Aminopeptidase Y in Recombinant *Saccharomyces cerevisiae* to Improve Lysosomal Activity
J. Yoon[1], Y-H. Kim[2], J. Min[1]; [1]Chonbuk Natl. Univ., Jeonju, KOREA, REPUBLIC OF, [2]Chungbuk Natl. Univ., Cheongju, KOREA, REPUBLIC OF.

2693 The Shrimp Anti-lipopolysaccharide Factor (salf) Inhibits the Expression of Proinflammatory Cytokines by *Trichomonas* vaginalis-infected Hela Cells
M-C. Lin; Natl. Taiwan Univ., TAIWAN.

2694 Transcriptome Analysis Reveals Induction of Polyamine and Potassium Uptake against Spermine Stress in *Staphylococcus aureus*
X. Yao, **C-D. Lu**; Georgia State Univ., Atlanta, GA.

2695 A Non-ribosomal Antibiotic, Occidiofungin, Triggers Apoptosis in Fungal Cells
A. Ravichandran, L. Smith; Texas A&M, College Station, TX.

2696 The Essential Genome Maintenance Protein SSB Provides a Unique Target for Antimicrobial Compounds
A. Marceau[1], B. Walsh[2], L. Simmons[2], J. Keck[1]; [1]Univ. of Wisconsin-Madison, WI, [2]Univ. of Michigan, MI.

2697 A Novel Chitosan Derivative is Mucoadhesive and Reduces Binding of MRSA and *Acinetobacter baumannii* to Epithelial Cells
S. N. Garbers, M. C. Perez, **S. Townsend**, S. J. Ryan, S. M. Baker, W. P. Wiesman; Synedgen, Inc, Claremont, CA.

2698 Development of a Novel Scaffold for Anti-tubercular Drug Discovery
V. Dona, J. Lee, C. E. Barry, H. I. Boshoff; TRS-NIAID-NIH, Bethesda, MD.

2699 A Systems Biology Investigation of the Pathoblocker Carolacton in *Streptococcus mutans*
M. Reck[1], P. Sudhakar[2], B. Kunze[1], W. Wang[2], F. Song[2], A-P. Zeng[2], **I. Wagner-Döbler**[1]; [1]Helmholtz-Ctr. for Infection Res., Braunschweig, GERMANY, [2]Technical Univ. Hamburg-Harburg, Hamburg-Harburg, GERMANY.

2700 Transcriptional and Phenotypic Signatures of Cell Death in *Mycobacterium tuberculosis*
R. L. Edwards, H. I. M. Boshoff, C. E. Barry, III; NIH, Bethesda, MD.

2701 Anthocyanin inhibitis the secretion of toxins in *Helicobacter pylori*
S-H. Kim[1], P. Min[1], G. Lee[1], H. Woo[1], W-D. Seo[2], S-I. Han[2], J-B. Kim[1]; [1]Yonsei Univ., Wonju, KOREA, REPUBLIC OF, [2]Dept. of Functional Crop, NICS, Miryang, KOREA, REPUBLIC OF.

2702 Comparative Structural and Physiological Analysis of Clinically Relevant Bacterial Pathogens Exposed to Disinfectants
D. Del Re[1], R. Dhyani[2,1], R. Mair[1], C. Ikeno[3], M. Legner[2], D. G. Cvitkovitch[2], D. Swift[1]; [1]Biolennia Lab., Toronto, ON, CANADA, [2]Univ. of Toronto, Toronto, ON, CANADA, [3]Micrylium Lab., Toronto, ON, CANADA.

2703 Bacterial Sensitivity to DNA Damage Induced by Radiomimetic Drugs
A. Chen, K. Chen, **C. Andros**, D. Holmes, D. R. Kennedy; Western New England Univ., Springfield, MA.

196 Biofilm Formation II (Division B)

1:00 p.m. – 2:45 p.m.; Poster Hall

2704 Identification of a Cyclic-di-GMP-regulated Agglutination Protein That Contributes to Determination of Biofilm Structure in *Vibrio vulnificus*
J. Park[1], Y. Jo[1], Y. Irie[2], W-B. Kim[3], M. R. Parsek[2], S. Choi[1]; [1]Seoul Natl. Univ., Seoul, KOREA, REPUBLIC OF, [2]Univ. of Washington, Seattle, WA, [3]Univ. of Illinois, Urbana-Champaign, IL.

2705 Synthesis and Evaluation of the Quorum Sensing Inhibitory Effect of Substituted Triazol-Dihydrofuranones
G. Brackman, M. Risseeuw, S. Celen, H. Nelis, S. Van Calenbergh, **T. Coenye**; Ghent Univ., Gent, BELGIUM.

2706 *SmcR*, a LuxR Homologue of *Vibrio vulnificus*, Controls Biofilm Dispersion
S. Kim[1], H. Han[2], K-k. Jang[1], S. Choi[1]; [1]Coll. of Agriculture and Life Sci., Seoul Natl. Univ., Seoul, KOREA, REPUBLIC OF, [2]Coll. of Vet. Med., Seoul Natl. Univ., Seoul, KOREA, REPUBLIC OF.

2707 Hfq and Hfq-dependent Small RNAs are Major Contributors to Multicellular Development in *Salmonella enterica* serovar Typhimurium
I. Ahmad[1], C. Monteiro[1], K. Papenfort[2,3], K. Hentrich[1], S. L. Guyon[1], R. Reimann[1], N. Grantcharova[1], U. Römling[1]; [1]Dept. of Microbiol., Tumor and Cell biology Karolinska Inst.t, Stockholm, SWEDEN, [2]RNA Biology Group, Max Planck Inst. for Infection Biology, Berlin, GERMANY, [3]2RNA Biology Group, Max Planck Inst. flnst. for Molecular Infection Biology, Univ. of Würzburg, Würzburg, GERMANY.

2708 Hfq-Dependent Repression of Cyclic Diguanylate Synthesis and Biofilm Formation in the Plague Pathogen *Yersinia pestis*
L. E. Bellows[1], C. M. Waters[2], **W. W. Lathem**[1]; [1]Northwestern Univ., Chicago, IL, [2]Michigan State Univ., East Lansing, MI.

2709 Control of *Salmonella* Biofilm Formation Via RpoS-dependent Activation of the CpxA/R Two-component System
L. Waldner, A. P. White; VIDO, Saskatoon, SK, CANADA.

2710 A RNA-seq Approach to Investigate the Dynamics of *Salmonella* Biofilm Development
K. D. MacKenzie[1,2], L. J. L. Hoffman[3], A. P. White[1,2]; [1]Vaccine and Infectious Disease Organization, Saskatoon, SK, CANADA, [2]Dept. of Microbiol. and Immunology, Univ. of Saskatchewan, Saskatoon, SK, CANADA, [3]Dept. of Biochemistry and Microbiol., Univ. of Victoria, Victoria, BC, CANADA.

2711 Hfq is Required for the Proventricular Biofilm Blockage Mechanism of Flea-borne Transmission of *Yersinia pestis*
K. Rempe[1], A. Hinz[2], **V. Vadyvaloo**[2]; [1]Duke Univ., Durham, NC, [2]Washington State Univ., Pullman, WA.

2712 Elucidating the Function of *Enterococcus faecalis* Eep Metalloprotease in the Virulence of Biofilm Infections
K. L. Frank[1], P. S. Guiton[2], S. J. Hultgren[2], P. M. Schlievert[1], G. M. Dunny[1]; [1]Univ. of Minnesota, Minneapolis, MN, [2]Washington Univ., St. Louis, MO.

2713 Structural characterization of the *Pseudomonas syringae* alginate epimerase AlgG
F. Wolfram[1], P. Yip[1], J. C. Whitney[1,2], J. Koo[1,2], H. Robinson[3], P. L. Howell[1,2]; [1]The Hosp. for Sick Children, Toronto, ON, CANADA, [2]Univ. of Toronto, Toronto, ON, CANADA, [3]Brookhaven Natl. Lab., Upton, NY.

2714 Curli Genes *csgA* and *csgB* of *Cronobacter* are Involved in Biofilm Formation
L. HU, C. J. Grim, A. A. Franco, K. G. Jarvis, G. Gopinath, V. Sathyamoorthy, M. Kothary, B. A. McCardell, B. D. Tall; US FDA, Laurel, MD.

2715 Effects of Quorum Signalling on Biofilm Formation and Persistence *in vivo* in *Streptococcus pneumoniae*
A. Perez, W. Swords; Wake Forest Univeristy Baptist Hosp., Winston-Salem, NC.

2716 Role of Capsular Polysaccharide in the Dispersal Stage of Biofilm Formation and Regulation of its Production by Quorum-Sensing Mechanism in *Vibrio vulnificus* MO6-24/O
W. Hwang, H-S. Kim, K-J. Lee, J-A. Kim, K-H. Lee; Sogang Univ., Seoul, KOREA, REPUBLIC OF.

2717 AtlA: Major Autolysin in *Enterococcus faecium* Involved in Cell Separation, eDNA Release and Biofilm Formation
F. L. Paganelli, P. Jansen, R. J. L. Willems, H. L. Leavis; UMC Utrecht, Utrecht, NETHERLANDS.

2718 Comparative Proteomic Analysis of Encapsulated Opaque and Biofilm-Proficient Rugose Phase Variants of the Human Pathogen *Vibrio vulnificus*
Z. M. Kaluskar, G. S. Pettis; Louisiana State Univ., Baton Rouge, LA.

2719 Characterization of AlgX, a Member of the *Pseudomonas aeruginosa* Alginate Secretion System
L. Riley[1], J. Weadge[1,2], D. E. Ohman[3,4], K. Arnett[5], P. Tipton[5], H. Robinson[6], B. Rehm[7], P. L. Howell[1,8]; [1]The Hosp. for Sick Children, Toronto, ON, CANADA, [2]Wilfred Laurier Univ., Waterloo, ON, CANADA, [3]Virginia Commonwealth Univ., Richmond, VA, [4]McGuire VA Med. Ctr., Virginia, VA, [5]Univ. of Missouri, Columbia, MO, [6]Brookhaven Natl. Lab., Upton, NY, [7]Massey Univ., Palmerston North, NEW ZEALAND, [8]Univ. of Toronto, Toronto, ON, CANADA.

2720 "Transposon Mutagenesis in Uropathogenic *Escherichia coli* Identifies VisC, a Factor that Affects Biofilm Formation and Virulence by Altering Membrane Potential"
M. Hadjifrangiskou[1], A. P. Gu[2], J. S. Pinkner[1], E. W. Zhang[2], M. Kostakioti[1], W. J. Strauss[2], S. J. Hultgren[1]; [1]Washington Univ. Sch. of Med., Saint Louis, MO, [2]Washington Univ. in Saint Louis, Saint Louis, MO.

2721 A High-Throughput Image Based Genome-Scale Screen to Identify Genes Important for Biofilm Formation in *Vibrio cholerae*
L. Townsley, F. Yildiz; Univ. of California, Santa Cruz, Santa Cruz, CA.

2722 A Putative MerR Family Regulator Involved in Biofilm Formation in *Listeria monocytogenes* 4b G
Y. Huang[1], C. Shi[1], S. Yu[1], K. Li[2], X. Shi[1]; [1]MOST-USDA Joint Res. Ctr. for Food Safety and Bor Luh Food Safety Ctr., Sch. of Agriculture and Biol., Shanghai Jiao Tong Univ., Shanghai, CHINA, [2]Zhejiang Entry-Exit Inspection and Quarantine Bureau, Zhejiang, CHINA.

2723 Biofilm-Associated Pathogenesis of *E. coli* O104:H4
R. Al Safadi[1,2], G. S. Abu-Ali[3], R. E. Sloup[2], J. T. Rudrik[4], C. Waters[2], K. A. Eaton[5], S. D. Manning[1,2]; [1]Microbial Evolution and Epidemiology Lab., East Lansing, MI, [2]Dept. of Microbiol. and Molecular Genetics, Michigan State Univ., East Lansing, MI, [3]Ctr. for Food Safety and Applied Nutrition, U.S. Food and Drug Admin., Laurel, MD, [4]Michigan Dept. of Community Hlth., Bureau of Lab., Lansing, MI, [5]Dept. of Microbiol. and Immunology, Univ. of Michigan Med. Sch., Ann Arbor, MI.

2724 Hypermutators: Damaged DNA Repair Mechanisms and the Effects on *Staphylococcus aureus* Biofilms
A. E. Ortega, G. S. Canfield, S. R. Gill; Univ. of Rochester Sch. of Med., Rochester, NY.

2725 Characterization of the *Staphylococcus aureus* Nitric Oxide Reductase *(nor)* Gene
A. M. Sapp[1], J. L. Endres[2], K. W. Bayles[2], K. C. Rice[1]; [1]Univ. of Florida, Gainesville, FL, [2]Univ. of Nebraska, Omaha, NE.

2726 Alternative Expression of the bdlA (Biofilm Dispersion Locus) Gene Product in an Isogenic oxyR Mutant of *Pseudomonas aeruginosa* Renders oxyR Mutant Biofilms Insensitive to the Dispersant, Sodium Arsenite
W. panmanee[1], A. Mahavihakanont[2], S. Rattanaprapanporn[3], S. Mongkolsuk[2], M. Whiteside[4], F. Brinkman[5], K. Sauer[6], P. Cornelis[7], D. J. Hassett[1]; [1]Univ. of Cincinnati Coll. of Med., Cincinnati, OH, [2]Mahidol

Univ., Bangkok, THAILAND, [3]Chulabhorn Res. Inst., Bangkok, THAILAND, [4]Simon Fraser Univ., Burnaby, BC, CANADA, [5] Simon Fraser Univ., Cincinnati, BC, CANADA, [6]Binghamton Univ., Binghamton, NY, [7]Vrije Univ.it Brussel, BRUSSEL, BELGIUM.

197 Genetics and Genomics of Microbial Pathogens II (Division B)

1:00 p.m. – 2:45 p.m.; Poster Hall

2727 Transfer of an Unstable Pathogenicity Island of *Salmonella* Enteritidis Occurs by Conjugation and it is Increased by Temperature and pH
F. J. Salazar[1,2], H. E. Tobar[1], P. A. Nieto[1], R. Vidal[2], A. M. Kalergis[1], S. M. Bueno[1]; [1]Pontifical Catholic Univ. of Chile, Santiago, CHILE, [2]Univ. of Chile, Santiago, CHILE.

2728 SELEX-seq without aptamers: Transcription Factor Binding Site Discovery Made Easy
D. J. Reiss, F. Howard, H. Mobley; Univ. of Michigan, Ann Arbor, MI.

2729 Phenotype Array Comparison of Highly Divergent *Clostridium* Difficile Strains
J. Scaria[1], J-W. Chen[1], C. Mao[2], B. Sobral[2], **Y. Chang**[1]; [1]Coll. of Veterianry medicine, Cornell Univ., Ithaca, NY 14850, Ithaca, NY, [2]Cyberinfrastructure Div., Virginia Bioinformatics Inst., Blacksburg, VA.

2730 Proteomic Comparison of Historic and Recently Emerged Hypervirulent *Clostridium* Difficile Strains
J-W. Chen[1], J. Scaria[1], C. Mao[2], B. Sobral[2], Y. Chang[1]; [1]Coll. of Veterianry medicine, Cornell Univ., Ithaca, NY 14850, Ithaca, NY, [2]Cyberinfrastructure Div., Virginia Bioinformatics Inst., Blacksburg, VA.

2731 Establishment of Transcriptome Landscape of Multiple *Clostridium* Difficile Strains Using Rna Sequencing
J. Scaria[1], J-W. Chen[1], C. Mao[2], B. Sobral[2], Y. Chang[1]; [1]Coll. of Veterianry medicine, Cornell Univ., Ithaca, NY 14850, Ithaca, NY, [2]Cyberinfrastructure Div., Virginia Bioinformatics Inst., Blacksburg, VA.

2732 Pathogenomics of the AEEC Pathogens: Redefining the Pathovar Paradigm Using Whole-Genome Phylogeny
T. H. Hazen[1], J. W. Sahl[1], M. S. Donnenberg[2], C. M. Fraser-Liggett[1], D. A. Rasko[1]; [1]Inst. for Genome Sci., Baltimore, MD, [2]Sch. of Med., Baltimore, MD.

2733 Comparative Analysis of Genotypic and Transcriptomic Profiles in *Escherichia coli* O157:H7 Strains
I. R. Patel, S. A. Jackson, C. A. Elkins; Food and Drug Admin., Laurel, MD.

2734 Prevalence and Persistence of *Escherichia coli* in the Airways of Cystic Fibrosis Patients—an Unrecognized Niche for *E. coli*?
P. Barillova[1], S. Deiwick[1], E. Sokurenko[2], **B. C. Kahl**[1]; [1]Med. Microbiol., Univ. and Hosp. Muenster, Muenster, GERMANY, [2]Dept. of Microbiol., Univ. of Washington, Seattle, WA.

2735 Construction of a Mutant Library in the Anaerobic Commensal, *Bacteroides fragilis*, Using a Modified Commercial Transposome
V. Yaligara, F. Husain, H. M. Wexler; Greater Los Angeles VA Med. Ctr., Los Angeles, CA.

2736 Comparative Genomics and *stx*-Phage Characterization of LEE-Negative Shiga Toxin-Producing *Escherichia coli*
S. R. Steyert[1], J. W. Sahl[1], S. A. Jackson[2], C. M. Fraser-Liggett[1], D. A. Rasko[1]; [1]Univ. of Maryland Sch. of Med./IGS, Baltimore, MD, [2]FDA/CFSAN, Laurel, MD.

2737 Bioinformatic, *in vitro*, and *in vivo* Methods to Identify Mediators of Pathogenesis in *Shigella flexneri*
C. R. Morris[1], J. C. Redman[1], C. L. Grassel[2], E. M. Barry[2], D. A. Rasko[1]; [1]Univ. of Maryland Inst. for Genome Sci., Baltimore, MD, [2]Univ. of Maryland Ctr. for Vaccine Dev., Baltimore, MD.

2738 Comparative Genomic Analysis of *Salmonella* Typhimurium Isolates Reveals Genetic Determinants of Multidrug-Resistance and Systemic Infection
H. Kwan[1], C. Au[1], L. Li[1], M. Cheung[1], C. Cheng[1], W. M. W. Cheung[1], T. Law[1], J. M. L. Ling[1], K. Kam[2], J. Qin[1], W. W. Y. Chum[1], K. Wong[1], W. Y. W. Fung[1]; [1]The Chinese Univ. of Hong Kong, Shatin, HONG KONG, [2]Dept. of Hlth., HONG KONG.

2739 Differential Transcriptional Regulation Between Egg-contaminating and Non-egg-contaminating Strains of *Salmonella* Enteritidis
L. Orfe[1], P. T. Desai[2], J. D. Shah[3], J. Guard[4], D. R. Call[1,5], **D. H. Shah**[1,5]; [1]Washington State Univ., Pullman, WA, [2]Vaccine Res. Inst. San Diego, San Diego, CA, [3]Univ. of Minnesota, Dept. of Vet. and BioMed. Sci., St. Paul, MN, [4]United States Dept. of Agriculture, Agricultural Res. Services, Athens, GA, [5]Paul Allen Sch. for Global Animal Hlth., Pullman, WA.

2740 Genome-wide Identification of *Salmonella* Typhi Genes Required for Systemic Colonization in a Murine Model of Salmonellosis
C. Valenzuela[1], C. A. Silva[1,2,3], S. A. Álvarez[1], I. Contreras[1], G. Mora[4], S. Porwollik[2], M. McClelland[2,3], **C. A. Santiviago**[1]; [1]Univ. de Chile, Santiago, CHILE, [2]Vaccine Res. Inst. of San Diego, San Diego, CA, [3]Univ. of California, Irvine, CA, [4]Univ. Andrés Bello, Santiago, CHILE.

2741 The Use of Parallel Mutant Screening to Identify Novel Interspecies Interactions: *Salmonella* and *Enterobacter* in Gnotobiotic Mice
M. M. Ali[1,2,3], J. Dyszel[1,2], J. Smith[1,2], Y. Dieye[1,2], D. E. Newsom[4], S. Krakowka[5], P. White[4], B. M. M. Ahmer[1,2]; [1]The Dept. of Microbiol., The Ohio State Univ., Columbus, OH, [2]The Ctr. for Microbial Interface Biology, The Ohio State Univ., Columbus, OH, [3]Dept. of Med. Microbiol. and Immunology, Faculty of Med., Mansoura Univ., Mansoura, EGYPT, [4]The Res. Inst. at Nationwide Children's Hosp., Columbus, OH, [5]Dept. of Vet. BioSci.s, The Ohio State Univ., Columbus, OH.

2742 Complete Sequence of the Large Virulence Plasmid from Enteroaggregative *Escherichia coli* Strain 60A
Laboratory in Microbiology and Molecular Biology, **A-R. Pesce**, Y. Hamid, N. B. Martin, **M. Morgan**, P. M. Meneely, I. N. Okeke; Haverford Coll., Haverford, PA.

2743 Role of the Pathogenicity Islands Excision in Bacterial Virulence: ROD21 of *Salmonella enterica* Serovar Enteritidis as an Example
H. Tobar[1,2], F. Salazar-Echegarai[1,2], P. Nieto[1,2], C. Palavecino[1,2], C. A. Santiviago[3], A. Kalergis[1,2], S. Bueno[1,2]; [1]Pontificia Univ. Católica de Chile, Santiago, CHILE, [2]Millenium Inst. on Immunology and Immunotherapy, Santiago, CHILE, [3]Univ. de Chile, Santiago, CHILE.

2744 Molecular Characterization of the Pathogenicity Island in *Campylobacter fetus* subspecies
L. van der Graaf-van Bloois[1,2], G. Gorkiewicz[3], W. G. Miller[4], J. A. Wagenaar[1,2,5], **B. Duim**[1,2]; [1]Utrecht Univ., Utrecht, NETHERLANDS, [2]WHO collaborating Ctr. for Campylobacter / OIE Reference Lab. for Campylobacteriosis, NETHERLANDS, [3]Inst. of Pathology, Med. Univ. of Graz, Graz, AUSTRIA, [4]Produce Safety and Microbiol. Res. Unit, Agricultural Res. Service, Albany, CA, [5]Central Vet. Inst. of Wageningen UR, Lelystad, NETHERLANDS.

2745 Genetic Variablity within *Campylobacter jejuni* Strain 81-176
K. L. Mohawk[1], F. Poly[1], C. P. Ewing[1], J. W. Sahl[2], D. A. Rasko[2], P. Guerry[1]; [1]Naval Med. Res. Ctr., Silver Spring, MD, [2]Inst. for Genome Sci., Baltimore, MD.

2746 CRISPR Subtyping of an Unbiased Set of Clinical *Salmonella enterica* subsp. *enterica* serovar Enteritidis Isolates
N. Shariat[1], M. J. DiMarzio[1], S. Yin[1], R. Barrangou[1,2], E. G. Dudley[1]; [1]Pennsylvania State Univ., University Park, PA, [2]Danisco USA Inc., Madison, WI.

2747 Global Identification of Genes Involved in the Preferential Colonization of Murine Mammary Tumor Tissue by *Salmonella In Vivo*.
C. A. Silva[1,2,3], P. Cheng[2], M. Zhao[4], Y. Zhang[4], R. Hoffman[4], S. Porwollik[2], I. Contreras[1], C. A. Santiviago[1], M. McClelland[2,3]; [1]Laboratorio de Microbiología, Facultad de Ciencias Químicas y Farmacéuticas, Univ. de Chile, Santiago, CHILE, [2]Vaccine Res. Inst. of San Diego, San Diego, CA, [3]Univ. of California, Irvine, Irvine, CA, [4]AntiCancer Inc, San Diego, CA.

2748 Structural Genomics of Microbial Pathogens: Five Hundred New Protein Structures
P. J. Myler[1,2], L. Stewart[3], W. C. Van Voorhis[2], G. Varani[2], G. W. Buchko[4], R. Stacy[1], the Seattle Structural Genomics Center for Infectious Disease; [1]Seattle BioMed. Res. Inst., Seattle, WA, [2]Univ. of Washington, Seattle, WA, [3]Emerald BioStructures, Bainbridge Island, WA, [4]Pacific Northwest Natl. Lab., Richland, WA.

2749 Characterization of a Novel IncFIB Virulence Plasmid in *Salmonella enterica* serovar Typhimurium
D. P. Haarmann, A. Lynne; Sam Houston State Univ., Huntsville, TX.

2750 Comparative Genomics of Shiga Toxin-Producing *Escherichia coli* O145:H28 Strains Associated with the 2007 Belgium and 2010 US Outbreaks
K. K. Cooper[1], P. S. Chain[2], S. Ahmed[2], S. Huynh[1], C. T. Parker[1], R. E. Mandrell[1], M. Q. Carter[1]; [1]Produce Safety and Microbiol. Res. Unit, Western Regional Res. Ctr., ARS, USDA, Albany, CA, [2]Genome Sci., BioSci. Div., Los Alamos Natl. Lab., MS-M888, HRL, Los Alamos, NM.

2751 Identification of Genes Important for Intestinal Persistence of *Salmonella* enterica serotype Typhimurium in Chicken
H. Yang[1], L. Bogomolnaya[1], S. Porwollik[2], M. McClelland[2,3], H. Andrews-Polymenis[1]; [1]Texas A&M Hlth.Sci. Ctr., College Station, TX, [2]Vaccine Res. Inst. of San Diego, San Diego, CA, [3]Univ. of California, Irvine, CA.

2752 Molecular Analysis of CMY2 Plasmid Dissemination from Diverse Isolates of *Salmonella*
S. Akbar, J. Gray, H. Hulsebus; Des Moines Univ., Des Moines, IA.

2753 Determination of the *agr* Regulator and Leukocidins Genes in Methicillin- Resistant *Staphylococcus spp.* Strains
A. Hamdan-Partida, G. Ramirez, T. Sainz, J. Bustos-Martinez; Univ. Autonoma Metropolitana-Xochimilco, Mexico City, MEXICO.

198 Molecular Epidemiology: Gram Negative Organisms (Division C)

1:00 p.m. – 2:45 p.m.; Poster Hall

2754 Evaluation of the Automated EasyMag Extractor for Extraction of Bacteria DNA to Use in Diversilab REP PCR based Strain Typing
C. Kubasek, S. Silbert, R. Widen; Tampa Gen. Hosp., Tampa, FL.

2755 Diversity of Multidrug Resistant *Acinetobacter baumannii* Clonal Complexes in a Cohort of Intensive Care Patients in Rio de Janeiro, Brazil and their Association with Class 1 and 2 Integrons
N. Martins[1], R. Picão[1], V. Girão[1], T. Coelho-Souza[1], L. Riley[2], B. Meurer[1]; [1]Univ.e Federal do Rio de Janeiro, Rio de Janeiro, BRAZIL, [2]Sch. of Publ. Hlth., Univ. of California, Berkeley, CA.

2756 *Escherichia coli* from Dutch Patients and Retail Chicken Meat Share the Same Plasmid Encoded AmpC Gene and Plasmids
G. M. Voets[1], C. M. Schapendonk[1], J. Scharringa[1], J. Cohen Stuart[1], M. A. Leverstein-van Hall[1,2], **A. C. Fluit**[1]; [1]Univ. Med. Ctr. Utrecht, Utrecht, NETHERLANDS, [2]Inst. for Publ. Hlth.and the Environment, Bilthoven, NETHERLANDS.

2757 Genetic Analysis of the Enteroaggregative *Escherichia coli* Heat-Stable Enterotoxin (EAST1) Gene from Atypical Enteropathogenic *Escherichia coli* (EPEC) Strains
L. E. P. Silva, N. B. Teixeira, I. C. A. Scaletsky; Univ.e Federal de São Paulo, São Paulo, BRAZIL.

2758 Outbreak of KPC-2-producing *Klebsiella pneumoniae* isolates in two Texas hospitals: Report from the SENTRY Antimicrobial Surveillance Program
M. Castanheira, S. E. Farrell, L. M. Deshpande, **R. E. Mendes**, R. N. Jones; JMI Lab., North Liberty, IA.

2759 Molecular Characterization of Antibiotic Resistance among *Shigella sonnei* Isolates from Bhutan
S. Ruekit[1], S. Wangchuk[2], T. Dorji[2], K. P. Tshering[3], O. Serichantalergs[1], L. Bodhidatta[1], C. J. Mason[1]; [1]Armed Forces Res. Inst. of Med. Sci., Bangkok, THAILAND, [2]Publ. Hlth.Lab., Thimphu, BHUTAN, [3]Jigme Dorji Wangchuk Natl. Referral Hosp., Thimphu, BHUTAN.

2760 Comparison of Virulence factors, Phylogenetic groups and Ciprofloxacin susceptibility between *Escherichia coli* Isolated from healthy students and uropathogenic *E. coli* Isolated from patients with urinary tract infection in Korea
M. Park[1], S. Park[1], S-H. Kim[1], G. Lee[1], H. Woo[1], Y. Uh[2], W-D. Seo[3], J. Kim[1]; [1]Yonsei Univ., Wonju, KOREA, REPUBLIC OF, [2]Yonsei Univ. Wonju Coll. of Med., Wonju, KOREA, REPUBLIC OF, [3]Dept. of Functional Crop, NICS, Miryang, KOREA, REPUBLIC OF.

2761 Fecal Reservoir of *Escherichia coli* Clonal Group A in Ile-Ife, Southwest Nigeria
B. W. Odetoyin[1], A. S. Labar[2], **O. A. Aboderin**[1,3], I. N. Okeke[2]; [1]Obafemi Awolowo Univ., Ile-Ife, NIGERIA, [2]Haverford Coll., Haverford, PA, [3]Obafemi Awolowo Univ. Teaching Hosp. Complex, Ile-Ife, NIGERIA.

2762 Prevalence of CTX-M, AmpC, OXA, TEM and SHV Genes Among the Extended Spectrum Beta-lactamase (ESBL) Producing *Enterobacteriaceae* Strains Isolated from Clinical Specimens in a Secondary Care Center in Chennai, India
V. -. -. -. Tiru[1], S. Murali[2], M. Jambulingam[2], M. N. Hajib[2]; [1]Sundaram Med. Fndn., Dr.Rangarajan Mem. Hosp., Chennai, INDIA, [2]L & T Microbiol. Res. Ctr., Vision Res. Fndn., Sankara Nethralaya, Chennai, INDIA.

2763 *Helicobacter pylori* cagL Amino Acid Polymorphisms and its Association with ADAM17 Expression in Gastroduodenal Diseases
K. Prasad[1], S. K. Shukla[1], A. Tripathi[1], V. Jaiswal[1], U. C. Ghoshal[1], N. Krishnani[1], N. Husian[2]; [1]Sanjay Gandhi PGIMS, Lucknow, U.P., INDIA, [2]R.M.L. Inst. of Med. Sci., Lucknow, U.P., INDIA.

2764 Phenotypic and Genotypic Characterization of *Enterotoxigenic Escherichia coli* Strains Obtained from Children with Diarrhea in Colombia
J. A. Guerra, Y. C. Romero-Herazo, O. G. Gomez-Duarte; Vanderbilt Univ., Nashville, TN.

2765 Identification of Clone Circulating of *Neisseria meningitides* Serogroup A Isolated from Invasive Meningococcal Disease in Delhi, India (2005-2011)
S. Dwivedi[1], B. K. Das[1], A. Kapil[1], S. Sood[1], R. Chaudhry[1], M. Deb[2], D. Nair[2], S. Gupta[3]; [1]All India Inst. of Med. Sci., Delhi, INDIA, [2]Vardhman Mahavir Med. Coll. and Safdarjung Hosp., Delhi, INDIA, [3]Natl. Ctr. for Disease Control, Delhi, INDIA.

2766 Molecular Assays for the Screening and Identification of Enteroinvasive *Escherichia coli* and *Shigella* Species
B. L. Schoen, S. J. Uhlfelder, C. M. Bolger, R. Binet; FDA, College Park, MD.

2767 Investigating Sporadic *C. jejuni* Infections in the United States Using MLST in Conjunction with Antimicrobial Susceptibility and Epidemiological Data
P. S. L. Kwan[1], M. Santovenia[1], W. Manley[2], R. Howie[1], J. Abbott[3], K. Joyce[1], P. I. Fields[1], J. Whichard[1], S. Zhao[3], C. Fitzgerald[1]; [1]CDC, Atlanta, GA, [2]Wyoming Publ. Hlth.Lab., Cheyenne, WY, [3]U.S. FDA, Laurel, MD.

2768 Identification of Serotype-specific Genes by Comparative Analysis of *Salmonella* Genome Sequences
B. Tankouo-Sandjong, I. Wallace, H. Kinde; UC Davis, Davis, CA.

2769 Presence of Virulence Factor Genes in CTX-M-15-producing *Escherichia coli* isolates of different clonal lineages from Nigeria - ST131 and ST10 Complex
B. Ghebremedhin[1], I. Aibinu[2], T. Odugbemi[2], W. König[1]; [1]Clinical Microbiol., Magdeburg, GERMANY, [2]Med. Microbiol. & Parasitol., Lagos, NIGERIA.

2770 Emergence of *P. aeruginosa* with Carbapenemase in a Teaching Hospital in Buenos Aires Argentina. A Seven Years' Study
D. García, S. Arduino, M. Zarate, M. S. Relloso, F. Nicola, **J. Smayevsky**; CEMIC, Buenos Aires, ARGENTINA.

2771 Antibiotcic Resistance Profile, Plasmid Analysis and Restriction Endonuclease Analysis of Bacteria Associated with Pnemonia in HIV/AIDS Patients in Ekiti State, Nigeria
A. O. Oluyege, DR[1], B. O. Ojo[2]; [1]Univ. of Ado Ekiti, Ado-Ekiti, NIGERIA, [2]Federal Med. Ctr., Ido- Ekiti, NIGERIA.

2772 Surveillance of KPC Carbapenemase-Producing *Klebsiella pneumoniae*, Northeastern Pennsylvania
D. Serfass[1], B. Stanton[1], L. Williams[1], K. Szulborski[2], **K. Pidcock**[1], H. Namdari[3]; [1]Wilkes Univ., Wilkes Barre, PA, [2]Dickinson Coll., Carlisle, PA, [3]Clin-Micro Immunology Ctr., Clarks Summit, PA.

2773 Molecular Characterization and Resistance Analysis of Travel Associated *Salmonella enterica* serotype Typhi in Florida
A. Tatavarthy[1], R. Sanderson[2], K. Peak[1], G. Scilabro[2], P. Davenhill[1], A. Cannons[1], P. Amuso[2]; [1]Univ. of South Florida, Tampa, FL, [2]Florida Dept. of Hlth., Tampa, FL.

2774 Multilocus Sequence Typing of *Salmonella* Enteritidis Strains Isolated from Humans, Food and Animals During 24 Years in Brazil
F. Campioni[1], A. M. Bergamini[2], M. I. Medeiros[2], **J. P. Falcão**[1]; [1]Faculdade de Ciências Farmacêuticas de Ribeirão Preto, Ribeirão Preto - São Paulo State, BRAZIL, [2]Inst. Adolfo Lutz de Ribeirão Preto, Ribeirão Preto - São Paulo State, BRAZIL.

2775 Genomic Organization and Clonal Dissemination of Carbapenemase Encoding Genes (blaOXA-23 and blaOXA-24) in *Acinetobacter baumannii* from Houston, Texas
N. Azam; Long Island Univ., Brooklyn, NY.

2776 Enterotoxigenic *Escherichia coli* as a Diarrheagenic Agent in Belo Horizonte/Brazil
C. S. Paula, F. J. Penna, A. C. F. Assis, J. M. Azeredo, L. A. Peret Filho, E. N. Mendes, **P. P. Magalhães**; Univ.e Federal de Minas Gerais, Belo Horizonte, BRAZIL.

2777 Two-Locus Genotyping of *Escherichia coli* Allows Prediction of Clinical Outcomes and Resistance to Antibiotics
V. Tchesnokova[1], M. Billig[1], A. Gileva[1], S. Chattopadhyay[1], A. Limaye[1], D. Scholes[2], S. Weissman[3], J. Johnson[4], E. Sokurenko[1]; [1]Univ. of Washington, Seattle, WA, [2]Group Hlth.Res. Inst., Seattle, WA, [3]Children's Hosp., Seattle, WA, [4]Univ. of Minnesota, Minneapolis, MN.

199 Molecular Epidemiology: Gram Positive Organisms (Division C)

1:00 p.m. – 2:45 p.m.; Poster Hall

2778 Genetic Diversity of *Staphylococcus aureus* Isolates in Lebanon
S. Tokajian[1], H. Harastani[1], F. Hashwa[1], G. Araj[2]; [1]Lebanese American Univ., Byblos Campus, LEBANON, [2]American Univ. of Beirut, Byblos Campus, LEBANON.

2779 Emergence of vancomicyn Resistant *Enterococcus faecium* in a Hospital of Porto Alegre, Southern Brazil
J. Caierão, M. Resende, P. A. d'Azevedo; UFCSPA, Porto Alegre, BRAZIL.

2780 Evaluation of a Real-Time PCR Assay for Detection of Vancomycin Resistance Markers in Samples Submitted for Vancomycin-Resistant *Enterococci* (VRE) Surveillance
P. S. Wolfe, M. J. Carner, L. J. Durbin, J. H. Farah, M. D. Poulter; Univ. of Virginia Hlth. Sys., Charlottesville, VA.

2781 Human Isolates of *Lactobacillus* species have Differing and Species-Specific Site Associations and Clinical Significance
R. M. Martinez[1], K. G. Hulten[2], U. Bui[3], J. E. Clarridge, III[1]; [1]Univ. of Washington, Seattle, WA, [2]Baylor Coll. of Med., Houston, TX, [3]VA Med. Ctr., Seattle, WA.

2782 Comparative Genomics of MRSA from a Rural Hospital using Whole Genome and Plasmid Sequencing Analysis
C. C. Roe[1], K. S. Horn[2], E. M. Driebe[1], C. Eberhard[1], J. R. Bowers[1], A. Knadler[1], R. R. Rimsza[1], K. Wiggins[1], J. M. Schupp[1], J. D. Gillece[1], D. M. Engelthaler[1], P. S. Keim[1]; [1]Translational Genomics Res. Inst., Flagstaff, AZ, [2]Flagstaff Med. Ctr., Flagstaff, AZ.

2783 Non-toxigenic *Corynebacterium diphtheriae* from the United States, 2002-2011
P. K. Cassiday, T. Tiwari, M. L. Tondella; CDC, Atlanta, GA.

2784 Detection of MRSA-colonized Patients Using Results from Individual Molecular Assays of Nares and Groin Swabs vs. Testing Both Nares and Groin Swabs in One Genexpert® MRSA Assay Cartridge
M. B. Go, R. Wong; Dameron Hosp. Association, Stockton, CA.

2785 Nocardiosis in Patients with Cancer: Clinical and Microbiologic Analyses of 124 Cases
H-L. Wang, Y-H. Seo, P. R. LaSala, J. J. Tarrand, X. Y. Han; MD Anderson Cancer Ctr., Houston, TX.

2786 Combining Molecular and Informatics Tools to Understand Pathways of MRSA Transmission
S. Das, B. Miller, C. J. Anderson, L. R. Peterson, A. Robicsek; NorthShore Univ. Hlth.System, Evanston, IL.

2787 Financial Implications of VRE Screening Intensive Care Units
C. S. Hollenbeak[1], N. A. Ledeboer[2]; [1]Penn State Coll. of Med., Hershey, PA, [2]Med. Coll. of Wisconsin, Milwaukee, WI.

200 Molecular Epidemiology: Other (Division C)

1:00 p.m. – 2:45 p.m.; Poster Hall

2788 Dengue Virus Type 1 from Field-Caught Vectors and Humans in Brazil: Phylogeny Reveals Different Lineages of the American African Genotype in 25 Years
M. G. Castro, F. Nogueira, A. Ferreira, N. Faria, P. Nunes, R. Nogueira, R. Lourenço-de-Oliveira, F. dos Santos; Oswaldo Cruz Inst., Rio de Janeiro, BRAZIL.

2789 Genotyping and Fluconazole Susceptibility of *Candida* albicans Strains Isolated from Patients with Vulvovaginal Candidosis in Jos,Nigeria
E. N. Nnadi[1], R. Orazio[2], G. M. Ayanbimpe[1], M. O. Ojogba[3], I. B. Enweani[4], S. Fabio[2], C. Giuseppe[2]; [1]Univ. of Jos, Jos, NIGERIA, [2]Univ. of Messina, Messina, ITALY, [3]Jos Univ. Teach.Hosp., Jos, NIGERIA, [4]Nnamdi Azikiwe Univ., Nnewi, NIGERIA.

2790 Currently Prevalent Hepatitis C Cirus (HCV) Genotypes in Karachi, Pakistan
S. Khan, A. Khokhar, A. I. Khan, S. B. Mohsin, Z. Zehravi, Z. Zehravi, M. R. Khanani; Dow Univ. of Hlth.Sci., Karachi, PAKISTAN.

2791 Herpes Simplex Virus-Type 1 Strain Discrimination
A. B. DEAN, K. St.George; Wadsworth Ctr., NYS DoH, Albany, NY.

2792 Evaluation of False-positive Methicillin-resistant *Staphylococcus aureus* (MRSA) Carriage Using Two Single-Target Commercial RT-PCR Systems
M. E. Stemper[1,2], A. E. Rentschler[1], T. S. Uphoff[1], T. J. Novicki[1], T. R. Fritsche[1,2]; [1]Marshfield Clinic, Marshfield, WI, [2]Univ. of Wisconsin, La Crosse, WI.

2793 Rise and Fall of the Epidemic MRSA Clone USA300
A. Bhukhen, A. Bhukhen, M. Jula, H. F. Chambers, B. A. Diep; Univ. of California, San Francisco, CA.

2794 Using Whole Genome Mapping Technology for Discrepant Analysis of MRSA Evaluated by Other Strain Typing Methods
A. T. Harrington[1,2], E. N. Newburn[3], E. B. Zentz[3], J. E. Clarridge, [3]rd[1,2]; [1]VA Puget Sound Hlth.Care System, Seattle, WA, [2]Univ. of Washington, Seattle, WA, [3]OpGen, Inc., Gaithersburg, MD.

2795 Asymptomatic Rhinovirus Infections in University Students
A. C. Granados, E. Goodall, M. Smieja, J. Mahony; McMaster Univ., Hamilton, ON, CANADA.

2796 Comparison of a Real Time PCR Method with Serology and Blood Smear Analysis for Diagnosis of Anaplasmosis: Importance of Infection Time Course for Optimal Test Utilization
A. M. Schotthoefer[1], J. K. Meece[1], L. C. Ivacic[1], P. D. Bertz[1], T. J. Novicki[2], T. S. Uphoff[2], T. R. Fritsche[2,3]; [1]Marshfield Clinic Res. Fndn., Marshfield, WI, [2]Marshfield Clinic, Marshfield, WI, [3]Univ. of Wisconsin, La Crosse, WI.

2797 Effect of CRISPR Spacer Number and Type in Erythromycin-Resistant of Group A *Streptococcus*
P. X. Zheng, C. Chiang-Ni, **J. J. Wu**; Natl. Cheng Kung Univ. Med. Coll., Tainan, TAIWAN.

2798 Evaluation of the Analytical Sensitivity (Limit of Detection) of the BD MAX MRSA Assay*, a new Automated Molecular Assay
C. Roger-Dalbert, F. Hamel, M. Tremblay; BD Diagnostics, Québec, QC, CANADA.

2799 Group A Rotavirus Genotypes Circulating in Afghanistan over a Three Year Period (2008-2010)
S. Ahmed, Sr.[1], T. Husain[1], J. Jacobs[2], B. Normal[3], M. Kamel[1], I. Kamal[1], N. Stanikzai[4], R. Alami[3], N. Babakerkhail[3], H. Saylab[3], W. Joyan[3], K. Hassan[1], B. Oyofo[1]; [1]NAMRU#[3], Cairo, EGYPT, [2]MRIGlobal, KAZAKHSTAN, [3]Ministry of Publ. Hlth., Kabul, AFGHANISTAN, [4]Ministry of Publ. Hlth., kabul, AFGHANISTAN.

2800 Nanoliter Real-time PCR Detection of Bacterial, Parasitic, and Viral Agents from Patients with Diarrhea in Nunavut, Canada
R. Slinger[1], D. Goldfarb[2], B. Dixon[3], I. Moldovan[1], N. Barrowman[1], C. Zentron[4], K. Mattison[3], S. Bidawid[3], G. Osborne[5], W. MacDonald[5], F. Chan[1]; [1]Univ. of Ottawa, Ottawa, ON, CANADA, [2]McMaster Univ., Hamilton, ON, CANADA, [3]Food Directorate, Hlth.Canada, Ottawa, ON, CANADA, [4]Qikiqtani Gen. Hosp., Iqaluit, NU, CANADA, [5]Dept. of Hlth. and Social Services, NU, CANADA.

2801 Circulating Influenza Virus Genotypes in Lucknow (India) During August 2010 to October 2011
A. Jain, T. Dangi, B. Jain, A. K. Singh, M. Dwivedi, **K. P. Singh**, J. Singh, K. Singh, M. Singh; C S M Med. Univ., Lucknow, INDIA.

201 Unusual Organisms and Case Studies (Division C)

1:00 p.m. – 2:45 p.m.; Poster Hall

2802 *Cardibacterium hominis* endocarditis of bioprosthetic pulmonic vlave in a patient having undergone the Ross procedure: First Case
M. Amin; SUNY Upstate Univ Med Ctr., Syracuse, NY.

2803 Is *Tropheryma whipplei* or *Mycoplasma hominis* DNA present in bronchoalveolar lavage fluid from immunocompromised hosts?
J. J. Schwab, S. A. Cunningham, C. D. Zomok, A. C. Roden, R. Patel; Mayo Clinic, Rochester, MN.

2804 Molecular Epidemiology of Carbapenem-resistant *Klebsiella pneumoniae* Isolates: A Pediatric Case Series
J. Dara[1], M. H. Levi[1], L. Chen[2], B. Kreiswirth[2], R. Pellet Madan[1]; [1]Montefiore Med. Ctr. and Albert Einstein Coll. of Med., New York, NY, [2]Publ. Hlth.Res. Inst., Univ. of Med. and Dentistry of New Jersey, Newark, NJ.

2805 A Fatal Case of Disseminated Histoplasmosis in an Immunocompetent Patient
M. H. McCoy[1], R. F. Relich[1], S. A. Reuss[1], R. McBride[2], S. D. Allen[1], T. E. Davis[1]; [1]Indiana Univ. Sch. of Med., Indianapolis, IN, [2]Indiana Univ. Hlth.Pathology Lab., Indianapolis, IN.

2806 Blastomycosis Presenting as a Chest Wall Mass in a Healthy 16-Year-Old Male
R. F. Relich[1], R. McBride[2], S. D. Allen[1], T. E. Davis[1]; [1]Indiana Univ. Sch. of Med., Indianapolis, IN, [2]Indiana Univ. Hlth.Pathology Lab., Indianapolis, IN.

2807 Recovery of Two Rare *Pseudomonas* Species, *P. oryzihabitans* and *P. luteola,* from Cutaneous Wounds from Two Different, Otherwise Healthy Patients
M. S. Gelnett, S. D. Mahlen; Madigan Hlth.care System, Tacoma, WA.

2808 A Case of Severe Membranous Pharyngitis: Diphtheria or Pseudo-diphtheria?
A. Ahmed[1], E. Mair[2], **D. G. Rupar**[1], L. Piper[1], J. C. Harris[3], M. Patel[3], R. L. Sautter[4]; [1]Levine Children's Hosp. at Carolinas Med. Ctr., Charlotte, NC, [2]Charlotte EENT Associates, Charlotte, NC, [3]Carolinas Lab. Network, Charlotte, NC, [4]Carolinas Pathology Group, Charlotte, NC.

2809 Clinical Spectrum of Melioidosis at a Tertiary Care Hospital in South India
V. Lakshmi, U. P, P. K, S. MVS; Nizam's Inst. of Med. Sci., Hyderabad, INDIA.

2810 First Laboratory Confirmations of Pig-Associated *Streptococcus suis* Meningitis in Cambodia
E. J. Baron[1], N. Somary[2], A. Caon[3], V. Buron[4]; [1]Stanford Univ. Med. Sch., Stanford, CA, [2]Kampong Cham Hosp., Kampong Cham, CAMBODIA, [3]Takeo Hosp., Takeo, CAMBODIA, [4]U.S. NAMRU-[2], Phnom Penh, CAMBODIA.

2811 The Emergence of *Haemophilus influenzae* Types e and f as Invasive Pathogens
A. Nakayama[1], K. Ohkusu[2], T. Ishikawa[1], K. Yamanaka[3], J. Ishii[1]; [1]Dept. of Joint Res. Lab. of Clinical Med., Fujita Hlth.Univ. Sch. of Med., Aichi, JAPAN, [2]Dept. of Microbiol., Gifu Univ. Graduate Sch. of Med., Gifu, JAPAN, [3]Dept. of Gen. Internal Med., Fujita Hlth.Univ. Sch. of Med., Aichi, JAPAN.

2812 *Actinobaculum schaalii:* an Unusual Cause of an Inguinal Cutaneous Abscess
S. L. Claassen, S. D. Mahlen; Madigan Hlth.care System, Tacoma, WA.

2813 Phenotypic, Genotypic and Antimicrobial Characteristics of *Streptococcus halichoeri* Clinical Isolates from Human Blood
P. L. Shewmaker, A. M. Whitney, B. W. Humrighouse; Ctr.s for Disease Control, Atlanta, GA.

2814 Recovery of Strepto*Bacillus* moniliformis, a GV-PmBdCurvB from clinical Blood Culture sample in aerobic bottle, Flushing, NY, USA
M. A. Garcia, M. Mohamed, J. Cannavo, L. Ngan-Ling; Flushing Hosp. Med. Ctr., Flushing, NY.

202 Microbial Adherence to Host Cells and Surfaces (Division D)

1:00 p.m. – 2:45 p.m.; Poster Hall

2815 Penetration of *Pseudomonas aeruginosa* through the Intestinal Epithelial Cell Mucin Barrier
N. Hayashi, J. Okuda, S. Minagawa, N. Gotoh; Dept. of Microbiol. and Infection Control Sci., Kyoto Pharmaceutical Univ., Kyoto, JAPAN.

2816 Evaluation of a Fibronectin-Binding Protein of *B. burgdorferi* as a Potential Vaccine Candidate
A. M. Floden, T. Gonzalez, R. A. Gaultney, C. A. Brissette; Univ. of North Dakota, Grand Forks, ND.

2817 Antibodies directed against Shiga toxin-producing *Escherichia coli* serotype O103 Type III Secreted Proteins block adherence of heterologous STEC serotypes to Hep-2 cells
T. S. Desin, H. Townsend, A. A. Potter; Vaccine & Infectious Disease Organization - Intl. Vaccine Ctr., Univ. of Saskatchewan, Saskatoon, SK, CANADA.

2818 ***Parachlamydia acanthamoebae*** **Attachment to Amoebae is Required for Several Amoebal Secreted Molecules and Serine-Protease Activity**
Y. Hayashi[1], Y. Min[1], J. Matsuo[1], S. Nakamura[2], M. Kunichika[2], M. Yoshida[2], K. Takahashi[2], H. Yamaguchi[1]; [1]Hokkaido Univ., Sapporo, JAPAN, [2]Juntendo Univ., Tokyo, JAPAN.

2819 **Endosulfatases, Sulf1 And Sulf2 Negatively Modulate** ***C. trachomatis*** **Infection** ***In Vitro*** **and** ***In Vivo***
J. Kim, C. Chan, C. Elwell, A. Mengistab, H. Lemjabbar-Alaoui, S. Rosen, J. Engel; UCSF, San Francisco, CA.

2820 **Characterization of the Role of Pneumococcal Choline-binding Protein A (PcpA) in Lung Disease and Protective Immunity**
M. M. Walker[1], M. Coats[2], S. Mirza[3], L. Novak[1], D. Briles[1]; [1]Univ. of Alabama at Birmingham, Birmingham, AL, [2]Alabama State Univ., Montgomery, AL, [3]Univ. of Texas Hlth.Sci. Ctr. Houston, Houston, TX.

2821 **Mucin Fuctionalized Impedimetric Biosensor for Monitoring Microbial Adherance to model surfaces**
A-Y. Kim, C-K. Joung, J-H. Jang, Y-R. Kim; life Sci. and Dept. of Food Sci. and Biotechnology, Coll. of Life Sci., Kyung Hee Univ., Yongin, KOREA, REPUBLIC OF.

2822 ***Chlamydia trachomatis*** **Major Outer Membrane Protein Dimers are Primary Ligands that Interact with Host Receptors**
L. D. Taylor, L. N. Bess, J. Celli, T. R. Southern, W. M. Whitmire, H. D. Caldwell; Rocky Mountain Lab., NIAID, NIH, Hamilton, MT.

2823 **Host Factors Affect** ***Helicobacter pylori*** **Outer Membrane Protein Expression During Experimental Infection**
M. E. Moore, C. M. Styer, C. L. Cooke, L. M. Hansen, J. V. Solnick; Univ. of California, Davis, Davis, CA.

2824 **Characterization of the Novel Fibronectin-Binding Protein BB0347 from the Pathogenic Spirochete** ***Borrelia burgdorferi***
R. A. Gaultney, T. Gonzalez, A. M. Floden, C. A. Brissette; UND, Grand Forks, ND.

2825 **Construction, Expression, and Characterization of Flagellar Proteins for the Food-borne Pathogen** ***Campylobacter jejuni***
H-Y. Yeh, K. L. Hiett, J. E. Line, B. B. Oakley, B. S. Seal; USDA/ARS/ Poultry Microbiol. Safety Res. Unit, Athens, GA.

2826 **The Role of Type 1 Pili Encoded by B. bifidum PRL2010 in Modulating the Interaction with the Human Host**
F. Turroni[1], E. Foroni[2], F. Serafini[2], S. Guglielmetti[3], V. Taverniti[3], L. Gioiosa[2], M. O'Connell Motherway[1], P. Palanza[2], D. van Sinderen[1], M. Ventura[2]; [1]Natl. Univ. of Ireland, Cork, IRELAND, [2]Univ. of Parma, Parma, ITALY, [3]Distam, Univ. of Milan, Milan, ITALY.

2827 **Exposure of** ***Salmonella enterica*** **serovar Typhimurium to a Protective Monoclonal IgA Triggers Exopolysaccharide Production via a cyclic-di-GMP-Dependent Pathway**
J. J. Amarasinghe[1], R. E. D'Hondt[1], C. M. Waters[2], N. J. Mantis[1]; [1]New York State Dept. of Hlth., Albany, NY, [2]Michigan State Univ., East Lansing, MI.

2828 **Expression and Role of stg Fimbria Operon in** ***Salmonella enterica*** **Serovar Typhi in Interaction with Human Cells**
G. C. Mora[1], L. E. Berrocal, 20121, A. N. Trombert, 20112; [1]Univ. Andres Bello, Santiago, CHILE, [2]Univ. Mayor, Santiago, CHILE.

2829 **Characterization of the Interaction of Bacterial Lipoteichoic acid with the Human Platelet Membrane receptor CD36 on the surface of Platelets**
A. M. Murray, J. Mitchell; Univ. Coll. Dublin, Dublin, IRELAND.

2830 ***Escherichia coli*** **O157 Adherence to the Bovine Recto-anal Junction (RAJ) Squamous Epithelial Cells Is Mediated by Adhesins Other Than Those Encoded by Genes on the Locus of Enterocyte Attachment (LEE) Pathogenicity Island.**
I. T. Kudva, J. B. Stasko; Natl. Animal Disease Ctr., USDA/ARS, Ames, IA.

2831 **The Role of Putative Pilin Proteins in** ***Clostridium difficile*** **Pathogenesis**
T. C. Dingle[1], G. L. Mulvey[1], L. De Masi[2], E. C. von Rosenvinge[2], M. E. Shirtliff[3], M. S. Donnenberg[2], G. D. Armstrong[1]; [1]Univ. of Calgary, Calgary, AB, CANADA, [2]Univ. of Maryland Sch. of Med., Baltimore, MD, [3]Univ. of Maryland Sch. of Dentistry, Baltimore, MD.

2832 **Binding of Bp26, a** ***brucella*** **periplasmic protein, to Extracellular Matrix Molecules**
Y. E. Eltahir[1], E. H. Johnson[1], R. R.Nair[2], A. Al-Araimi[1]; [1]Sultan Qaboos Univ., Al-Khod, OMAN, [2]Oulu Univ., Oulu, FINLAND.

2833 **Screening of Peptides Associated with Adhesion and Biofilm Formation of Lactic Acid Bacteria**
M. Okochi, Y. Asai, T. Sugita, H. Honda; Nagoya Univ., Nagoya, JAPAN.

2834 **Microbial Recovery and Biofilm Formation in Explanted Absorbable (A) and Non-Absorbable (NA) Sutures from Infected (I) and Non-Infected (NI) Surgical Cases**
C. E. Edmiston, Jr.[1], C. J. Krepel[1], M. P. Goheen[2], R. M. Marks[1], P. J. Rossi[1], M. I. Goldblatt[1], J. R. Wallace[1], J. R. Sanger[1], G. R. Seabrook[1]; [1]Med. Coll. of Wisconsin, Milwaukee, WI, [2]Indiana Univ. Sch. of Med., Indianapolis, IN.

2835 **Multiple Proline-Rich Repeat Sequences of EspFu are Required for Proper Localization in Polarized Intestinal Epithelium**
Y. Lai[1], D. Vingadassalom[1,2], B. Skehan[1], D. Robbins[1], J. Leong[1,3]; [1]Univ. of Massachusetts Med. Sch., Worcester, MA, [2]Sanofi Pastuer, Boston, MA, [3]Tufts Univ., Boston, MA.

2836 **A Close Association of Biofilm-Producing Staphylococci and Atopic Dermatitis: Is the Association Etiologically Important?**
H. Allen, N. Vaze, J. Thomas, A. Hochberg, C. Emery, B. Buttaro, S. G. Joshi; Drexel Univ. Coll. of Med., Philadelphia, PA.

2837 ***Pseudomonas aeruginosa*** **Biofilm Aggrevates Local Inflammation in a Chronic Wound Model**
H. Trøstrup, L. Christophersen, H. Calum, K. Thomsen, P. Ø. Jensen, N. Høiby, C. Moser; RigsHosp.et, Copenhagen, DENMARK.

2838 ***Mycobacterium avium*** **Biofilm Causes Hyper Stimulation, Induction of Apoptosis, and Overall Decreased Functionality of Macrophages** ***in vitro***
S. Rose, L. Bermudez; Oregon State Univ., Corvallis, OR.

203 Microbial Control of Host Cell Functions (Division D)

1:00 p.m. – 2:45 p.m.; Poster Hall

2839 **Outer Membrane Vesicles from** ***Porphyromonas gingivalis*** **Stimulate Autophagy in Human Cells in a Manner Similar to Intact Bacteria**
E. M. Eiler-McManis, D. Akin, W. A. Dunn, Jr., A. Progulske-Fox; Univ. of Florida, Gainesville, FL.

2840 ***Pseudomonas aeruginosa*** **Exotoxin T Induces Anoikis Apoptosis and Blocks Apoptotic Compensatory Proliferation Signaling**
S. Shafikhani; Rush Univ. Med. Ctr., Chicago, IL.

2841 **Type III Effectors of** ***Pseudomonas syringae*** **Induce a Secretion-Dependent Reduction in Host Histone H3 Acetylation**
T. Hubbard[1], A. Karpisek[1], M. Jarecki[1], B-r. Jeong[2], J. Alfano[2], K. van Dijk[1]; [1]Creighton Univ., Omaha, NE, [2]Univ. of Nebraska-Lincoln, Lincoln, NE.

2842 ***Staphylococcus aureus*** **Activates the NLRP3 Inflammasome in Human and Rat Conjunctival Goblet Cells**
D. A. Dartt[1,2], V. E. McGilligan[1,3], M. S. Gregory-Ksander[1,2], J. E. Moore[3,4], R. R. Hodges[1,2], M. S. Gilmore[5,6], T. C. B. Moore[3]; [1]Schepens Eye Res. Inst., Massachusetts Eye and Ear, Boston, MA, [2]Dept. of Ophthalmology Harvard Med. Sch., Boston, MA, [3]Ctr. for Molecular BioSci.s, Univ. of Ulster, Coleraine, IRELAND, [4]Cathedral Eye Clinic, Belfast, IRELAND, [5]Massachusetts Eye and Ear, Boston, MA, [6]Dept.s of Ophthalmology and Microbiol. and Immunobiology, Harvard Med. Sch., Boston, MA.

2843 'Drugs from Bugs': The Bacterial Effector Protein YopM is a `Self-Delivering´ Anti-Inflammatory Agent that Reduces Inflammation in Rheumatoid Arthritis
C. Rüter[1], J. Bertrand[2], C. Cromme[2], S. Höfling[1], T. Pap[2], M. A. Schmidt[1], M. A. Schmidt[1]; [1]Inst. of Infectiology, ZMBE, Münster, GERMANY, [2]Inst. for Experimental Musculoskeletal Med., Münster, GERMANY.

2844 Transcriptional Regulation of L-histidine Conversion to Histamine by *LactoBacillus reuteri* as a Mechanism of Immunomodulation
P. Hemarajata, D. M. Saulnier, F. Zhang, C. Gao, C. M. Thomas, J. Versalovic; Baylor Coll. of Med., Houston, TX.

2845 Influence of Enteropathogenic *E. coli* on Host Cells: Interference of Virulence Factors with Signaling Pathways of Immune Cells
H. Salia, L. Greune, M. A. Schmidt; ZMBE, Inst. of Infectiology, Münster, GERMANY.

2846 ´Drugs from Bugs´: YopM as a Bacteria-Derived Anti-Inflammatory Cell-Penetrating Peptide (CPP) in a Murine Psoriasis Model
M. Poceva[1], C. Rüter[1], K. Loser[2], M. Alexander Schmidt[1]; [1]ZMBE, Inst. of Infectiology, Muenster, GERMANY, [2]Dept. of Dermatology, Muenster, GERMANY.

2847 Bacterial Antioxidant Defenses Modulate Macrophage Function by Suppression of MAPK Signaling and Pro-inflammatory Cytokines
S. M. Rabadi[1], M. Rajendran[1], E. Westcott[2], R. Schiewe[2], M. Malik[2], C. Bakshi[1]; [1]New York Med. Coll., Valhalla, NY, [2]Albany Coll. of Pharmacy and Hlth.Sci., Albany, NY.

2848 'Drugs from Bugs': A Pathogen-Derived Cell-Penetrating Immune Modulator for the Treatment of Inflammatory Bowel Diseases
S. Hummel[1], C. Rüter[1], M. Ross[2], S. Dufentester[2], M. A. Schmidt[1]; [1]ZMBE, Inst. of Infectiology, Münster, GERMANY, [2]Univ. Hosp. Münster, Dept. of Gastroenterology, Münster, GERMANY.

2849 Identification of *Vibrio vulnificus* Metalloprotease as a Novel Virulence Factor and Repression of its Expression by Quorum-Sensing Mechanism
M-A. Lee[1], J-A. Kim[2], Y. Yang[3], S-J. Park[3], K-H. Lee[2]; [1]Dept. of Environmental Sci. and Engineering Hankuk Univ. of Foreign Studies, Yongin, Kyunggi-Do, KOREA, REPUBLIC OF, [2]Dept. of Life Sci. Sogang Univ., Seoul, KOREA, REPUBLIC OF, [3]Dept. of Environmental Med. Biology and Inst. of Tropical Med. Yonsei Univ. Coll. of Med., Seoul, KOREA, REPUBLIC OF.

2850 F-BAR Proteins from the TOCA1 Family Play Distinct Roles in $EspF_U$-mediated Actin Pedestal Biogenesis
K. G. Campellone[1], A. D. Siripala[2], J. M. Leong[3], M. D. Welch[2]; [1]Univ. of Connecticut, Storrs, CT, [2]Univ. of California, Berkeley, CA, [3]Tufts Univ. Sch. of Med., Boston, MA.

2851 G Protein-Dependent Activation of the Unfolded Protein Response by Cholera Toxin
N. VanBennekom[1], T. Banerjee[1], A. Grabon[1], M. G. Jobling[2], R. K. Holmes[2], K. Teter[1]; [1]Univ. of Central Florida, Orlando, FL, [2]Univ. of Colorado Sch. of Med., Aurora, CO.

2852 Adenine Nucleotides and Adenosine Profoundly Affect Host Inflammatory Responses to Infection with Enteropathogenic and Shiga-toxigenic *Escherichia coli in vivo* in Rabbit
J. K. Crane[1], R. Lima[1], S. Majumdar[1], I. W. Byrd[2], E. C. Boedeker[2]; [1]Univ. at Buffalo, Buffalo, NY, [2]Univ. of New Mexico, Albuquerque, NM.

2853 Role of *Francisella tularensis* Antioxidants in Modulation of Inflammasome Mediated Responses
E. L. Westcott[1], M. Rajendran[2], S. R. Bradley[1], C. Bakshi[2], M. Malik[1]; [1]Albany Coll. of Pharmacy and Hlth.Sci., Albany, NY, [2]New York Med. Coll., Dept. of Microbiol. and Immunology, Valhalla, NY.

2854 The Signaling Pathways Activated by *Campylobacter jejuni* During Internalization Into Epithelial Cells Contribute to the Induction of the IL-8 Response
T. P. Eucker, D. Samuelson, M. E. Konkel; Washington State Univ., Pullman, WA.

2855 Controlling Bacterial Persister Cells with Granulocyte-Macrophage-Colony Stimulating Factor
G. S. Choudhary[1,2], R. A. Bader[1,2], D. Ren[1,2,3,4]; [1]Dept. of BioMed. and Chemical Engineering, Syracuse Univ., Syracuse, NY, [2]Syracuse Biomaterials Inst., Syracuse, NY, [3]Dept. of Civil and Environmental Engineering, Syracuse Univeristy, Syracuse, NY, [4]Dept. of Biology, Syracuse Univ., Syracuse, NY.

2856 Characterization of the Cellular Immune Response of *Euprymna scolopes* to its Bacterial Symbiont *Vibrio fischeri*
B. A. Rader, H. Mann, C. Ricci, K. Putman, P. Rabus, S. Nyholm; Univ. of Connecticut, Storrs, CT.

2857 The Cytolethal Distending Toxin Produced by Clade B Nontyphoidal *Salmonella* Serovars Contributes to Cell Cycle Arrest and Apoptosis of Human Intestinal Epithelial Cells *in vitro*
L. D. Rodriguez-Rivera[1], R. N. Jinadasa[1], C. A. Cummings[2], H. C. den Bakker[1], G. E. Duhamel[1], M. Wiedmann[1]; [1]Cornell Univ., Ithaca, NY, [2]Life Technologies Corp., Foster City, CA.

2858 The Streptococcal Secreted Esterase Inhibits Platelet-Activating Factor-Induced Activation and Chemotaxis of Human Neutrophils
M. Liu, L. N. Kirpotina, M. T. Quinn, B. Lei; Montana State Univ., Bozeman, MT.

2859 Mechanism of *Vibrio vulnificus* RTX-mediated Antiphagocytosis in Macrophage
C-L. Chen[1], L-I. Hor[2,1], H-C. Harn[1], M-J. Tang[3,1], T-H. Leu[4,1]; [1]Inst. of Basic Med. Sci., Coll. of Med., Natl. Cheng Kung Univ., Tainan, TAIWAN, [2]Dept. of Microbiol. and Immunology, Coll. of Med., Natl. Cheng Kung Univ., Tainan, TAIWAN, [3]Dept. of Physiology, Coll. of Med., Natl. Cheng Kung Univ., Tainan, TAIWAN, [4]Dept. of Pharmacology, Coll. of Med., Natl. Cheng Kung Univ., Tainan, TAIWAN.

2860 Activation of Host Cell Death Pathways by *Non-Typhoidal Salmonella (NTS) Serovar* Containing *Cytolethal Distending Toxin*
S. KHARE, D. SHELMAN, K. GOKULAN, T. AKIYAMA, A. KHAN; NCTR-US-Food and Drug Admin., Jefferson, AR.

2861 Vimentin Is Required for Ibea+ *E. coli* K1 Induced Activation and Nuclear Translocation of Nf-κB in Human Brain Microvascular Endothelial Cells
F. Chi, T. Bo, C-H. Wu, A. Jong, S-H. Huang; Children's Hosp. Los Angeles, Los Angeles, CA.

2862 Assessment of Ability of *Bacillus* Anthracis Toxins to Alter Host Neutrophil Killing *in vitro* and Chemotaxis *in vivo*
Z. P. Weiner[1], D. E. Lowe[1], A. E. Boyer[2], M. Gallegos-Candela[2], J. R. Barr[2], I. J. Glomski[1]; [1]Univ. of Virginia, charlottesville, VA, [2]Ctr.s for Disease Control, Atlanta, GA.

2863 The Mitochondria of Host Enterocytes Exhibit Altered Morphology and Membrane Potential in Response to *Salmonella enterica* Typhimurium
R. C. Laughlin[1], R. Mouneimne[1], H. R. Payne[1], A. J. Bäumler[2], L. G. Adams[1]; [1]Texas A&M Univ., College Station, TX, [2]Univ. of California Davis, Davis, CA.

2864 Regulation of Intestinal Cell Fates by the Intestinal Microbiota
J. V. Troll, J. Ganz, J. M. Bates, M. Abel, J. S. Eisen, K. Guillemin; Univ. of Oregon, Eugene, OR.

2865 A Novel Role for Cell Polarity Proteins in Innate Immunity to *P. aeruginosa* infection
Y. Eran, D. Bryant, C. Tran, A. Datta, R. Metzger, T. Wittmann, K. Mostov, J. Engel; UC San Francisco, San Francisco, CA.

2866 Type I Interferon Associated Immune Pathology during Plague
M. O. Dhariwala, A. A. Patel, D. M. Anderson; Univ. of Missouri, Columbia, MO.

2867 Disruption of the Fas-Fas Ligand Signaling Pathway by the Plasminogen Activator Protease of *Yersinia pests*
A. J. Caulfield, W. W. Lathem; Northwestern Univ., Chicago, IL.

204 Cellular and Whole Organismal Immunity to Infection (Division E)

1:00 p.m. – 2:45 p.m.; Poster Hall

2868 Deleterious CD8+ Responses in Attenuated *Francisella* Mutants
D. A. Powell[1], D. Kanistanon[2], A. M. Hajjar[3], M. R. Pelletier[1], I. E. Cohen[3], S. Way[4], S. J. Skerrett[3], X. Wang[5], C. R. H. Raetz[6], R. K. Ernst[1]; [1]Univ. of Maryland, Baltimore, Baltimore, MD, [2]Mahidol Univ., Bangkok, THAILAND, [3]Univ. of Washington, Seattle, WA, [4]Univ. of Minnesota, Minneapolis, MN, [5]Jiangnan Univ., Wuxi, CHINA, [6]Duke Univ., Durham, NC.

2869 Sub-inhibitory Concentrations of Linezolid Inhibit Pvl Expression and Reduce Pvl-mediated Inflammatory Responses
C. Tseng, M. Sanchez-Martinez, P. Kyme, G. Y. Liu; Ceders Sinai Med. Ctr., Los Angeles, CA.

2870 Recognition and Uptake of Microbial Pathogens and Commensals by Gut-Associated Lymphoid Tissues: Role of C-type Lectin Receptors (CLRs)
M. De Jesus, N. J. Mantis; Wadsworth Ctr., NYSDOH, Albany, NY.

2871 Role of Innate Immune Response in Helicobacter-Induced Gastric Cancer
E. Carmona[1], A. Banerjee[1], K. Doran[1], M. Obonyo[2]; [1]San Diego State Univ., San Diego, CA, [2]Univ. of California, San Diego, San Diego, CA.

2872 Role of IL-12 Induced MAP3K8 in Effector Function of CD8+ T Lymphocytes
F. Z. Chowdhury, J. D. Farrar; Univ. of Texas Southwestern Med. Ctr. at Dallas, Dallas, TX.

2873 The Role of Amyloid Fibrils in Modulating Epithelial Integrity in the Gastrointestinal Tract
G. Oppong, C. Tukel; Temple Univ. Sch. of Med., Philadelphia, PA.

2874 Detection of Circulating Free Dna in Blood of Sepsis Mice Model
S. Hamaguchi[1], M. Seki[1], Y. Akeda[2], N. Yamamoto[1], K. Oishi[2], K. Tomono[1]; [1]Div. of Infection Control and Prevention, Osaka Univ. Graduate Sch. of Med., Osaka, JAPAN, [2]Intl. Res. Ctr. for Infectious Diseases, Res. Inst. for Microbial Diseases, Osaka Univ., Osaka, JAPAN.

2875 Survival of primary *Francisella tularensis* LVS infection is dependent on IL-12Rβ2
A. MELILLO, K. Elkins; Food and Drug Admin., Bethesda, MD.

2876 Differential and Temporal Immunomodulation of α4 Integrin Receptors on Memory T Cells by *Bordetella Pertussis* and *Bordetella parapertussis* Infection in Mice
T. M. Nguyen, D. Ravindra, R. Ferguson, B. Kwong, S. Waheed, N. Tarlton, T. Abramson; San José State Univ., San Jose, CA.

2877 Expression of Gelatinases (MMP-2 and MMP-9) and Their Activities in CNS and Serum of Balb/C Mice Infected with Japanese Encephalitis Virus
T. N. Dhole, V. Shukla, A. K. Shakya; Sanjay Gandhi Post Graduate Inst. of Med. Sci., Lucknow, UP, INDIA.

2878 *Anaplasma phagocytophilum* Induces IFNγ Production through STAT1 pathway
K-S. Choi[1], J. Dumler[2]; [1]Kyungpook Natl. Univ., Sangju, KOREA, REPUBLIC OF, [2]The Johns Hopkins Univ. Sch. of Med., Baltimore, MD.

2879 Pathogenesis of Lyme neuroborreliosis: the response of oligodendrocytes to *B. burgdorferi*
G. Parthasarathy, M. T. Philipp; Tulane Natl. Primate Res. Ctr., Covington, LA.

2880 Immunophenotypic Analysis of Cellular Populations in Recombinant Inbred Mouse Model of Streptococcal Sepsis
N. Abdeltawab[1,2], R. Kansal[3], H. Bangar[1], R. W. Williams[3], M. Kotb[1,2]; [1]Univ. of Cincinnati, Cincinnati, OH, [2]VA Med. Ctr., Cincinnati, OH, [3]Univ. of Tennessee, Memphis, TN.

2881 Evaluation of the Guinea Pig Vaginal Immune Response to Herpes Simplex Virus Type 2 Using a Novel, PCR-based Array
R. L. Veselenak, Il[1,2], A. L. Miller[1,2], R. B. Pyles[1,2], N. Bourne[1,2]; [1]Univ. of Texas Med. Branch, Galveston, TX, [2]Galveston Natl. Lab., TX.

2882 Dynamics of Innate Immune Cell Responses and the Related Gene Expression Profiles During Murine *Legionella* Lung Infection
S. Kim[1], M. Kim[2]; [1]BK[21] program of graduate school, Korea Univ., Seoul, KOREA, REPUBLIC OF, [2]Div. of Infectious Diseases, Coll. of Med. and Res. Inst. of Emerging Infectious Diseases, Korea Univ., Seoul, KOREA, REPUBLIC OF.

2883 Oral Bacteria Cooperate to Induce Periodontal Inflammation in Mice
R. Settem[1], A. El-Hassan[1], K. Honma[1], G. P. Stafford[2], A. Sharma[1]; [1]Dept. of Oral Biology, Sch. of Dental Med., Univ. at Buffalo, State Univ. of New York, Buffalo, NY [14214], USA, Buffalo, NY, [2]Oral and Maxillofacial Pathology, Sch. of Clinical Dentistry, Claremont Crescent, Univ. of Sheffield, Sheffield S[10] [2]TA, UK, Sheffield, UNITED KINGDOM.

2884 An Essential Role for IL-6 in Protection Against Primary Infection with *Francisella tularensis LVS*
S. L. Kurtz, K. Elkins; US Food & Drug Admin., Bethesda, MD.

2885 Th17-related Immunostimulatory Effect of *Porphyromonas gingivalis* on Human Oral Keratinocytes
Y-J. Jung, Y-J. Choi, J-Y. Lee, B-K. Choi; Seoul Natl. Univ., Seoul, KOREA, REPUBLIC OF.

2886 Immune Response and Protective Efficacy of Live Attenuated *Salmonella* Vaccine Expressing Antigens of *Mycobacterium avium* subsp. *paratuberculosis* Against Challenge in Mice Model
S. M. Faisal, S. Chandra, J-w. Chen, Y-F. Chang; Cornell Univ., Ithaca, NY.

2887 Innate and Adaptive Immune Responses to *Bordetella pertussis* Infection in a Nonhuman Primate Model
J. M. Warfel, T. J. Merkel; Div. of Bacterial, Parasitic and Allergenic Products, Ctr. for Biologics Evaluation and Res., FDA, Bethesda, MD.

2888 Marked Neutrophil Influx in Response to Acute *Clostridium difficile* Infection
A. J. McDermott, A. A. S. Akha, C. M. Theriot, V. B. Young, G. B. Huffnagle; Univ. of Michigan, Ann Arbor, MI.

2889 A Crucial Role of *Vibrio vulnificus* Aphb in Il-8 Production and Virulence
W-B. Kim[1], B. Lee[2], S. Choi[3]; [1]Univ. of Illinois, Urbana, IL, [2]Univ. of Toledo, Toledo, OH, [3]Seoul Natl. Univ., Seoul, KOREA, REPUBLIC OF.

2890 Intestinal Mucosal Tissue Injury Following Burn and Acute Alcohol Intoxication is a Result of Hyperactive Neutrophils
H. Wang, A. Shelip, N. Fazal; Chicago State Univ., Chicago, IL.

2891 The Effect of Phosphodiesterase 4C to Regulate the Activity of Lysosomes
J. Yoon[1], H-J. Um[2], S-H. Lee[2], Y-H. Kim[2], J. Min[1]; [1]Chonbuk Natl. Univ., Jeonju, KOREA, REPUBLIC OF, [2]Chungbuk Natl. Univ., Cheongju, KOREA, REPUBLIC OF.

2892 CD28 Mimetic Peptide Treatment for Endotoxin-induced Lethal Shock
A. S. Cross[1], G. Ramachandran[1], G. Arad[2], R. Levy[2], R. Kaempfer[2], A. Shirvan[3], S. M. Opal[4]; [1]Univ. of Maryland Sch. of Med., Baltimore, MD, [2]The Hebrew Univ.-Hadassah Med. Sch., Jerusalem, ISRAEL, [3]Atox Bio, ISRAEL, [4]Brown Univ., Providence, RI.

2893 Modulation of Epithelial Innate Response to Microbial Pathogens Under Hyperglycemic Conditions
D. Talreja[1,2], S. Walia[2], **A. Kumar**[1]; [1]Wayne State Univ., Detroit, MI, [2]Oakland Univ., Rochester Hills, MI.

2894 Targeting Macrophage Proinflammatory Activity Facilitates *Staphylococcus aureus* Biofilm Clearance *In Vivo*
M. L. Hanke, C. E. Heim, S. D. Sanderson, T. Kielian; Univ. of Nebraska Med. Ctr., Omaha, NE.

205 Genetic Tools, DNA Transformation and Mutagenesis, Cell Division and Cell Cycle (Division H)

1:00 p.m. – 2:45 p.m.; Poster Hall

2895 Creation of a Biological System for Detecting Temperature Changes, by Using a RNA Thermometer from *Bradyrhizobium japonicum*
J. A. Hernandez-Valdes[1,2], R. Montoya-Lopez[3], D. Dominguez-Gomez[4], M. Sambrano-Lopez[5], R. Serrano-Silva[6], A. Martinez-Antonio[7]; [1]Facultad de Química, UNAM, Mexico, MEXICO, [2]Inst. de Fisiología Celular, UNAM, MEXICO, [3]Univ. Autónoma de Aguascalientes, Mexico, MEXICO, [4]Inst. Politécnico Natl., Mexico, MEXICO, [5]Univ. Autónoma de Baja California, Mexico, MEXICO, [6]Univ. Autónoma de Sinaloa, Mexico, MEXICO, [7]CINVESTAV Unidad Irapuato, Mexico, MEXICO.

2896 Enhancing the Counter-selection Utility of the I-SceI Homing Endonuclease: Isolation of a Temperature-dependent Allele
B. H. Kvitko[1], D. A. Rholl[2], H. P. Schweizer[1]; [1]Colorado State Univ., Fort Collins, CO, [2]North Park Univ., Chicago, IL.

2897 Engineering *Ralstonia eutropha* for the Development of an Integrated Microbial-ElectroCatalytic (MEC) System
C. Bi, J. Muller, J. Yeh, S. Singer, H. Beller, S. Chhabra; Joint BioEnergy Inst. (JBEI), Emeryville, CA.

2898 High Throughput Insertion Tracking in *Desulfovibrio vulgaris* Hildenborough
S. R. Fels, G. M. Zane, S. M. Blake, J. D. Wall; Univ. of Missouri, Columbia, MO.

2899 Transposon Mutagenesis of the Extremely Thermophilic Bacterium "Thermus thermophilus" HB27
J. F. Carr, S. T. Gregory, A. E. Dahlberg; Brown Univ., Providence, RI.

2900 Oligonucleotide Recombination in *Pseudomonas aeruginosa*
M. Agnello, A. Wong-Beringer; Univ. of Southern California, Los Angeles, CA.

2901 A Chimera Fungi for Cellulytic Enzymes and Cellulosic Ethanol Production *Via* Six Genus Gene Assembly by Synthetic Biology Approach
J-J. Chang; Academia Sinica, Taipei, TAIWAN.

2902 *Streptococcus mutans* Secretes an Unmodified Small Peptide Competence Pheromone and Develops Competence for Genetic Transformation at High Cell Densities in a Chemically Defined Medium
K. Desai[1], F. C. Petersen[2], R. Khan[2], G. Fimland[3], L. Mashburn-Warren[1], M. J. Federle[1], D. A. Morrison[1]; [1]Univ. of Illinois at Chicago, Chicago, IL, [2]Univ. of Oslo, Oslo, NORWAY, [3]Xellia Pharmaceuticals AS, Oslo, NORWAY.

2903 Characterization of spo0A Mutant of *Clostridium* cellulolyticum H10
Y. Li, T. Xu, J. Zhou; Inst. for Environmental Genomics, Univ. of Oklahoma, Norman, OK.

2904 *Shigella flexneri* Virulence Plasmid (pWR100) Deletion Collection
S. Sidik[1], J. J. R. Benjamin[1], R. J. Ryu[1], A. Jarrar[1], C. Nislow[2], J. R. Rohde[1]; [1]Dalhousie Univ., Halifax, NS, CANADA, [2]Univ. of Toronto, Toronto, ON, CANADA.

2905 Adaptive Landscapes of Evolving Antibiotic Resistance Genes
M. BARLOW, C. Goulart, S. Jacobs, M. Mahmudi, K. Crona, M. Kallmann; Univ. of California, Merced, MERCED, CA.

2906 A Recombinant Plasmid Vector for Expression of GFP Fusion Proteins in *Sphingomonas paucimobilis* EPA505
A. K. Brown, T. A. Hughes; Clemson Univ., Clemson, SC.

2907 Genetic Tools for Metabolic Engineering and Thermophilic Protein Expression in Sulfolobus acidocaldarius
C. J. Joshua, L. D. Perez, J. D. Keasling; Univ. of California, Berkeley, Berkeley, CA.

2908 Creation of a Versatile mini-Tn7 Delivery System for *lux*-based Labeling of *Burkholderia pseudomallei* and other Gram-negative Bacteria
S. Bruckbauer, B. H. Kvitko, R. R. Karkhoff-Schweizer, H. P. Schweizer; Colorado State Univ., Fort Collins, CO.

2909 Development of a Markerless Gene Knockout Method for *ActinoBacillus succinogenes* 130Z
R. V. Joshi, B. D. Schindler, C. Vieille; Michigan State Univ., East Lansing, MI.

2910 Transposon Mutagenesis of Acidovorax avenae subsp. avenae to connect genes to function
S. Gordon[1], B. Goodner[2]; [1]Presbyterian Coll., Clinton, SC, [2]Hiram Coll., Hiram, OH.

2911 An Ontology for Guiding Microbial Phenotype Annotation
M. Chibucos[1], A. Zweifel[2], **D. A. Siegele**[2], P. Uetz[3], M. Giglio[1], J. C. Hu[2]; [1]Inst. for Genome Sci., Univ. of Maryland Sch. of Med., Baltimore, MD, [2]Texas A&M Univ., College Station, TX, [3]Virginia Commonwealth Univ., Richmond, VA.

2912 Identifying Orthogonal Sigmas for Programmable Transcriptional Regulation
H. Tabakh[1,2], V. Rhodius[1], C. Gross[1]; [1]Dept. of Microbiol. & Immunology, UCSF, San Francisco, CA, [2]Dept. of Plant & Microbial Biology, Univ. of California, Berkeley, Berkeley, CA.

2913 *In vitro* Selection of Non-invasive Avian Pathogenic *Escherichia coli* Mutants Generated by Signature-tagged Mutagenesis
D. B. Pavanelo[1], C. A. Gomes[1], L. B. Matter[2], F. Horn[1]; [1]UFRGS, Porto Alegre, BRAZIL, [2]UFSM, Santa Maria, BRAZIL.

2914 Processing of the *Staphylococcus aureus* AtlA Murein Hydrolase
J. L. BOSE[1], J. M. Mootz[2], A. R. Horswill[2], K. W. Bayles[1]; [1]Univ. of Nebraska Med. Ctr., Omaha, NE, [2]Univ. of Iowa, Iowa City, IA.

2915 How Long Can *E. coli* Grow: Very Long Filaments in Metabolically Competent *E. coli*
Z. W. El-Hajj, E. B. Newman; Concordia Univ., Montreal, QC, CANADA.

2916 NlpI Interacted with IbpB in *E. coli*
J. Tao, **Y. Yao**; Shanghai Jiao Tong Univ. Sch. of Med., Shanghai, CHINA.

206 Microbial Responses to Stress and Environmental Stimuli II (Division I)

1:00 p.m. – 2:45 p.m.; Poster Hall

2917 The Effect of Cold Plasma on Staphylococcus aureus and P seudomonas aeruginosa Growth and its Potential Use as an Alternative Method for Infection Treatment
G. Vidal[1], H. Pham[1], M. Thigarajan[1,2]; [1]Texas A&M Univ., Corpus Christi, TX, [2]PERL Texas A&M Univ.-Corpus Christi, TX.

2918 Regulation of the dps Promoter in *Escherichia coli*
P. P. Sethia, K. K. Rao, S. B. Noronha; Indian Inst. of Technology Bombay, Mumbai, INDIA.

2919 Environmental Elicitation of Acid Stress Response in *Vibrio cholerae*
G. J. Swenson[1,2], R. A. Long[1]; [1]Univ. of South Carolina, Columbia, SC, [2]Paine Coll., Augusta, GA.

2920 Bile Tolerance of a Potential Probiotic *Bifidobacterium bifidum* Strain
V. F. Brancaccio, C. U. Riedel; Univ. of Ulm, Ulm, GERMANY.

2921 Analysis of the ArcA Regulon of *Salmonella typhimurium* under Oxidative Stress Conditions
E. H. Morales[1], I. L. Calderón[1], B. Collao[1], F. Gil[1], P. Desai[2], S. Porwollik[2], M. McClelland[2,3], C. P. Saavedra[1]; [1]Laboratorio de Microbiología Molecular, Facultad de Ciencias Biológicas, Univ. Andres Bello, Santiago, CHILE, [2]The Vaccine Res. Inst. of San Diego, 3030 Bunker Hill Suite# 203, San Diego, CA, [3]Dept. of Pathology and Lab. Med., D440 Med. Sci. I, Univ. of California, Irvine, Irvine, CA.

2922 Survival of Desert Crust Isolates to Desiccation and Bleomycin
S. H. Mellon[1], E. Rentschler[1], J. Freeman[2], L. F. Caslake[1]; [1]Lafayette Coll., Easton, PA, [2]East Stroudsburg Univ., Stroudsburg, PA.

2923 Impacts of Metal Nanoparticles upon Soil and Freshwater Bacterial Function
S. R. Mueller-Spitz[1], K. Crawford[1], **S. Rose**[1], K. Ruedinger[2]; [1]UW-Oshkosh, Oshkosh, WI, [2]Ripon Coll., Ripon, WI.

2924 Light Effects on Pyomelanin Production in a Novel *Pseudomonas* Species
S. L. Benzing, C. C. Cotrupe, L. R. Aaronson; Utica Coll., Utica, NY.

2925 The TlpD Chemoreceptor of *Helicobacter pylori* Is Needed for Stomach Colonization and Response to Environmental Iron
S. M. Williams[1], L. M. Collison[1], T. M. Andermann[2], K. M. Ottemann[1]; [1]Univ. of California Santa Cruz, Santa Cruz, CA, [2]Stanford Univ., Stanford, CA.

2926 Calcium Homeostasis in *Pseudomonas aeruginosa*
M. Guragain, D. L. Lenaburg, I. R. Reutlinger, M. A. Patrauchan; Oklahoma State Univ., Stillwater, OK.

2927 Temperature Effects on Attachment of *Vibrio parahaemolyticus* to Chitin
V. Molina, C. N. Johnson, R. Gambrell, E. Laws, S. Bargu; Louisiana State Univ., Baton Rouge, LA.

2928 A Temperature Shift from Human Body Temperature (37°C) to Room Temperature (23°C) Rapidly Modulates Motility, Biofilm, and Stress Response Gene Expression in *Escherichia coli*
J. Kim, A. L. Gant, C. A. WHITE-ZIEGLER; Smith Coll., NORTHAMPTON, MA.

2929 The CpxR/CpxA Two-Component System Up-regulates Transcription of the mar Operon
N. Weatherspoon-Griffin, Y. Shi; ASU, Tempe, AZ.

207 Functional Genomics (Division K)

1:00 p.m. – 2:45 p.m.; Poster Hall

2930 Genomic And Biochemical Analysis Of The Diaminopimelate/lysine Biosynthesis Pathway In Verrucomicrobium Spinosum Dsm 4136t
A. O. Hudson, V. R. Nachar; Rochester Inst. of Technology, Rochester, NY.

2931 DNA Microarray Analysis of the *Escherichia coli* Small Colony Variant IH9 Reveals Differential Expression of Several Gene Groups
A. W. Paratore, I. N. Hirshfield; St. John's Univ., Jamaica, NY.

2932 Transcriptome Analysis of the Four Stress-Response Alternative Sigma Factors in *Listeria monocytogenes* Unveils a Dominant Role of SigmaL and SigmaB and a Network of Cross-Regulation Involving All Four Alternative Sigma Factors
R. H. Orsi[1], S. Chaturongakul[2], H. F. Oliver[3], M. Wiedmann[1], K. J. Boor[1]; [1]Cornell Univ., Ithaca, NY, [2]Mahidol Univ., Bangkok, THAILAND, [3]Purdue Univ., West Lafayette, IN.

2933 Transcriptomic Analysis of the Brown Rot Fungus *Fibroporia radiculosa* on Wood Treated with a Copper-based Preservative
J. D. Tang[1], A. D. Perkins[1], T. S. Sonstegard[2], S. G. Schroeder[2], D. D. Nicholas[1], S. V. Diehl[1]; [1]Mississippi State Univ., Starkville, MS, [2]USDA ARS Bovine Functional Genomics Lab., Beltsville, MD.

2934 Characterization of Molybdopterin Oxidoreductases, and Identification of a Possible Respiratory Arsenate Reductase, in a Member of the Phylum *Deferribacteres*
K. Denton[1,2], **H. A. Wiatrowski**[1]; [1]Clark Univ., Worcester, MA, [2]Univ. of Connecticut Hlth.Ctr., Farmington, CT.

2935 Identification of Genes Required for Metabolite Utilization in Bacteria Using Mutant Libraries and Metabolomics
R. Baran, B. P. Bowen, M. N. Price, A. P. Arkin, A. M. Deutschbauer, T. R. Northen; Lawrence Berkeley Natl. Lab., Berkeley, CA.

2936 Distribution of *Vibrio cholerae* NspS and MbaA Homologs in Diverse Proteobacteria
S. S. Pendergraft, J. Zayner, L. Porter, E. Karatan; Appalachian State Univ., Boone, NC.

2937 Dual RpoH Sigma Factors and Transcriptional Plasticity in a Symbiotic Bacterium
M. J. Barnett[1], A. N. Bittner[2], C. J. Toman[1], V. Oke[2], S. R. Long[1]; [1]Stanford Univ., Stanford, CA, [2]Univ. of Pittsburgh, Pittsburgh, PA.

2938 *Desulfobacula toluolica* Tol2, a Marine, Aromatic Compound Degrading Sulfate-Reducer: Insights from Genome and Proteome
WITHDRAWN

2939 Gene Expression During Physiological Acclimation of *Symbiodinium* sp. (Casskb8) to High Growth Temperature
E. Diaz-Almeyda[1], C. R. Voolstra[2], M. K. DeSalvo[1], N. Masouka[1], M. Medina[1]; [1]Sch. of Natural Sci., Univ. of California Merced, Merced, CA, [2]Red Sea Res. Ctr., King Abdullah Univ. of Sci. and Technology, Thuwal, SAUDI ARABIA.

2940 The Essential Genome of a Heterotrophic Marine Bacterium and the Genetic Basis for Heterotrophic Carbon Processing in the Sea
J. Meng, S. Sharma, M. Moran; Univ. of Georgia, Athens, GA.

2941 Transcriptomic and Proteomic Analysis of Extreme Nickel Resistance in Acidiphilium sp. Strain PM
P. San Martin-Uriz[1], D. Lara[1], M. J. Gomez[1], P. J. Alcolea[2], R. Amils[1,3]; [1]Inst. Natl. de Tecnica Aeroespacial, Torrejon de Ardoz, SPAIN, [2]Centro de Investigaciones Biologicas, Madrid, SPAIN, [3]Centro de Biologia Molecular Severo Ochoa, Madrid, SPAIN.

2942 Global Transcriptional Analysis of the Stringent Response in *Enterococcus faecalis*
A. O. Gaca, J. K. Kajfasz, J. Abranches, J. Lemos; Univ. of Rochester, Rochester, NY.

2943 Reconstruction of 79 Bacterial Genomes from an Anaerobic Subsurface Community Reveals Integrated Metabolic Networks
K. C. Wrighton[1], B. C. Thomas[1], C. S. Miller[1], M. J. Wilkins[2], I. Sharon[1], C. Castelle[3], K. M. Handley[1], B. Luef[1], K. Frischkorn[1], S. Mullin[1], N. Verberkmoes[4], R. L. Hettich[1], M. S. Lipton[2], K. H. Williams[3], P. E. Long[3]; [1]Univ. of California, Berkeley, Berkeley, CA, [2]Pacific Northwest Natl. Lab., Richland, WA, [3]Lawrence Berkeley Natl. Lab., Berkeley, CA, [4]Oak Ridge Natl. Lab., Oak Ridge, TN.

2944 *Escherichia coli* Essential Genes and Growth Media in EcoCyc
S. Paley, **I. M. Keseler**, M. Krummenacker, P. D. Karp; SRI Intl., Menlo Park, CA.

2945 *De novo* Assembly of a Novel Filamentous Blue-green Algal Genome for Leptolyngbya Sp. Strain BI0902 Enabled by a Novel, Extra-long Read Sequencing Protocol
K. P. Clancy[1], A. Taton[2], S. Ranganathan[1], M. Laptewicz[1], P. Z. Tang[1], X. Liang[1], S. A. Kay[1], W. Zhang[1], C. Cummings[1], J. Bishop[1], A. Taliana[1], G. Costa[1], S. S. Golden[3], J. W. Golden[3], T. Peterson[1]; [1]Life technologies, Carlsbad, CA, [2]Div. of Biological Sci., Univ. of California San Diego, La Jolla, CA, [3]Div. of Biological Sci., Univ. of California San Diego, La Jolla, CA.

2946 Differential Analysis of Metabolic Intermediates from *Desulfovibrio vulgaris* Hildenborough and Methanococcus maripaludis under Syntrophic Growth Conditions
E. E. Baidoo[1], S. Yilmaz[2], J. Geller[3], T. C. Hazen[4], A. K. Singh[2], J. D. Keasling[1]; [1]Joint BioEnergy Inst., Emeryville, CA, [2]Sandia Natl. Labs, Livermore, CA, [3]Lawrence Berkeley Natl. Lab, Berkeley, CA, [4]Univ. of Tennessee, Knoxville, TN.

2947 Alternative Regulatory Pathways in the HP0165-0166 Two-Component System of *Helicobacter pylori*
D. R. Scott, E. A. Marcus, G. Sachs; UCLA & VA GLAHS, Los Angeles, CA.

2948 High Throughput Identification of Protein Complexes from *Desulfovibrio vulgaris* by a Tandem Affinity Purification Pipeline
G. P. Butland[1], S. R. Chhabra[1], B. Gold[1], **N. L. Liu**[1], S. Reveco[1], T. R. Juba[2], J. D. Wall[2], B. R. Lam[1], J. T. Geller[1], T. C. Hazen[1], M. Choi[1], M. D. Biggin[1], E. D. Szakal[3], S. Allen[3], H. Liu[3], H. E. Witkowska[3], J-M. Chandonia[1]; [1]Lawrence Berkeley Natl. Lab., Berkeley, CA, [2]Univ. of Missouri, Columbia, Columbia, MO, [3]Univ. of California, San Francisco, San Francisco, CA.

2949 Membrane Protein Complexes of *Desulfovibrio vulgaris*-Changes in Response to Stress and the Establishment of Communities
P. Walian[1], S. Allen[2], M. Shatsky[1], L. Zeng[1], E. Szakal[2], H. Liu[2], B. Lam[1], J. Geller[1], K. Hillesland[3], S. Hall[2], S. Fisher[2], M. Fields[4], D. Stahl[3], T. Hazen[5], S. Brenner[6], J-M. Chandonia[1], E. Witkowska[2], M. Biggin[1], B. Jap[1]; [1]Lawrence Berkeley Natl. Lab., Berkeley, CA, [2]Univ. of California, San Francisco, San Francisco, CA, [3]Univ. of Washington, WA, [4]Montana State Univ., MT, [5]Univ. of Tennessee, Knoxville, TN, [6]Univ. of California, Berkeley, Berkeley, CA.

2950 Transcriptional Responses of Pseudomonas syringae pv. syringae B728a to Stationary Shase *in vitro* and in Planta are Only Partially Regulated by N-acyl Homoserine Lactone-Mediated Quorum Sensing and Stationary Phase Sigma Factor RpoS
R. A. SCOTT[1], X. Yu[2], S. Lund[2], J. Williams[3], A. Records[3], S. Lindow[1], D. Nettleton[2], D. Gross[3], G. Beattie[2]; [1]Dept of Plant and Microbial Biology, Univ. of California-Berkeley, BERKELEY, CA, [2]Dept. of Plant Pathology, Iowa State Univ., Ames, IA, [3]Dept. of Plant Pathology and Microbiol., Texas A&M Univ., College Station, TX.

208 Physiology, Metabolism and Enzymology II (Division K)

1:00 p.m. – 2:45 p.m.; Poster Hall

2951 Inhibition of Sulfide Production *Via* the Addition of Chlorate
A. Engelbrektson, S. Mullin, P. Gregiore, H. Wong, J. Coates; Univ. of California, Berkeley, Berkeley, CA.

2952 Acceptor-reaction Studies of *Leuconostoc mesenteroides* URE13 Glucansucrases in the Presence of Lactulose and Lactitol
I. N. Iliev[1], T. A. Vasileva[1], V. P. Bivolarski[1], V. Gabriel[2], H. Robert[2], C. Fontagne-Faucher[2], B. Gabriel[2], I. Ivanova[3]; [1]Plovdiv Univ., Plovdiv, BULGARIA, [2]LISBP, Université de Toulouse, Toulouse, FRANCE, [3]Sofia Univ., Sofia, BULGARIA.

2953 Metabolic Engineering of *Escherichia coli* to Produce Perillyl Alcohol and its Novel Derivatives
S. GUPTA[1], J. Anthony[2], M. Marko[1], J. R. Porter[1]; [1]Univ. of the Sci., PHILADELPHIA, PA, [2]Delaware County Community Coll., Media, PA.

2954 Cloning and Characterization of *Pseudomonas aeruginosa* Carbonic Anhydrases
S. R. Lotlikar[1], M. Franklin[2], W. Picking[1], M. Patrauchan[1]; [1]Oklahoma State Univeristy, Stillwater, OK, [2]Montana State Univeristy, Bozeman, MT.

2955 Mutant Analysis Reveals Metabolic Context of the Thiamine Biosynthetic Enzyme ThiC in *S. enterica*
L. D. Palmer[1], M. Dougherty[2], D. M. Downs[1]; [1]Univ. of Wisconsin-Madison, Madison, WI, [2]Lawrence Berkeley Natl. Lab, CA.

2956 Optimality of Growth of *Escherichia coli* on Lactose
P. Malakar, S. Hedge, K. Venkatesh; Indian Inst. of Technology, Powai, India 400076, INDIA.

2957 Evaluation of α-l-rhamnosidase and β-d-glucosidase Activities from *Aspergillus Foetidus* by Elsd-hplc
J. Lira-Chay, D. Chan-Rodríguez, R. Dzib-León, J. Ramón-Sierra, G. Lizama-Uc, L. Cuevas-Glory, **E. L. Ortiz-Vázquez**; Inst. Tecnológico de Mérida, Mérida, Yucatán, MEXICO.

2958 Characterization of the Orphan hydA of Rhodospirillum rubrum S1
M. Abo-Hashesh, G. Sabourin-Provost, P. C. Hallenbeck; Univ. of Montreal, Montreal, QC, CANADA.

2959 Metabolic Engineering of *Escherichia coli* & *Saccharomyces Cerevisiae* for Production of Vitamin A
S. DOBRENIECKI[1], J. Anthony[2], M. Marko[1], J. R. Porter[1]; [1]Univ. of the Sci., PHILADELPHIA, PA, [2]Delaware County Community Coll., Media, PA.

2960 Histodinol-phosphate Aminotransferase can Substitute *in vivo* for Tyrosine Aminotransferase in Multiple Aminotransferase Deletion Mutants of Klebsiella oxytoca
J. N. Edirisinghe, R. Meganathan; Northern Illinois Univ., DEKALB, IL.

2961 Control of Biogenic Hydrogen Sulfide Produced in Oil Reservoirs by Chlorate Reducing Bacteria
P. Gregoire, A. Engelbrektson, H. Carlson, J. Coates; Univ. of California, Berkeley - Plant and Microbial Biology, Berkeley, CA.

2962 Comparison of Cr(VI) and U(VI) Reduction Efficiencies in *Desulfovibrio vulgaris* Hildenborough and *Desulfovibrio* alaskensis G20
E. S. Semkiw[1,2], G. M. Zane[1,2], B. J. Rapp-Giles[1], J. D. Wall[1,2]; [1]Univ. of Missouri, Columbia, MO, [2]ENIGMA, Berkeley, CA.

2963 Discovery of Novel Phosphonate Natural Products
J. P. Cioni, W. W. Metcalf; Univ. of Illinois Urbana-Champaign, Urbana, IL.

2964 Role of Electron Shuttles in Extracellular Respiration of Insoluble Substrates in *Shewanella oneidensis*
N. J. Kotloski, J. A. Gralnick; Univ. of Minnesota Twin Cities, St. Paul, MN.

2965 Metabolic Alteration During Growth of Lactobacilus Strains in the Presence of Lactulose and Galactooligosaccharides
I. V. Ivanova[1], T. Mandadjieva[1], L. Dojcinovski[1], T. Ignatova[2], T. Haertle[3], J-M. Chobert[3], I. Iliev[4]; [1]Sofia Univ., Sofia, BULGARIA, [2]Shumen Univ., Shumen, BULGARIA, [3]INRA, Nantes, FRANCE, [4]Plovdiv Univ., Plovdiv, BULGARIA.

2966 Microbial Nitrile-synethetic Metabolism and the Enzyme
J. NOMURA, K-I. OINUMA, Y. HASHIMOTO, **M. KOBAYASHI**; Univ. of Tsukuba, Tsukuba, JAPAN.

2967 Characterization of a Family 42 beta-galactosidase from an Extreme Halophilic Archaeon Isolated from Deep Lake, Antarctica
D. Marion, J. R. Black, **J. A. COKER**; Univ. of Alabama at Birmingham, Birmingham, AL.

2968 Environmental Controls of Nitrate/Nitrite Reduction Pathways in *Shewanella loihica* PV-4
S. Yoon[1], C. Cruz-Garcia[2], K. M. Ritalahti[1], R. Sanford[3], F. E. Loeffler[1,4]; [1]Univ. of Tennessee, Knoxville, TN, [2]Georgia Inst. of Technology, Atlanta, GA, [3]Univ. of Illinois at Urbana-Champaign, Champaign, IL, [4]Oak Ridge Natl. Lab., Oak Ridge, TN.

2969 Preliminary Result of Using Flotation Technique for Separation of Non-adherent Microorganisms
R. Kadlec[1], M. Jakubec[2], F. Ruzicka[3]; [1]VUCHS, Pohorelice, CZECH REPUBLIC, [2]VUM, Praha, CZECH REPUBLIC, [3]Med. Faculty, Masaryk Univ., Brno, CZECH REPUBLIC.

209 Healthcare Epidemiology (Division L)

1:00 p.m. – 2:45 p.m.; Poster Hall

2970 Prevalence of Blood Borne Infections Associated with Needle Stick Injuries among Health Care Workers
A. Rasool[1], A. R. Bhutto[2], B. H. Sheikh[2], **H. Zahid**[2], A. Ahmed[3]; [1]Sindh Med. Coll., Karachi, PAKISTAN, [2]Dow Med. Coll., Karachi, PAKISTAN, [3]Indus Hosp., Karachi, PAKISTAN.

2971 An Increasing Incidence of ESBL-producing Multidrug-Resistant *Acinetobacter baumannii* from a Tertiary-Care Teaching Hospital in Pune (India)
N. Telang[1], M. Satpute[1], P. Dhakephalkar[2], K. B. Niphadkar[1], **S. G. Joshi**[3,1,4]; [1]Dept. of Microbiol., King Edward Mem. Hosp., Pune, INDIA, [2]DNA Seqeuncing Ctr., Agharkar Res. Inst., Pune, INDIA, [3]Drexel Univ. Coll. of Med., Philadelphia, PA, [4]Sch. of Basic Med. Sci., Univ. of Pune, Pune, INDIA.

2972 Who Gets Infected? An Investigation of Hospital-Acquired MRSA Colonization Versus Infection in a Tertiary Care Veterans Hospital
M. E. Rome[1], G. Kypriotakis[1,2], E. Flannery[2], U. Stiefel[1,2]; [1]Case Western Reserve Univ., Cleveland, OH, [2]Cleveland VAMC, Cleveland, OH.

2973 Epidemiology of Vancomycin Heteroresistance in *Staphylococcus aureus* at a Tertiary Care Teaching Hospital: A Bench to Bedside Perspective
J. Modi[1], V. Sundareshan[1], N. M. Khardori[2]; [1]Southern illinois Univ., Springfield, IL, [2]Eastern Virginia Med. Sch., Norfolk, VA.

2974 Detection of Metallo-β-lactamase Production in *Enterobacteriaceae*: a study from Lucknow in North India
V. Khare[1], P. Gupta[2], B. Mehrotra[3], S. Mehrotra[2]; [1]Hind Inst. of Med. Sci., Lucknow, INDIA, [2]CSMMU, Lucknow, INDIA, [3]RML Mehrotra Pathology Pvt. Ltd., Lucknow, INDIA.

2975 Late Onset Neonatal Bacteremia as Enteric Infection: Identification of Circulating Strains in Stools before Bacteremia
M. A. Carl[1,2], A. C. Springman[3], B. D. Johnston[4], M. Ndao[2], H. J. Stevens[2], C-A. D. Burnham[2], B. B. Warner[2], J. R. Johnson[4], S. D. Manning[3], P. I. Tarr[2]; [1]Saint Louis Univ. Sch. of Med., St. Louis, MO, [2]Washington Univ. Sch. of Med., St. Louis Children's Hosp., St. Louis, MO, [3]Michigan State Univ., East Lansing, MI, [4]Veteran Affairs Med. Ctr. and Univ. of Minnesota, Minneapolis, MN.

2976 Healthcare-Associated Infections (HAI) in a Children's Hospital: MRSA Persistence, *C. difficile* (CD) Emergence and Vancomycin-Resistant *Enterococcus* (VRE) Absence
H. S. Faden[1,2], S. Michalec, [22], J. Wasiura, [22]; [1]Univ. at Buffalo, SUNY, Buffalo, NY, [2]Women and Children's Hosp. of Buffalo, Buffalo, NY.

2977 Antimicrobial Stewardship at an Urban Public Hospital: Trends in Antimicrobial Agent Utilization and Costs
T. Jenkins, C. Price, C. Swartwood, B. Burman, P. Mehler, M. L. Wilson; Denver Hlth. Med. Ctr., Denver, CO.

2978 Control of Methicillin-Resistant *Staphylococcus aureus* (MRSA) in Acute Care Hospitals Does Not Require Both Contact Isolation and Patient Decolonization
L. R. Peterson[1,2], P. A. Patel[1], V. Komutanon[1], K. E. Peterson[1], A. Grayes[1], D. M. Hacek[1], M. O. Wright[1], A. Robicsek[1,2]; [1]Evanston Hosp. and NorthShore Univ. Hlth.System, Evanston, IL, [2]Univ. of Chicago, Chicago, IL.

2979 Molecular Epidemiology of Extended-Spectrum Beta-lactamases in Gram-Negative Bacteria in Two Hospitals of Quebec City, Canada
M. Vallée[1], A. Huletsky[1], D. K. Boudreau[1], È. Bérubé[1], I. Bunescu[2], R. Giroux[1], J. Longtin[3], Y. Longtin[4], M. G. Bergeron[1]; [1]Ctr. de Recherche en Infectiologie de l'Université Laval, Québec, QC, CANADA, [2]Université d'État de Médecine Nicolae Testemitanu, MOLDOVA, REPUBLIC OF, [3]Ctr. Hosp. de l'Université Laval, Québec, QC, CANADA, [4]Inst. Univ. de Cardiologie et de Pneumologie de Québec, Québec, QC, CANADA.

2980 Surface Bacterial Contamination of Mobile Phones Leading to Contamination of the Hands of Healthcare Workers
A. Kanayama[1], I. Kobayashi[1], S. Yoshizawa[1], K. Tateda[1], A. Kaneko[2]; [1]Toho Univ., Tokyo, JAPAN, [2]Tokai Univ., Kanagawa, JAPAN.

2981 Laboratory Response to a KPC Outbreak at the NIH Clinical Center
A. F. Lau, S. Antonara, F. Stock, T. Palmore, A. M. Zelazny; Natl. Inst.'s of Hlth., Bethesda, MD.

2982 Comparison of Multiple Body Site Cultures Versus Nasal PCR for Detection of Methicillin-Resistant *Staphylococcus aureus* (MRSA) Colonization
D. Hacek[1], S. Boehm[1], P. Patel[1], K. Schora[1], K. Peterson[1], A. Grayes[1], C. Hines[2,3], D. Burdsall[4], L. R. Peterson[1]; [1]NorthShore Univ. Hlth. System, Evanston, IL, [2]Glenview Terrace, Glenview, IL, [3]Whitehall of Deerfield, Deerfield, IL, [4]Lutheran Life Communities, Arlington Heights, IL.

2983 Nasal Carriage as a Source of agr-Defective *Staphylococcus aureus* Bacteremia
D. S. Smyth[1], J. M. Kafer[1], G. A. Wasserman[1], L. Velickovic[2], B. Mathema[3], R. S. Holzman[1], T. A. Knipe[1], K. Becker[4], C. von Eiff[4], G. Peters[5], L. Chen[3], B. N. Kreiswirth[3], B. Shopsin[1]; [1]New York Univ., New York, NY, [2]Karolinska Inst., Stockholm, SWEDEN, [3]Publ. Hlth.Res. Inst., Newark, NJ, [4]Inst. of Med. Microbiol., Munster, GERMANY, [5]Inst. of Med. Microbiol., Munster, NY.

2984 Longitudinal Genetic Analyses of *Staphylococcus aureus* Nasal Carriage Dynamics in a Heterogeneous Population
G. Muthukrishnan, R. P. Lamers, A. Ellis, V. Paramanandam, A. B. Persaud, A. M. Cole; Univ. of Central Florida Coll. of Med., Orlando, FL.

2985 Usefulness of a Real-time PCR Method for Detection and Identification of Hypervirulent *Clostridium difficile*
S. V. Hoegh, M. N. Skov, H. M. Holt, **M. Kemp**; Dept. of Clinical Microbiol., Odense Univ. Hosp., Odense, DENMARK.

2986 Longitudinal Surveillance of Pneumococcal Serotypes in the United States: 1999-2000, 2008-09 and 2010-11
S. S. Richter[1], D. J. Diekema[2], C. L. Dohrn[2], K. P. Heilmann[2], F. Riahi[2], G. V. Doern[2]; [1]Cleveland Clinic, Cleveland, OH, [2]Univ of Iowa Hlth. Care, Iowa City, IA.

2987 Infection as a Trigger for Venous Thromboembolism: A Population-Based Study
M. A. M. Rogers, D. A. Levine; Univ. of Michigan, Ann Arbor, MI.

2988 Clonal Analysis of Multi Drug Resistant *Klebsiella pneumoniae* Submitted to a Surveillance Network
Y. I. Kwak, P. McGann, L. A. Flores, M. Milillo, P. E. Waterman, E. P. Lesho; Walter Reed Army Inst. of Res., Silver Spring, MD.

2989 Indirect Bactericidal Activity of Electrostatic Atomized Water Particles against Antimicrobial Resistant Organisms
I. Kobayashi[1], S. Ryu[1], A. Kanayama[1], H. Suda[2], Y. Asano[2]; [1]Toho Univ., Faculty of Nursing, Dept. of Infection Control and Prevention, Tokyo, JAPAN, [2]Panasonic Corp., Appliances Company, Corporate Engineering Div., Home Appliances Dev. Ctr., Osaka, JAPAN.

2990 Influence of Diabetes Mellitus on Microbiology of Central Venous Catheter Infection
L. Shahani[1], C. Noggle[1], N. Khardori[2]; [1]Southern Illinois Univ. Sch. of Med., Springfield, IL, [2]Eastern Virginia Med. Sch., Norfolk, VA.

2991 Carriage of *Haemophilus influenzae* in Pre-school Children in Enugu, Nigeria
B. O. Ogeneh[1], N. U. Atueyi[2], I. P. Udoh[1], C. I. Eleazar[1]; [1]Faculty of Med. Sci., Univ. of Nigeria, Enugu, NIGERIA, [2]Faculty of Hlth.Sci., Univ. of Nigeria, Enugu, NIGERIA.

2992 Incidence of *Klebsiella* Infections and Dissemination of CTXM-15 Encoding Gene in Intensive Care Neonates in Rio de Janeiro, Brazil
L. H. J. Da-Silva[1], A. N. De-Azeredo[1], V. B. C. Girão[1], M. S. Alves[2], R. R. Santos[3], M. B. G. P. Leobons[3], A. C. Bueno[3], P. Inhaquite[3], F. L. P. C. Pellegrino[1], G. Santoro-Lopes[1], C. B. Hofer[1], A. L. L. Cunha[1], C. L. Pessoa-Silva[1], L. W. Riley[4], B. M. Moreira[1]; [1]Univ.e Federal do Rio de Janeiro, Rio de Janeiro, BRAZIL, [2]Univ.e Federal de Juiz de Fora, Juiz de Fora, BRAZIL, [3]Secretaria Municipal de Saúde e Defesa Civil do Rio de Janeiro, Rio de Janeiro, BRAZIL, [4]Univ. of California, Berkeley, CA.

2993 Impact of Toxigenic *Clostridium difficile* PCR Testing on the Clinical Microbiology Laboratory and Inpatient Epidemiology
M. Napierala[1], D. Block[2], G. Land[2], M. Luzinski[2], N. Riederer[3], S. Rodriguez[2], P. Skonieczny[2], E. Munson[1]; [1]Wheaton Franciscan Lab., Wauwatosa, WI, [2]Wheaton Franciscan Hlth.care, Milwaukee, WI, [3]Wheaton Franciscan Hlth.care, Brookfield, WI.

2994 Optimizing the Antibiogram: How Duplicates and Patient Subpopulations Influence Cumulative Susceptibility
A. N. Abbott, F. C. Fang; Univ. of Washington Med. Ctr., Seattle, WA.

2995 Infection and IgA/IgG Seroprevalence of *H. pylori* in a Cross-Section of a Northern Utah Population
R. J. W. Welch[1], M. R. Couturier[1,2]; [1]ARUP Lab., Salt Lake City, UT, [2]Univ. of Utah, Sch. of Med., Dept. of Pathology, Salt Lake City, UT.

210 Regulation, Replication, Recombination, and Biotechnology (Division M)

1:00 p.m. – 2:45 p.m.; Poster Hall

2996 Sequences in *attP* that Influence Bxb1 Integrase Binding
S. Singh, P. Ghosh, G. F. Hatfull; Univ. of Pittsburgh, Pittsburgh, PA.

2997 Identification of a New Self-Splicing Intron in Mycobacteriophage LittleE
A. H. Ogiefo, W. Pope, D. Jacobs-Sera, G. Hatfull; Univ. of Pittsburgh, Pittsburgh, PA.

2998 Utilizing Mycobacteriophage Integration Cassettes to Create a New Genetic Toolbox
K. Rockenbach, R. M. Dedrick, G. F. Hatfull; Univ. of Pittsburgh, Pittsburgh, PA.

2999 Interactions Between the Bacteriophage T4 Activator MotA and DNA during Sigma Appropriation
M-L. Hsieh, T. James, L. Knipling, D. M. Hinton; NIDDK/NIH, Bethesda, MD.

3000 *In Vivo* Transcriptomic Analysis of Phage-Related Genes of the Leech Symbiont *Aeromonas* veronii
M. Ojukwu, L. Bomar, J. Graf; Univ. of Connecticut, Storrs, CT.

3001 Molecular Characterization and Phage-resistance Analysis of Bacteriophages as Potential Biocontrol Agents of *Escherichia coli* O157:H7
L. A. Amarillas[1], J. Leon-Felix[1], C. Chaidez[1], N. Castro Del-Campo[1], B. Valdez-Torres[1], S. Velarde-Felix[2], H. Carrillo-Yanez[1]; [1]CIAD, Culiacán, MEXICO, [2]Hosp. Gen. De Culiacan, Culiacán, MEXICO.

3002 Isolation and Characterization of Two *Staphylococcus aureus* Bacteriophages with Broad Host Range
Y. Chang, J. Yun, S. Ryu; Seoul Natl. Univ., Seoul, KOREA, REPUBLIC OF.

3003 Evaluation of Bacteriophage Av-08 for Symultaneous Biocontrol of *Salmonella* Montevideo and *E. coli* O157:H7 in Experimentally Contaminated Chicken Skin
O. López, C. Chaidez, N. Castro, J. León, C. Martínez, J. B. Valdez; Centro de Ivestigación en Alimentación y Desarrollo A. C., Culiacán, MEXICO.

3004 Auto-regulation of P_{RM} is dependent on the Angular Orientation of DNA-bound CI and RNA Polymerase
D. E. A. Lewis, P. Le, S. Adhya; NIH, Bethesda, MD.

3005 Regulation of p*RM* and p*R* with Operator Orientation
A. Dhar, D. E. A. Lewis, S. Adhya; NIH, Bethesda, MD.

3006 Mechanism of Spacer Acquisition in *E. coli* CRISPR/Cas System
E. Semenova[1], K. A. Datsenko[1,2], K. Pougach[1,3], A. Tikhonov[1,3], B. L. Wanner[2], K. Severinov[1,3,4]; [1]Waksman Inst., Rutgers Univ., Piscataway, NJ, [2]Purdue Univ., West Lafayette, IN, [3]Inst.s of Molecular Genetics and Gene Biology, RAS, Moscow, RUSSIAN FEDERATION, [4]Dept. of Molecular Biology and Biochemistry, Rutgers Univ., Piscataway, NJ.

3007 Potential of Biofilm Disintegration by Phage Infection Lysate: EPS Depolymerase
A. S. Bhattacharjee, S. M. Kotay, R. Goel; Univ. of Utah, Salt Lake City, UT.

3008 Phage Therapy of Coral Disease in the Red Sea
I. Atad, E. Rosenberg; Tel Aviv Univ., Tel Aviv, ISRAEL.

3009 Blood Pharmacokinetics of Staph phage K in Healthy Male Sprague Dawley Rats
C. M. Loc-Carrillo[1,2], J. P. Beck[1,2]; [1]The Univ. of Utah, Salt Lake City, UT, [2]George E. Wahlen Dept. of VA, Hlth.Care System, Salt Lake City, UT.

211 Microbial Interactions: Populations, Communities, Plants, and Animals II (Division N)

1:00 p.m. – 2:45 p.m.; Poster Hall

3010 Common Patterns in Root Associated Bacterial Communities in Early Ecosystem Succession
J. Knelman, S. O'Neill, D. R. Nemergut; Univ. of Colorado at Boulder, Boulder, CO.

3011 What Makes a Plant Invasive? It Might be a Matter of Microbes
M. E. Rout[1], T. H. Chrzanowski[2], R. M. Callaway[3], W. E. Holben[3]; [1]USDA- Agricultural Res. Service, Miles City, MT, [2]The Univ. of Texas at Arlington, Arlington, TX, [3]The Univ. of Montana, Missoula, MT.

3012 *Variovorax paradoxus* EPS Promotes the Growth of Sunflower *(Helianthus annuus)*
N. Arab, P. M. Orwin; California State Univ., San Bernardino, San Bernardino, CA.

3013 The Effect of Volatiles Produced by *Trichoderma viride* on *Arabidopsis thaliana*
R. Hung, S. Lee, J. W. Bennett; Rutgers, The State Univ. of New Jersey, New Brunswick, NJ.

3014 Diversity of Endophytic Bacterial Communities in *Pinus flexilis* Foliage
A. Carrell, C. Frank; UC Merced, Merced, CA.

3015 Characterization of Biofilm Formation by *Populus*-Associated Bacteria
J. L. Morrell-Falvey[1,2], S. Melton[1], D. P. Allison[2], N. P. Mortensen[1], D. A. Pelletier[1], M. J. Doktycz[1]; [1]Oak Ridge Natl. Lab., Oak Ridge, TN, [2]Univ. of Tennessee, Knoxville, TN.

3016 Role of Genotype-x-Environment Interactions in Shaping the Root-associated Microbiome of *Populus deltoides*
M. Shakya[1,2], N. Gottel[1,3], H. F. Castro-Gonzalez[1], Z. K. Yang[1], M. K. Kerley[1], G. Bonito[4], D. A. Pelletier[1,2], T. V. Karpinets[1], G. H. Kora[1], J. L. Labbe[1], L. E. Gunter[1], E. C. Uberbacher[1,2], W. Muchero[1], G. A. Tuskan[1], M. Podar[1,2], R. Vilgalys[4], M. J. Doktycz[1,2], **C. W. Schadt**[1,2]; [1]Oak Ridge Natl. Lab., Oak Ridge, TN, [2]Univ. of Tennessee, Knoxville, TN, [3]Univ. of Texas, Austin, TX, [4]Duke Univ., Durham, NC.

3017 Antimicrobial Activity of Root Endophytic Actinobacteria from Native Herbaceous Plants
S. Young Min, K. Tae-Woon, K. Seung-Bum; Chungnam Natl. Univ., Daejeon, KOREA, REPUBLIC OF.

3018 Visualization of *'Candidatus* Liberibacter asiaticus' Cells in Citrus Seed Coats with Fluorescence in Situ Hybridization and Transmission Electron Microscopy
M. E. Hilf[1], K. R. Sims[1], S. Y. Folimonova[2], D. S. Achor[2]; [1]USDA-ARS, Fort Pierce, FL, [2]CREC, Univ. of Florida, Lake Alfred, FL.

3019 Halotolerant Microbial Diversity in rizosphere of arid plant
A. C. RUIZ-FONT[1], M. Lucero[2]; [1]IPN, Puebla, MEXICO, [2]La Jornada Experimental Range, USDA, Las Cruces, NM.

3020 Multiplexed Quantitative Proteomics for Characterization of Temporal Dynamics of the *Ignicoccus hospitalis-Nanoarchaeum equitans* System
Z. Li, R. Giannone, M. Podar, R. Hettich, C. Pan; Oak Ridge Natl. Lab, Oak Ridge, TN.

3021 Fungi Associated with Wood-Feeding Beetles in Indonesia
E. S. Chow[1], I. Sitepu[1], N. M. Schiff[2], L. Ignatia[1], A. Kanti[3], S. Faulina[4], A. Joko Nugroho[3], N-L. Nguyen[1], K. L. Boundy-Mills[1]; [1]Univ. of California Davis, Davis, CA, [2]USDA Forest Service, Stoneville, MS, [3]Inst. of Sci., Biology, Cibinong, INDONESIA, [4]Ministry of Forestry, Bogor, INDONESIA.

3022 A Multi-Scale Approach to Characterize Microbial Communities and their Physiology in the Wood-Feeding Beetle *Odontotaenius disjunctus*
J. A. Ceja-Navarro[1], N. H. Nguyen[2], M. Nyyssönen[1], U. Karaoz[1], Z. Hao[1], H-Y. Holman[1], M. M. Blackwell[3], J. Pett-Ridge[4], E. L. Brodie[1]; [1]Lawrence Berkeley Natl. Lab., Berkeley, CA, [2]Univ. of California, Berkeley, CA, [3]Louisiana State Univ., Baton Rouge, LA, [4]Lawrence Livermore Natl. Lab., Livermore, CA.

3023 Detection of an Active Nitrogen-Fixing Community in the Gastrointestinal Tract of the Wood-Eating Catfish *Panaque nigrolineatus*
R. C. McDonald[1], F. Zhang[2], J. E. M. Watts[3], H. J. Schreier[4]; [1]Towson Univ., BALTIMORE, MD, [2]Univ. of Maryland Ctr. for Environmental Sci., BALTIMORE, MD, [3]Univ. of Portsmouth, Portsmouth, UNITED KINGDOM, [4]Univ. of Maryland Baltimore County, BALTIMORE, MD.

3024 Rainbow Trout (Oncorhynchus mykiss) Possess a Large Core Intestinal Microbiota that Is Resistant to Variation in Diet Composition and Rearing Density
S. Wong[1], T. Waldrop[2], S. Summerfelt[2], J. Davidson[2], F. Barrows[3], P. Kenney[4], K. Snekvik[5], J. F. Rawls[1], C. Good[2]; [1]UNC-Chapel Hill, Chapel Hill, NC, [2]The Conservation Fund's Freshwater Inst., Shepherdstown, WV, [3]Hagerman Fish Culture Experiment Station, Hagerman, ID, [4]West Virginia Univ., Morgantown, WV, [5]Washington State Univ., Pullman, WA.

3025 Coral Reef Macro-organisms Influence the Structure of Seawater Micro-organisms
K. Walsh[1], J. Haggerty[1], L. Hill[1], W. Williams[1], J. Spangler[2], C. Lee[2], T. Harkins[2], E. A. Dinsdale[1]; [1]San Diego State Univ., San Diego, CA, [2]Life Technologies, Carlsbad, CA.

3026 Investigation of the Novel Heterotrophic Osedax Symbiosis Using Comparative Genomics
S. Goffredi[1], J. Klann[1], I. Struve[1], Q. Zhang[2], T. Brown[2]; [1]Occidental Coll., Los Angeles, CA, [2]Michigan State Univ., East Lansing, MI.

3027 Predation Response of *Vibrio fisheri* Biofilms to Protozoan Grazers/ Heterotrophic Protists
A. Chavez[1], M. Erken[2], D. McDougald[2], M. K. NISHIGUCHI[1]; [1]New Mexico State Univ., LAS CRUCES, NM, [2]Univ. of New South Wales, Sydney, AUSTRALIA.

3028 Genomic and Functional Analysis of the *iac* Gene Cluster Coding for the Bacterial Indole-3-acetic Acid Catabolic Pathway
I. V. Greenhut[1], J. Scott[2], J. H. Leveau[1]; [1]Univ. of California-Davis, Davis, CA, [2]Univ. of Minnesota, St. Paul, MN.

3029 Modeling Antibiotic Influences on Bacterial Communities in the Cystic Fibrosis Lung
J. Zhao, S. Murray, J. J. LiPuma; Univ. of Michigan-Ann Arbor, Ann Arbor, MI.

3030 Bacterial Composition of Dental Plaque during the Transition from Health to Experimentally Induced Gingivitis
J. O. Kistler[1], V. Booth[1], D. J. Bradshaw[2], W. G. Wade[1]; [1]King's Coll. London, London, UNITED KINGDOM, [2]GlaxoSmithKline, Weybridge, UNITED KINGDOM.

3031 *In Vitro* Culture of Multi-Species Human Oral Biofilms
A. Rybalka, F. Mannocci, W. Wade; King's Coll. London, London, UNITED KINGDOM.

3032 An *in-vitro* Model System for the Cultivation of Previously Uncultured Human Oral Bacteria
H. Thompson[1], V. Booth[1], F. E. Dewhirst[2], W. G. Wade[1]; [1]King's Coll. London, London, UNITED KINGDOM, [2]The Forsyth Inst., Cambridge, MA.

3033 Vertical Transmission of the Mouse Microbiome
I. G. Pantoja-Feliciano[1], R. Knight[2], J. C. Clemente[3], E. K. Costello[4], M. E. Pérez[5], M. J. Blaser[6], M. G. Domínguez-Bello[1]; [1]Lab. of Microbial Ecology, Dept. of Biology, Univ. of Puerto Rico, San Juan, PR, [2]Dept. of Chemistry and Biochemistry, Univ. of Colorado, Colorado, CO, [3]Howard Hughes Med. Inst., Boulder, CO, [4]Dept. of Microbiol. and Immunology, Stanford Univ. Sch. of Med., California, CA, [5]Ctr. of Biostatistics and Bioinformatics, Dept. of Mathematics, University of Puerto Rico Rio Piedras Campus, PR, [6]Dept.s of Med. and Microbiol., New York Univ. Sch. of Med., New York, NY.

3034 Analysis of the Cecal Microbiota of an Extreme Hibernator, the Arctic Ground Squirrel
K. N. Duddleston, T. J. Stevenson, B. A. Quinlan, C. L. Buck; Univ. of Alaska Anchorage, Anchorage, AK.

3035 Dog-associated House Dust Protects Against Respiratory Syncytial Virus Infection in Murine Models
K. E. Fujimura[1], M. Rauch[1], T. Demoor[2], S. Galang[1], D. R. Ownby[3], E. M. Zoratti[4], C. C. Johnson[4], H. A. Boushey[1], N. W. Lukacs[2], S. V. Lynch[1]; [1]UCSF, San Francisco, CA, [2]Univ. of Michigan, Ann Arbor, MI, [3]Med. Coll. of Georgia, Augusta, GA, [4]Henry Ford Hosp., Detroit, MI.

3036 Virulence Patterns of *Enterococcus spp.* Associated with Human Pathology of Marine and Nosocomial Origin Isolated in Lima-Peru
F. D. Rojas Chavez, BCh[1], **D. E. Alvarado, MSc**[1], M. K. Rosas, BCh[1], A. Huaman, BCh[1], F. Delacruz-Calvo, BCh[1], R. Ramirez, MD.[2]; [1]Univ. Natl. Mayor de San Marcos, Lima 100, PERU, [2]Hosp. Guillermo Almenara Irigoyen, Lima 100, PERU.

3037 The Black Queen Hypothesis: Evolution of Mutualism Through Adaptive Gene Loss
J. J. Morris[1], R. E. Lenski[1], E. R. Zinser[2]; [1]Michigan State Univ., East Lansing, MI, [2]Univ. of Tennessee, Knoxville, TN.

212 Foodborne Pathogen Biology (Division P)

1:00 p.m. – 2:45 p.m.; Poster Hall

3038 Whole genome sequence analysis of L. monocytogenes from food processing plants
Y. Chen[1], C. Li[1], M. Allard[1], E. Strain[1], P. Evans[2], S. Knabel[3]; [1]FDA, College Park, MD, [2]USDA, Washington, DC, [3]Penn State Univ., University Park, PA.

3039 Response of *Listeria monocytogenes* to High Hydrostatic Pressure Or Freeze-thaw Cycles Following Exposure to Selected Environmental Stresses
D. K. Dutilly, B. F. Brehm-Stecher, J. S. Dickson, A. F. Mendonca; Iowa State Univ., Ames, IA.

3040 Global evaluation of Sigma L dependent phenotypic and transcriptomic traits in *Listeria monocytogenes* EGDe
M. Mattila[1], P. Somervuo[1], T. Rattei[2], H. Korkeala[1], R. Stephan[3], **T. Tasara**[3]; [1]Dept. of Food Hygiene and Environmental Hlth., Faculty of Vet. Med., Univ. of Helsinki, Finland, Helsinki, FINLAND, [2]Dept. of Computational Systems Biology, Faculty of Life Sci., Univ. of Vienna, Austria, Vienna, AUSTRIA, [3]Inst. for Food Safety and Hygiene, Zurich, SWITZERLAND.

3041 Incidence and Survival of *Escherichia coli* O157:H7 and *Listeria monocytogenes* in salad vegetables
R. E. Uzeh, A. Adepoju; Univ. of Lagos, Lagos, NIGERIA.

3042 Complete DNA Sequence of a Novel EHEC Virulence Plasmid pO157_2 in GUD+ *Escherichia coli* O157:H7 Reveals New Pathway of O157:H7 Evolution
L. V. Rump[1], J. Meng[1], E. Strain[2], G. Cao[1], M. W. Allard[2], M. Fischer[3], **N. Gonzalez-Escalona**[2]; [1]Univ. of Maryland, College Park, MD, [2]CFSAN/FDA, College Park, MD, [3]Univ. of Hamburg, Hamburg, GERMANY.

3043 Effect of Curing Method and Freeze-thawing on Subsequent Growth of *Listeria monocytogenes* on Cold-Smoked Salmon
J. Kang, S. Tang, R. H. Liu, S. Wang, T. M. Bergholz, K. J. Boor, M. Wiedmann; Cornell Univ., Ithaca, NY.

3044 Exposure to Salt Stress Increases Subsequent Nisin Resistance of *Listeria monocytogenes* and Is Mediated Via LiaSR
T. Bergholz, S. Tang, B. Bowen, K. Boor, M. Wiedmann; Cornell Univ., Ithaca, NY.

3045 Food Epidemiology of Emetic Strains of *Bacillus* cereus and *Bacillus* weihenstephanensis
J. Mahillon[1], V. Castiaux[1], L. Delbrassinne[1,2], K. Dierick[2], J. Van Loco[2], I. Swiecicka[3]; [1]UCL, Louvain-la-Neuve, BELGIUM, [2]SIPH, Brussels, BELGIUM, [3]Univ. of Bialystok, Bialystok, POLAND.

3046 Nutrient Inhibition of *Escherichia coli* O157:H7 Growth and Biofilm Formation
T. Lynnes, S. M. Horne, B. M. Pruess; North Dakota State Univ., Fargo, ND.

3047 Sub-minimal Inhibitory Concentrations of some Antibiotics Either Reduce or Enhance Biofilm Formation of *Listeria monocytogenes*
G. M. Knudsen, L. Gram, Bacterial Ecophysiology and Biotechnology; DTU Natl. Food Inst., Kgs. Lyngby, DENMARK.

3048 Reactive Oxygen Species in Lettuce and Modulation by *E. coli* O157:H7
M. T. Brandl, S. T. Hua, Y. Zhou, S. L. Sarreal; USDA/ARS, WRRC, Albany, CA.

3049 Phylogenetic Analysis of *Salmonella enterica* serovar Heidelberg Isolates using Whole Genome Sequencing
M. Hoffmann[1], S. Zhao[1], Y. Luo[2], C. Li[2], J. Folster[3], E. A. Strain[2], M. W. Allard[2], E. W. Brown[2], P. McDermott[1]; [1]FDA/CVM, Laurel, MD, [2]FDA/CFSAN, College Park, MD, [3]CDC, Atlanta, GA.

3050 Arsenic Resistance and Prevalence of Arsenic Resistance Genes in *Campylobacter jejuni* and *Campylobacter coli* isolated from Oklahoma Retail Meats
A. Noormohamed, M. K. Fakhr; The Univ. of Tulsa, Tulsa, OK.

3051 A Novel Gene of *Listeria monocytogenes*, Af1, Associated with Attachment to Vegetables and Fruits
D. Bae, K. Seo, T. Zhang, C. Wang; Dept. of Basic Sci., Coll. of Vet. Med., Mississippi State Univ., Mississippi State, MS.

3052 Toxigenic Characterization of *Vibrio* Species Isolated from Oysters in Food Retails in Culiacán, México
C. Martinez-Rodriguez[1], J. Leon-Felix[1], C. Chaidez[1], M. Jimenez[2], B. Gómez-Gil[3], L. Soto-Castro[1]; [1]CIAD, Culiacan, MEXICO, [2]Facultad de Ciencias Quimico-Biologicas, UAS, Culiacan, MEXICO, [3]CIAD, Mazatlan, MEXICO.

3053 Quantifying Environmental Reservoir Quality and Landscape Connectivity for Foodborne Pathogen Transmission to Produce Fields
P. W. Bergholz, T. K. Chapin, R. C. Pfuntner, L. K. Strawn, M. Wiedmann; Cornell Univ., Ithaca, NY.

3054 Characterisation of the Lipopolysaccharide(LPS)-encoding O-antigen Locus of *Cronobacter* spp
Q. Q. Yan[1], K. Power[1], K. G. Jarvis[2], B. D. Tall[2], S. Fanning[1]; [1]Univ. Coll. Dublin, Dublin, IRELAND, [2]U.S. Food and Drug Admin., Laurel, MD.

3055 Norovirus Contamination of live Oysters *(Crassostrea corteziensis)* Collected from Establishments of the city of Culiacan, Sinaloa, Mexico
J. Leon-Felix, A. Cota-Alvarez, C. Chaidez, N. Castro del Campo, B. Valdez-Torres, H. Carrillo-Yañez; CIAD, Culiacan, MEXICO.

3056 Analysis of *Escherichia coli* K12 and O157:H7 Interaction with Lettuce Roots Using Surface Enhanced Raman Spectroscopy
z. hou, L. He, R. Fink, T. P. Labuza, F. Diez-Gonzalez, M. J. Sadowsky; Univ. of Minnesota, St Paul, MN.

3057 Differential Fitness of *Salmonella enterica* Strains on Pre-Harvest Baby Lettuce
L. Gorski, A. Liang; USDA, ARS, WRRC, Albany, CA.

3058 Identification of a Novel Gene, *Lstc,* Implicated in High Salt Survival in *Listeria monocytogenes*
L. S. Burall, **P. Laksanalamai**, A. C. Simpson, L. Chou, A. R. Datta; Food & Drug Admin., Laurel, MD.

3059 Involvement of ftsk in Cold and High Salt Survival in *Listeria Monocytogenes*
L. S. Burall, P. Laksanalamai, A. R. Datta; Food & Drug Admin., Laurel, MD.

3060 Structure and Diversity of *Escherichia coli* O157 Isolated from Cattle in the Upper Midwest
F. Diez-Gonzalez, J. Ferguson, K. R. Christensen, M. J. Sadowsky, R. C. Fink; Univ. of Minnesota, St. Paul, MN.

3061 Type six secretion in Vibrios
G. Gopinathrao[1], M. Kothary[1], S. Curtis[1], A. Franco Mora[1], K. G. Jarvis[1], J-G. Beaubrun[1], C. G. Grim[1], A. Mogk[2], G. Bonemann[2], A. Pietrosiuk[2], B. A. McCardell[1], B. D. Tall[1]; [1]FDA, Laurel, MD, [2]Zentrum für molekulare Biologie, Heidelberg, GERMANY.

3062 Contribution of RpoS to Growth and Survival of *Salmonella*e during Osmotic Stress
M. Shiroda[1], Z. Pratt[1], C. Kaspar[1,2]; [1]Univ. of Wisconsin - Madison, Madison, WI, [2]Food Res. Inst., Madison, WI.

3063 Clinical Strains of *Listeria monocytogenes* from the 2011 Cantaloupe Outbreak Show Evidence of Biofilm Formation on Cantaloupe Food-Conditioning Film
R. B. Weinberg, S. J. Knabel; Pennsylvania State Univ., University Park, PA.

3064 Inactivation of Enterohaemorrhagic *Escherichia coli* O157:H7 in Microbiological Liquid Media Using Bacteriophage and Pulsed Electric Fields
M. Walkling-Ribeiro, H. Anany, M. W. Griffiths; Univ. of Guelph, Guelph, ON, CANADA.

3065 Development of a Species-Specific Multiplex PCR Assay for Identification of *Cronobacter* spp. Isolates, Targeting a Diguanylate Encoding Gene
L. Carter, C. J. Grim, L. Lindsey, L. Hu, V. Sathyamoorthy, B. D. Tall; U.S. FDA, Laurel, MD.

213 Microbial Community Structure and Metagenomics (Division Q)

1:00 p.m. – 2:45 p.m.; Poster Hall

3066 The effects of Deepwater Horizon oil MC252 and dispersant Corexit on microbial communities in Gulf of Mexico surface waters: a metagenomic study
P. A. Noble[1], A. E. Pozhitkov[2], B. K. Robertson[1]; [1]Alabama State Univ., Montgomery, AL, [2]Univ. of Washington, Seattle, WA.

3067 TerraGenome: The Soil Metagenome Network
J. K. Jansson[1], F. Meyer[2], J. M. Tiedje[3], E. W. Triplett[4], D. D. Myrold[5]; [1]LBNL, Berkeley, CA, [2]Argonne Natl. Lab., Chicago, IL, [3]Michigan State Univ., East Lansing, MI, [4]Univ. of Florida, Gainesville, FL, [5]Oregon State Univ., Corvallis, OR.

3068 Testing a Metagenomic Approach to Screen for the Presence of Enzyme- Producing Bacteria in Soil Samples
K. G. Rosal, C. T. Hedreyda; Univ. of the Philippines Diliman Molecular Microbiol. Lab. Natl. Inst. of Molecular Biology and Biotechnology, Quezon city, PHILIPPINES.

3069 The Predominance of Methane-Oxidizing Bacteria in Active Microbial Community of a Lab-Scale Biocover
T. Kim, K-E. Moon, K-S. Cho; Ewha Womans Univ., Seoul, KOREA, REPUBLIC OF.

3070 Effects of Influent Temperature and Backwashing on Activities and Microbial Communities of Biological Activated Carbon (BAC)
J. Yun, T. Kim, K-E. Moon, K-S. Cho; Ewha Womans Univ., Seoul, KOREA, REPUBLIC OF.

3071 Study on the Bacterial Diversity and Physiological Characteristics of the Wushanding Mud Volcano
C-Y. Hsieh, J-K. Liu; Dept. of Biological Sci., Natl. Sun Yat-Sen Univ., Kaohsiung, TAIWAN.

3072 Investigation of Population Diversity of *"Candidatus* Accumulibacter phosphatis" in Denitrifying Enhanced Biological Phosphorus Removal Sludge (EBPR) in Sequencing Batch Reactor
J. Kim, C. Jeon; Chung-Ang Univ., Seoul, KOREA, REPUBLIC OF.

3073 Microbial Community Changes with Time in Flowback Water Produced from Hydraulic Fracturing of Devonian Black Shale for Natural Gas Production
A. Murali Mohan[1], A. Hartsock[2], R. W. Hammack[2], R. D. Vidic[3], K. B. Gregory[1]; [1]Carnegie Mellon Univ., Pittsburgh, PA, [2]Natl. Energy Technology Lab., PA, [3]Univ. of Pittsburgh, Pittsburgh, PA.

3074 Pyrosequencing of 16s Rrna Genes Reveals a Shift of Soil Microbial Composition and Structure Under Elevated Carbon Dioxide
Y. Deng[1,2], Z. He[2], Y. Qin[1], **M. Xu**[3], J. D. Van Nostrand[2], L. Wu[2], B. A. Roe[2], G. Wiley[2], S. E. Hobbie[4], P. B. Reich[4], J. Zhou[2]; [1]Glomics INC, Norman, OK, [2]Univ. of Oklahoma, Norman, OK, [3]Guangdong Inst. of Microbiol., Guangdong, CHINA, [4]Univ. of Minnesota, St. Paul, MN.

3075 Is Everything Everywhere?: Testing the Baas-becking Hypothesis of Microbial Distribution and Diversity
A. Metternich, M. May, R. Rominger, A. Pistoia, D. Leech, L. Bedard; DePauw Univ., GREENCASTLE, IN.

3076 Investigating the Gut Microbiota of Arion fasciatus Across Geoographic, Temporal, and Seasonal Boundaries
D. D. Cloutier, B. Bratina; Univ. of Wisconsin La Crosse, La Crosse, WI.

3077 Analysis of Bacterial Community in a Full-scale Municipal Sewage Treatment Plant in Dubai, United Arab Emirates
M. A. KHAN[1], S. M. FAHEEM[2]; [1]ZAYED Univ., DUBAI, UNITED ARAB EMIRATES, [2]MANIPAL Univ., DUBAI, UNITED ARAB EMIRATES.

3078 Dynamics of Freshwater Microbial Communities in Two Different Rivers Exposed to Sewage Effluent in Novel in Situ Mesocosms
K. Lehmann[1], M. Bowes[1], T. Bell[2], W. Gaze[3], D. Field[1], A. Singer[1]; [1]Ctr. for Ecology and Hydrology, Wallingford, UNITED KINGDOM, [2]Imperial Coll., London, UNITED KINGDOM, [3]Univ. of Exeter and Plymouth, Truro, UNITED KINGDOM.

3079 Bacterial, Archaeal, and Fungal Pyrosequencing-Derived Diversity of Spacecraft Surfaces
M. T. La Duc, P. Vaishampayan, K. Venkateswaran; Jet Propulsion Lab., Pasadena, CA.

3080 Development of a Functional Gene Array for Soil Beneficial Microorganisms
Z. Shi, Y. Deng, K. Xue, X. Lu, J. D. Van Nostrand, L. Wu, T. Yuan, Z. He, J. Zhou; Univ. of Oklahoma, Norman, OK.

3081 Functional Ecological Gene Networks to reveal the succession of microbial interactions during uranium bioremediation
Y. Deng[1,2], Z. He[2], P. Zhang[2], W-M. Wu[3], **F. Luo**[4], J. Zhou[2]; [1]Glomics INC, Norman, OK, [2]Univ. of Oklahoma, Norman, OK, [3]Stanford Univ., Stanford, CA, [4]Clemson Univ., Clemson, SC.

3082 "In Situ" Visualization of Newly Synthesized Proteins in Uncultured Microbes
R. Hatzenpichler[1], E. Trembath-Reichert[1], B. Babin[1], K. Chourney[2], R. Hettich[2], D. Tirrell[1], V. Orphan[1]; [1]California Inst. of Technology, Pasadena, CA, [2]Oak Ridge Natl. Lab., Oak Ridge, TN.

3083 Archaeal and Eubacterial Communities in a Southeastern Coastal Plain River: Do They Respond to the Same Signals?
D. Sobolev, M. R. Boyett; Univ. of Houston-Victoria, Victoria, TX.

3084 A Novel Microfluidic Flow Cell for Flow-Biofilm Interactions and Biofilm Responses to Environmental Gradients
J. Lee, K. H. Au, K. T. Huynh, W. Zhang, A. I. Packman; Northwestern Univ., Evanston, IL.

3085 Anoxic Carbon and Nitrogen Metabolism in Photosynthetic Microbial Mats Revealed by Metatranscriptomic and Nano-SIMS Studies
S. W. Singer[1], D. Woebken[2], L. C. Burow[3], I. P. G. Marshall[3], B. M. Bebout[4], L. Prufert-Bebout[4], T. M. Hoehler[4], J. Pett-Ridge[5], P. K. Weber[5], A. M. Spormann[3], E. A. Lindquist[6], S. G. Tringe[6]; [1]Lawrence Berkeley Natl. Lab., Berkeley, CA, [2]Univ. of Vienna, Vienna, AUSTRIA, [3]Stanford Univ., Stanford, CA, [4]NASA Ames Res. Ctr., Moffett Field, CA, [5]Lawrence Livermore Natl. Lab., Livermore, CA, [6]Joint Genome Inst., Walnut Creek, CA.

3086 Metatranscriptomic Approach to Study Gut Ecosystem of Sow-reared Piglets
V. A. Poroyko[1], A. Rodriguez[1], S. Donovan[2], J. Alverdy[1], D. Liu[1]; [1]The Univerity of Chicago, Chicago, IL, [2]Univ. of Illinois, Champaign, IL.

3087 Rapid Metagenomic Analysis on Antibiotic Resistance Genes (ARGs) Detection
Y. Yang, F. Ju, T. Zhang, H. H. P. Fang; The Univ. of Hong Kong, Hong Kong, CHINA.

3088 In Situ Natural Transformation in Mixed Culture Biofilm by Inducible Cell Lysis
Y. Jin[1], S. Jachlewski[2], S. Wuertz[1,3]; [1]Univ. of California, Davis, Davis, CA, [2]Univ. of Duisburg-Essen, GERMANY, [3]Nanyang Technological Univ., SINGAPORE.

3089 Assessing and Mitigating the Biological Risks of Genetically Modified Bacteria in the Environment
S. Lee[1], D. Tarjan[1], J. T. Geller[1], M. E. Singer[1], C. Wu[1], T. Torok[1], T. C. Hazen[1], **N. J. Hillson**[1,2], A. P. Arkin[1,2,3]; [1]Lawrence Berkeley Natl. Labs, Berkeley, CA, [2]Joint BioEnergy Inst., Emeryville, CA, [3]Univ. of California, Berkeley, CA.

3090 Impact of Customized MALDI-TOF Library on Bacterial Identifications for Environmental Monitoring
A. M. Russell, C. Luque, D. H. Smith; Accugenix, Inc., Newark, DE.

3091 Single-cell Analysis Platforms for Genomic Analysis of Uncultivable Environmental Microbes
S. Yilmaz[1], P. Liu[1], R. J. Meagher[1], Y. K. Light[1], A. P. Arkin[2], T. C. Hazen[3], A. K. Singh[1]; [1]Sandia Natl. Labs, Livermore, CA, [2]Lawrence Berkeley Natl. Lab, Berkeley, CA, [3]Univ. of Tennessee, Knoxville, TN.

3092 Pyrosequencing of Dissimilatory Sulfite Reductase Genes (dsr) from a U(VI)-Contaminated Aquifer after Emulsified Vegetable Oil Injection
P. Zhang[1], Y. Qin[1], J. Van Nostrand[1], L. Wu[1], Z. He[1], Y. Deng[1], D. Xu[1], Q. Tu[1], T. Marsh[2], J. Tiedje[2], T. Hazen[3], J. Zhou[1]; [1]The Univ. of Oklahoma, Norman, OK, [2]Michigan State Univeristy, East Lansing, MI, [3]Oak Ridge Natl. Lab, Oak Ridge, TN.

214 Microbial Source Tracking (Division Q)

1:00 p.m. – 2:45 p.m.; Poster Hall

3093 Utilizing Ratio of Two qPCR Assays for Fecal Source Apportionment
D. Wang, A. Boehm; Stanford Univ., Stanford, CA.

3094 Evaluation of the Intra- and Inter-laboratory Reproducibility of a Suite of PCR-based Microbial Source Tracking Assays
D. L. Ebentier[1], K. T. Hanley[1], A. B. Boehm[2], Y. Cao[3], M. Gourmelon[4], J. F. Griffith[3], P. A. Holden[5], S. Lozach[4], C. D. McGee[6], M. R. Raith[3], M. J. Sadowsky[7], E. A. Scott[3], O. C. Shanks[8], D. Wang[2], S. B. Weisberg[3], J. A. Jay[1]; [1]Univ. of California, Los Angeles, Los Angeles, CA, [2]Stanford Univ., Stanford, CA, [3]Southern California Coastal Water Res. Project, Costa Mesa, CA, [4]Ifremer, Brittany, FRANCE, [5]Univ. of California, Santa Barbara, Santa Barbara, CA, [6]Orange County Sanitation District (Retired), Fountain Valley, CA, [7]Univ. of Minnesota, St. Paul, MN, [8]Environmental Protection Agency, Cincinnati, OH.

3095 Performance of Human Fecal-Associated PCR-Based Methods in the California Source Identification Protocol Project
B. A. Layton[1], Y. Cao[1], E. Ballesté[2], A. Farnleitner[3], M. Gourmelon[4], J. Lee[5], W. Meijer[2], R. Noble[6], L. Peed[7], G. Reischer[3], L. Van De Werfhorst[8], A. Boehm[9], P. Holden[8], J. Jay[10], O. Shanks[7], J. Griffith[1]; [1]Southern California Coastal Water Res. Project, Costa Mesa, CA, [2]Univ. Coll. Dublin, Dublin, IRELAND, [3]Vienna Univ. of Technology, Vienna, AUSTRIA, [4]Ifremer, Plouzané, FRANCE, [5]Ohio State Univ., Columbus, OH, [6]Univ. of North Carolina at Chapel Hill, Morehead City, NC, [7]US Environmental Protection Agency, Cincinnati, OH, [8]Univ. of California Santa Barbara, Santa Barbara, CA, [9]Stanford Univ., Stanford, CA, [10]Univ. of California Los Angeles, Los Angeles, CA.

3096 Evaluation of Four Molecular Community Analysis-based Methods for Detecting Human Waste and Fecal Sources in California
Y. Cao[1], L. C. Van De Werfhorst[2], E. A. Dubinsky[3], M. J. Sadowsky[4], G. L. Andersen[3], J. F. Griffith[1], P. A. Holden[2]; [1]Southern California Coastal Water Res. Project, Costa Mesa, CA, [2]Bren Sch. of Environmental Sci. & Management, Univ. of California, Santa Barbara, CA, [3]Lawrence Berkeley Natl. Lab., Earth Sci. Div., Berkeley, CA, [4]BioTechnology Inst., Univ. of Minnesota, St. Paul, CA.

3097 Characterization of Fecal Pollution Concentrations from Different Animal Sources by Physical, Culture and Real-time Quantitative PCR Methods
T. L. Russell[1], J. S. Ervin[2], N. Hoang[2], B. A. Layton[3], D. Wang[1], C. A. Kelty[4], K. M. Yamahara[5], M. Sivaganesan[4], S. B. Weisberg[3], O. C. Shanks[4]; [1]Stanford Univ., Stanford, CA, [2]Univ. of California Santa Barbara, Santa Barbara, CA, [3]Southern California Coastal Water Res. Project, Costa Mesa, CA, [4]U.S. Environmental Protection Agency, Cincinnati, OH, [5]Ctr. for Ocean Solutions, Stanford Univ., Stanford, CA.

3098 Comparison of PCR-Based Assays for the Characterization of Cattle Fecal Pollution in California
C. A. Kelty[1], M. R. Raith[2], J. F. Griffith[3], A. Schriewer[4], S. Wuertz[4], S. Mieszkin[5], M. Gourmelon[5], G. Reischer[6], A. Farnleitner[6], J. Ervin[7], P. Holden[7], J. A. Jay[8], A. B. Boehm[9], M. Sivaganesan[1], O. C. Shanks[1]; [1]EPA, Cincinnati, OH, [2]Souther California Coastal Water Res. Project, Costa Mesa, CA, [3]Southern California Coastal Water Res. Project, Costa Mesa, CA, [4]Univ. of California, Davis, CA, [5]IFREMER Laboratoire de Microbiologie, PLouzane, FRANCE, [6]Vienna Univ. of Technology, Vienna, AUSTRIA, [7]Univ. of California, Santa Barbara, CA, [8]Univ. of California, Los Angeles, CA, [9]Stanford Univ., Stanford, CA.

3099 Phylogenetic Analysis of Bacterial Communities Reveals Sources of Fecal Indicator Bacteria to California Beaches
E. A. Dubinsky, J. Hulls, F. Reid, **G. L. Andersen**; Lawrence Berkeley Natl. Lab., Berkeley, CA.

3100 Multispectral Laser Imaging for Microbial Source Tracking
B. Chen, H. Gong, A. Zhang, C. C. Tseng; Purdue Univ. Calumet, Hammond, IN.

3101 Mass Genome Sequencing Based *E. coli* DNA Markers for Microbial Source Tracking
C. C. Tseng, X. Zhang, B. Chen; Purdue Univ. Calumet, Hammond, IN.

3102 Mitochondrial Real Time PCR Assay to Detect Fecal Sources in Surface Water
J. P. Bucci, W. H. McDowell, D. R. Jurczyszak, I. F. Sidor; Univ. of New Hampshire, Durham, NH.

3103 Reproducibility Assessment of Two TRFLP Methods for Differentiating Human Waste and Animal Fecal Sources in Microbial Source Tracking
L. C. Van De Werfhorst[1], Y. Cao[2], E. Scott[2], M. Raith[2], J. Griffith[2], P. A. Holden[1]; [1]Univ. of California, Santa Barbara, Santa Barbara, CA, [2]Southern California Coastal Water Res. Project, Costa Mesa, CA.

3104 Microbial Source Tracking in Pillar Point Harbor in Northern California
M. Kim[1], D. Wang[1,2], C. Towe[3], K. Anderson[3], K. Nelson[3], S. Wuertz[1,4]; [1]Univ. of California, Davis, Davis, CA, [2]Stanford Univ., Stanford, CA, [3]San Mateo County Resource Conservation District (SMC RCD), Half Moon Bay, CA, [4]Nanyang Technological Univ., SINGAPORE.

3105 Sources and Distribution of Fecal Indicator Bacteria Impacting Chicago's North Shore Channel Water Quality
G. K. Rijal[1], M. Byappanahalli[2], R. Whitman[2], R. Gore[1], T. C. Granato[1], C. O'Connor[1]; [1]Metropolitan Water Reclamation District of Greater Chicago, Cicero, IL, [2]U.S. Geological Survey, Great Lakes Sci. Ctr., Porter, IN.

3106 Determining Sources of Fecal Pollution with qPCR-*Bacteroidales* in a Uniquely Biodiverse but Threatened Watershed
A. Hassall Lawrence[1], C. Hagedorn[1], J. Crozier[2], M. Saluta[1], R. Farris[1]; [1]Virginia Tech, Blacksburg, VA, [2]Roanoke Coll., Salem, VA.

3107 Frequency and Occurrence of 16S rRNA *Bacteroides* Molecular Markers in the Gila River, Arizona
B. Rivera, K. Riley, C. Rock; Univ. of Arizona, Maricopa, AZ.

3108 Evaluating Human Specific *Bacteroides* Genetic Markers in an Urban Watershed by Using Quantitative PCR
M. O. Ryan, C. Haas; Dexel Univ., Philadelphia, PA.

3109 Quantitative, Multi-Year Microbial Source Tracking Study with Host-Associated Bacteroidales Genetic Markers in a City-Based Watershed
K. T. Hanley[1], A. Schriewer[1], D. Wang[2], H. McCaslin-Taylor[3], S. Wuertz[1]; [1]Univ. of California, Davis, Davis, CA, [2]Stanford Univ., Palo Alto, CA, [3]Larry Walker Associates, Davis, CA.

3110 Microbial Source Tracking 'Toolbox Approach': Integrating Multiple Methods to Determine Sources of Contamination in a Coastal Texas Watershed
J. B. MOTT, Ph.D.[1], S. Rodriguez[2], M. Lindsey[2], R. Hay[2], B. Sterba-Boatwright[2], A. Smith[3]; [1]James Madison Univ., Harrisonburg, VA, [2]Texas A&M Univ.-Corpus Christi, Corpus Christi, TX, [3]Univ. of Alaska Southeast - Sitka, AK.

3111 Recovery of Microbial Source Tracking Markers from Shellfish Samples by qPCR
M. Kirs[1], C. D. Cornelisen[2]; [1]Water Resources Res. Ctr., Univ. of Hawaii' at Manoa, Honolulu, HI, [2]Cawthron Inst., Nelson, NEW ZEALAND.

3112 Application of Microbial Source Tracking for Rapid Detection of Animal- and Human-Specific Fecal Contamination in Fresh Produce
C. Lee, J. Lee; The Ohio State Univ., Columbus, OH.

3113 A New Microbial Source Tracking Strategy using *Bacteroides* 16S rRNA Signatures in Water Sources
I. Kabiri-Badr, A. Alumn, M. Abbaszadegan; Arizona State Univ., Tempe, AZ.

3114 *Bacteroides* as an Indicator of Human and Canine Fecal Pollution - A Molecular Approach
J. L. Faulwetter[1,2], J. A. Guzman[1], R. C. Alexander[1]; [1]Orange County Publ. Hlth.Lab., Santa Ana, CA, [2]Association of Publ. Hlth.Lab., Silver Spring, MD.

3115 Detection of Adenoviruses and Polyomaviruses in Groundwater for Fecal Source Attribution
S. D. Sibley, C. J. Hedman, S. C. Long, J. A. Pedersen; Univ. of Wisconsin-Madison, Madison, WI.

3116 Use of a Rapid Quantitative PCR Assay for Source Identification of Human Fecal Pollution in the Malibu Creek Watershed
V. Thulsiraj, S. Estes, R. Ambrose, J. A. Jay; Univ. of California Los Angeles, Los Angeles, CA.

3117 Specificity of esp gene in *Enterococcus faecium* as a Human Specific Marker in the UK
L. Yaliwal, J. Ebdon, J. Caplin, H. Taylor; Univ. of Brighton, Brighton, UNITED KINGDOM.

3118 Comparison of *Enterococci* and Cow-specific qPCR Markers in Streams Impacted by Farms under Different Management Practices
A. Oladeinde[1], R. Brown[1], C. Fitzgerald[1], K. Wong[2], **M. Molina**[2]; [1]SSA with the U.S. EPA, Athens, GA, [2]U.S. EPA, Athens, GA.

3119 The qPCR Detectability of a Bovine-Associated Genetic Marker in Composite Fecal Mixtures and in Microcosms
J. B. Crozier[1], N. R. Mizelle[1], S. J. Thomsen[1], A. H. Lawrence[2], C. Hagedorn[2]; [1]Roanoke Coll., Salem, VA, [2]Virginia Tech, Blacksburg, VA.

3120 Assessing Hog Lagoon Waste Contamination in the Cape Fear Watershed Using *Bacteroides* 16S rDNA Pyrosequencing
A. Arfken, M. Mallin, **B. Song**; Univ. of North Carolina Wilmington, Wilmington, NC.

3121 Use Ribosomal Intervening Sequence of Subdoligranulum spp. to Identify Swine Feces
M. Farley, G. Zheng; Lincoln Univ. in Missouri, Jefferson City, MO.

3122 Topanga State Beach Historical FIB Analysis and Proposed Source Identification Study Utilizing Animal Specific Markers
T. E. Riedel[1], K. T. Hanley[1], D. L. Ebentier[1], R. Dagit[2], J. A. Jay[1]; [1]Univ. of California, Los Angeles, CA, [2]Res. Conservation District of the Santa Monica Mountains, Topanga, CA.

215 Addressing Public Health Threats (Division Y)

1:00 p.m. – 2:45 p.m.; Poster Hall

3123 Longitudinal study of Veterinary Students for Acquisition of Methicillin-Resistant *Staphylococcus aureus* Associated with Exposure to Pork Production Facilities
A. Beahm[1], B. Hanson[2], J. Kinyon[1], L. Layman[1], L. Karriker[1], A. Ramirez[1], T. Smith[2], T. Frana[1]; [1]Iowa State Univ., Ames, IA, [2]Univ. of Iowa, IA.

3124 Characterization of Extended-Spectrum Cephalosporin-Resistant *Salmonella* Typhimurium Isolates from a Large Foodborne Disease Outbreak in California
S. E. Kleinstein[1,2], Z. L. Berrada[1], J. Lidgard[1], C. Crandall[1], J. I. Higa[1], A. C. Kimura[1], W. Probert[1]; [1]California Dept. of Publ. Hlth., Richmond, CA, [2]Association of Publ. Hlth.Lab., Silver Spring, MD.

3125 *In Vitro* Viability of Live, Excysted *Trichinella spiralis* Muscle Larvae to Crude Portulaca oleracea L. (Gulasiman) Aqueous Extract
A. G. Chang, M. M. Collo, B. R. Agbulos, N. G. Agripa, G. A. Cauyan; Technoblend, Inc., Quezon City, PHILIPPINES.

3126 Differential Survival of Waterborne *Cryptosporidium parvum* Associated with Agricultural Matrices under Fluctuating Temperature
Z. LIANG[1], A. Keeley[2]; [1]Natl. Res. Council at USEPA, Ada, OK, [2]Natl. Risk Management Lab, USEPA, Ada, OK.

3127 The Prevalence of *Campylobacter jejuni* and C. coli in Geese in Taiwan
Y-C. Fang, C-H. Chou, C-L. Wang, H-J. Tsai; Zoonoses Res. Ctr. and Sch. of Vet. Med., Natl. Taiwan Univ., Taipei, TAIWAN.

3128 Identification of Secretion Signals in *Asaia bogorensis* for Malaria Control Strategies
N. Bongio, D. Lampe; Duquesne Univ., Pittsburgh, PA.

3129 Transtadial Transmission of the Symbiotic Bacteria *Asaia bogorensis* in *Anopheles gambiae*
A. M. Harmon, D. Lampe; Duquesne Univ., Pittsburgh, PA.

3130 Effectiveness of Commonly Used Biocides against Antibiotic Resistant and Non-Resistant Bacterial Strains
K. T. Smith, J. S. Clayton; Reckitt Benckiser, Montvale, NJ.

3131 Neurotropic Microorganisms with Functions of Assembly Are Associated with Acquired Neurodegenerative Diseases
W. J. Todd, J-M. Feng; Louisiana State Univ., BATON ROUGE, LA.

3132 Occurrence of *Moraxella catarrhalis* Amongst Children in a Primary Healthcare Center in Ekpoma- Nigeria
R. N. Osagie[1], O. O. Daibo[2], R. E. Ohenhen[1]; [1]Ambrose Alli Univ., Ekpoma, NIGERIA, [2]Natl. Primary Hlth.care Dev. Agency, Asaba, NIGERIA.

3133 Results and Benefits of Integrating Geospatial Technologies for Disease Control in Kazakhstan
V. Sadovskaya[1], P. Deryabin[1], K. Kubeyev[1], M. E. Van Ert[2], J. K. Blackburn[3]; [1]Aikimbayev Kazakh Scientific Ctr. of Quarantine and Zoonotic Diseases (KSCQZD), Almaty, KAZAKHSTAN, [2]Emerging Pathogens Inst., Univ. of Florida, FL, [3]Spatial Epidemiology & Ecology Res. Lab, Dept. of Geography, Univ. of Florida, FL.

3134 Epidemiology of Tick-borne Encephalitis (TBE) in Kazakhstan
Z. Shapiyeva[1], R. R.Yegemberdiyeva[2], J. I. Hay[3]; [1]SPC of Sanitary-Epidemiological Expertise and Monitoring, Almaty, KAZAKHSTAN, [2]Kazakh Natl. Med. Univ., Almaty, KAZAKHSTAN, [3]SUNY at Buffalo, Buffalo, NY.

3135 A Novel Crimean-congo Hemorrhagic Fever Natural Focus in Western Kazakhstan
A. K. Grazhdanov[1], A. V. Andriushchenko[1], V. A. Tanitovsky[1], L. B. Belonozhka[1], A. V. Zakharov[1], J. I. Hay[2]; [1]Uralsk Anti-Plague Station, Uralsk, KAZAKHSTAN, [2]SUNY at Buffalo, Buffalo, NY.

3136 Deciphering the Emergence of Tularaemia in Australia: Culture-independent Analysis of Francisella 16s rRNA and *recA* Gene Sequences from Lymph Nodes Following Possum Bites
J. Ng[1], M. Brown[1], T. Nguyen[1], G. S. James[1], C. W. Ong[2], J. Jackson[2], A. R. McGregor[2], L. Cooley[2], **V. Sintchenko**[3,1]; [1]Ctr. for Infectious Diseases and Microbiol., ICPMR, Westmead Hosp., Sydney, AUSTRALIA, [2]Royal Hobart Hosp., Hobart, Tasmania, AUSTRALIA, [3]Sydney Inst. for Emerging Infectious Diseases, The Univ. of Sydney, Sydney, AUSTRALIA.

3137 Analyzing the Spatial and Temporal Distribution of Human Anthrax Cases in Azerbaijan (1983-2010)
R. Abdullayev[1], **I. Kracalik**[2], R. Ismayilova[1], N. Ustun[1], A. Talibzade[1], J. K. Blackburn[2]; [1]Anti-Plague Station, Baku, AZERBAIJAN, [2]Univ. of Florida, Gainesville, FL.

3138 Clinical and Public Health Laboratories: Working Together to Protect the Population's Health
C. N. Mangal, A. Barkey; Association of Publ. Hlth.Lab., Silver Spring, MD.

3139 Building International Influenza Laboratory Capacity
A. Moen[1], T. Aden[2], L. Johnson[1], S. Lindstrom[1], A. Balish[1], **S. Muir-Paulik**[2]; [1]CDC, Atlanta, GA, [2]Association of Publ. Hlth.Lab., Silver Spring, MD.

3140 Evaluation of Three Neuraminidase Inhibition Assays for Use in a Public Health Laboratory Setting
W. A. Murtaugh, H. Peters, B. Healey, L. Mahaman, M. P. Carlos; Maryland Dept. of Hlth.and Mental Hygiene Lab. Admin., Baltimore, MD.

3141 Laboratory Response Network: Public Health Laboratory Preparedness for Biological Agents of Terrorism
S. Singh, C. Mangal; APHL, Silver Spring, MD.

3142 Development of Automated Ribotyping Protocols for select biothreat agents (*Brucella* spp., *Yersinia pestis*, *Francisella tularensis*)
S. E. Roof[1], L. Diviak[2], D. K. R. Karaolis[2], **M. Wiedmann**[1]; [1]Cornell Univ., Ithaca, NY, [2]Natl. Biodefense Analysis and Countermeasures Ctr., Fort Detrick, MD.

216 Commensal Organisms, Zoonotic Pathogens & Antibiotic Resistance (Division Z)

1:00 p.m. – 2:45 p.m.; Poster Hall

3143 Isolation Of Unique Butyrate-Producing Bacteria From Swine
U. Y. Levine, T. P. Looft, H. K. Allen, T. B. Stanton; Food Safety and Enteric Pathogens Res. Unit, Natl. Animal Disease Ctr., Agricultural Res. Service, United States Dept. of Agriculture, Ames, IA.

3144 Swine MRSA Isolates Form Robust Biofilms
T. L. Nicholson; Natl. Animal Disease Ctr., ARS, USDA, Ames, IA.

3145 Viability of *Leptospira* Strains from an Outbreak in Thailand in Various Water Types, Ph, and Temperature Conditions
R. A. Stoddard[1], D. Bui[1], D. L. Haberling[1], S. L. Peacock[2], J. Thaipadungpanit[2], A. R. Hoffmaster[1]; [1]CDC, Atlanta, GA, [2]Mahidol Univ., Bangkok, THAILAND.

3146 Detection of *Helicobacter* spp. in the Cecum of Wild Capybaras (Hydrochoerus hydrochaeris)
M. A. García-Amado[1], E. Herrera[2], M. Contreras[1], M. Fernández-Delgado[1], F. Michelangeli[1], M. G. Domínguez-Bello[3]; [1]IVIC, Altos de Pipe, VENEZUELA, BOLIVARIAN REPUBLIC OF, [2]Univ. Simón Bolívar, Sartenejas, VENEZUELA, BOLIVARIAN REPUBLIC OF, [3]Univ. of Puerto Rico, San Juan, PR.

3147 Genomic and Genetic Analyses of Antibiotic Resistance Genes and Gene Transfer Mechanisms in *Megasphaera elsdenii* Strain 14-14 from the Swine Intestine
T. B. Stanton, S. B. Humphrey, H. K. Allen, D. O. Bayles, D. Alt; Natl. Animal Disease Ctr., Ames, IA.

3148 Prevalence and Antimicrobial Susceptibility of *Enterococcus spp.* and *Escherichia coli* in Animal Feed and Pet Food commodities Surveyed by the U.S. Food and Drug Administration between 2005 and 2011
S. M. Bodeis-Jones, K. L. Cooley, S. G. Gaines, C. Lam, M. A. Rasmussen, **B. Ge**; U.S. Food and Drug Admin., Laurel, MD.

3149 Evaluating the Impacts of Wine Supplemented Cattle Feed to On-farm Shedding of Fecal *E. coli*, Antimicrobial Resistance Phenotypes, and Fecal Microbial Diversity
P. E. Moote, J. S. Church, J. D. Van Hamme; Thompson Rivers Univ., Kamloops, BC, CANADA.

3150 Profiling the Gastrointestinal Microbiota in Response to *Salmonella*: Low Versus High *Salmonella* Shedding in the Porcine Host
S. M. D. Bearson[1], H. K. Allen[1], B. L. Bearson[2], T. Looft[1], B. W. Brunelle[1], J. D. Kich[3], D. O. Bayles[1], D. Alt[1], U. Y. Levine[1], T. B. Stanton[1]; [1]USDA, Natl. Animal Disease Ctr., Ames, IA, [2]USDA, Natl. Lab. for Agriculture and the Environment, Ames, IA, [3]Embrapa Swine and Poultry, Concórdia, SC, BRAZIL.

3151 Novel Mutations in the Topoisomerase Genes and Plasmid-Mediated Quinolone Resistance Contribute to Decreased Fluoroquinolone Susceptibility in *Escherichia coli* Isolated from Companion Animals in the United States
B. W. Shaheen[1], R. Nayak[1], O. Kweon[1], S. L. Foley[1], Y-D. Kim[2]; [1]US Food and Drug Admin., Jefferson, AR, [2]Coll. of Med., Chungbuk Natl. Univ., Cheongju, Chungbuk, KOREA, REPUBLIC OF.

3152 Resistance in the Wild: Dissemination of Class 1 Integrons *Via* Conservation Management Programs
M. Power, M. R. Gillings; Macquarie Univ., North Ryde, AUSTRALIA.

3153 Antibiotic Resistance in Agricultural Soils
G. Nyerges[1], F. Estrada[1], R. Shannon[2]; [1]Pacific Univ., Coll. of Arts and Sci., Forest Grove, OR, [2]Pacific Univ., Sch. of Pharmacy, Hillsboro, OR.

3154 Comparison of the Bacterial Microbiota in Nasopharyngeal Samples from Cattle Treated for Bovine Respiratory Disease and Cattle with no History of Disease
T. Alexander[1], A-D. Wright[2], T. McAllister[1]; [1]Agriculture and Agri-Food Canada, Lethbridge, AB, CANADA, [2]Univ. of Vermont, Burlington, VT.

3155 Phenotype Microarray Analysis for the *Salmonella enterica* serovar Typhimurium qseC mutant compared to wild-type and the *qseBC* mutant
B. L. Bearson[1], S. M. D. Bearson[2], I. S. Lee[3]; [1]USDA/ARS/NLAE, Ames, IA, [2]USDA/ARS/NADC, Ames, IA, [3]Hannam Univ., Daejeon, KOREA, REPUBLIC OF.

3156 Changes in Antimicrobial Susceptibility of *Staphylococcus* Milk Isolates from a West-Central Minnesota Dairy Herd During Transition to Organic Management
T. J. Wyckoff, P. H. Wyckoff, J. A. Hanson, J. M. Davison, M. M. Gerber, J. R. Skala; Univ. of Minnesota, Morris, Morris, MN.

3157 Identification of the Genetic Factors Influencing the Emergence of Antibiotic Resistant Mutants in *Campylobacter jejuni*
L. Dai, W. T. Muraoka, Q. Zhang; Dept. of Vet. Microbiol. and Preventive Med., Coll. of Vet. Med., Iowa State Univ., Ames, IA 50011, Ames, IA.

3158 *Campylobacter jejuni* Resistance to Antimicrobials Approved for Use in Poultry Feeds
M. I. Cruz-Fisher, J. Sabo, S. Young, S. Zhao, M. K. Davidson; FDA, Laurel, MD.

3159 Related Antibacterial Resistance Genes Detected in the Florfenicol-resistant Microbiota Associated to Reared Larvae of the Chilean Scallop, *Argopecten purpuratus* Recovered from a Commercial Hatchery in Chile
C. D. Miranda[1], M. Garrido[2], R. Sanchez[2], R. Rojas[3], H. Bello[2], M. Dominguez[2], G. Gonzalez[4]; [1]Univ. Catolica Del Norte, Coquimbo, CHILE, [2]Univ. De Concepcion, Concepcion, CHILE, [3]Universidand Catolica Del Norte, Coquimbo, CHILE, [4]Universidand De Concepcion, Concepcion, CHILE.

3160 Are Animal Feed Ingredients Contributing to Antimicrobial Resistance?: Feather Meal Contains Multiple Antimicrobials, and Enrofloxacin at Levels that Inhibit Susceptible *E. coli*
D. C. Love[1,2], R. U. Halden[3,4,5], M. F. Davis[1,2], K. E. Nachman[1,2,6]; [1]Dept. of Environmental Hlth.Sci., Johns Hopkins Sch. of Publ. Hlth., Baltimore, MD, [2]Johns Hopkins Ctr. for a Livable Future, Baltimore, MD, [3]Sch. of Sustainable Engineering and the Built Environment, Arizona State Univ., Tempe, AZ, [4]Swette Ctr. for Environmental Biotechnology, Biodesign Inst., Arizona State Univ., Tempe, AZ, [5]Ctr. for Hlth.Information & Res., Arizona State Univ., Tempe, AZ, [6]Dept. of Hlth.Policy and Management, Johns Hopkins Sch. of Publ. Hlth., Baltimore, MD.

3161 Antibiotic Resistance of *Staphylococcus pseudintermedius* Isolated from a Veterinary Teaching Hospital
I. Rosas[1], L. Martínez[1], E. Salinas[1], M. Escorcia[2], A. Cruz[3], N. Velázquez[3], C. Amábile-Cuevas[4]; [1]Centro de Ciencias de la Atmósfera, UNAM, México, D.F., MEXICO, [2]Facultad de Med. Veterinaria y Zootecnia, UNAM, México, D.F., MEXICO, [3]Hosp. Infantil de México, Federico Gómez, México, D.F., MEXICO, [4]Fundación LUSARA, México, D.F., MEXICO.

3162 Ruduction of Cecum Pathogenic Microbial Flora Using Dietary Polyamines
S. C. Kang[1], A. K. Chauhan[1], S. C. Koh[2]; [1]Daegu Univ., Gyungsan City, KOREA, REPUBLIC OF, [2]Korea Maritime Univ., Pusan City, KOREA, REPUBLIC OF.

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Author	Poster Board	Session Number
A		
Aaronson, Lawrence	242	23
Aaronson, Lawrence	249	23
Aaronson, Lawrence	2924	206
Abaandou, Laura	809	56
Abaandou, Laura	818	56
Abaev, Igor	1088	97
Abate, Elisa	2525	185
Abbaszadegan, Morteza	3113	214
Abbaszadegan, Morteza	2015	140
Abbaszadegan, Morteza	473	33
Abbaszadegan, Morteza	2610	189
Abbott, April	103	16
Abbott, April	2994	209
Abbott, Jason	1072	69
Abbott, Jason	2767	198
Abbott, Jason	2535	186
Abbott, Jason	1999	139
Abd Aziz, Nazrin	278	25
Abdallah, Mahmud	1777	129
Abdela, Woubit	1000	65
Abdelnoor, Alexander	652	49
Abdel-Samie, Souzan	288	25
Abdeltawab, Nourtan	2880	204
Abdulla, Nihal	658	49
Abdulla, Nihal	2147	169
Abdulla, Shaad	11	12
Abdullah, Abdul	1542	116
Abdullah, Farhan	11	12
Abdullah, Farhan	19	12
Abdullah, Farhan	658	49
Abdullah, Farhan	1686	125
Abdullah, Farhan	1188	100
Abdullah, Farhan	2147	169
Abdullah, Farhan	12	12
Abdullayev, Rakif	3137	215
Abdulmassih, Rasha	124	18
Abdur-Rouf, S. M.	1543	116
Abe, K.	2284	175
Abe, Kumiko	1254	103
Abe, Mahiko	2468	183
Abe, Mikiko	2488	183
Abegunrin, Oladimeji	1684	125
Abel, Melissa	2864	203
Abernathy, Emma	799	55
Abid, J.	739	53
Abid, Joan	1232	103
Abilleira, Fernanda	1564	117
Abit, Sergio	1531	115
Aboderin, Oladipo	2761	198
Abo-Hashesh, Mona	2958	208
Abramian, Jared	76	15
Abrams, Jennifer	611	40
Abrams, Michael	1812	131
Abramson, Oren	2115	144
Abramson, Tzvia	2115	144
Abramson, Tzvia	2876	204
Abranches, Jacqueline	73	15
Abranches, Jacqueline	2169	170
Abranches, Jacqueline	2942	207
Abreu, Nicole	1727	127
Abu, Eme	2376	179
Abu Al-Soud, Waleed	2282	175
Abu Hafsa, Salma	1813	131
Abu-Ali, Galeb	2723	196
Acevedo-Quiroz, Macdiel Emilio	1945	137
Achar, Premila	1296	105
Achari, Gauri	1341	107
Achberger, Amanda	1897	135
Acheson, David		43
Achor, Diann	3018	211
Ackart, David	2162	170
Ackland, Leigh	2597	188
Acosta García, Siomara	2523	185
Adam, Philip	1701	125
Adam, Philip	1680	125
Adamik, Mary	1464	112
Adamo, Joseph	595	39
Adams, Derek	1616	119
Adams, Eddie	1253	103
Adams, James	770	54
Adams, John	827	56
Adams, Jonathan	2416	180
Adams, Leslie	2643	190
Adams, Leslie	2863	203
Adams, P.	2545	186
Adams, Paige	2617	189
Adams, Paul	992	64
Adams, Paul	1458	112
Adams, Rachel		85
Adams, Walter	2210	172
Adcock, Noreen	1047	67
Addidle, Michael	160	19
Adediran, Jimmy	678	50
Adegboye, David	865	58
Adelson, Martin	257	23
Ademola, Ebenezer	441	32
Aden, Tricia	3139	215
Adepoju, Abidemi	3041	212
Aderibigbe, Esther	1022	65
Ades, Sarah		78
Ades, Sarah	2681	195
Adhikari, Atin	1508	114
Adhikari, Rajan	818	56
Adhikari, Rajan	815	56
Adhikari, Rajan	809	56
Adhya, Sankar	1283	105
Adhya, Sankar	1288	105
Adhya, Sankar	3005	210
Adhya, Sankar	3004	210
Adhya, Sankar		146
Adil, Syeda	19	12
Adkins, Joshua	2628	190
Adkins, Joshua	1557	116
Adkins, William	406	30
Adler, Esther	2279	175
Adrian, Lorenz		220
Adukwu, Emmanuel	2146	169
Aedo, Sandra	2684	195
Agada, G.	1059	68
Agbulos, Bianca Ana Maria	3125	215
Agee, Ronald	814	56
Agee, Willie	559	38
Aggarwal, Chaitanya	56	14
Aglan, Heshmat	1042	67
Agnello, Danielle	1817	131
Agnello, Melissa	2900	205
Agnello, Melissa	655	49
Agrawal, Sonia		157
Agripa, Nereli Isabel	3125	215
Aguilar, Yuriana	1816	131
Agwu, Ezera	1215	102
Ahlawat, Sarita	1704	125
Ahlstrom, Christina	1583	117
Ahmad, Irfan	2707	196
Ahmad, Shoaib	1601	118
Ahmadi, Mohammed	2355	178
Ahmed, Altaf	2970	209
Ahmed, Amina	2808	201
Ahmed, K	1387	109
Ahmed, Salwa	2799	200
Ahmed, Sanaa	2750	197
Ahmed, Sibtain	355	28
Ahmer, Brian	2741	197
Ahn, Eunsol	1498	113
Ahn, Eunsol	403	30
Ahn, Jiyoung	2449	181
Ahn, Kisup	604	40
Ahn, Kisup	608	40
Ahn, Sang		160
Ahn, Sang-Joon	1357	108
Ahn, Sang-Joon	290	25
Ahn, Youngbeom	1089	97
Åhrén, Christina	1081	69
Ahrens, Peter	2282	175
Ahrens, Peter	2283	175
Ahuja, Keerat	658	49
Aibinu, Ibukun	1094	97
Aibinu, Ibukun	2769	198
Aiello, Allison	757	54
Aihara, Mutsumi	2602	189
Aihara, Mutsumi	2420	180
Aikawa, Chihiro	2083	143
Aiso, Toshiko	211	22
Ait-Ichou, Mohamed	2106	143
Aiumurai, Pisinee	942	63
Aizawa, Masayuki	371	29
Ajao, Adebola	815	56
Ajobiewe-Gabriel, Ruth	163	19
Ajo-Franklin, Caroline		220
Akamatsu, Norihiko	170	20
Akaracharanya, Ancharida	2571	187
Akbar, Samina	2752	197
Akeda, Yukihiro	2874	204
Akeda, Yukihiro	2231	172
Akers, Kevin	2127	169
Akha, Amir	2888	204
Akiba, Keiji	1096	97
Akiba, Keiji	1645	123
Akin, Adam	973	64
Akin, Debra	2839	203
Akiyama, Tatsuya	2860	203
Akiyama, Tatsuya	1992	139
Akiyama, Tatsuya	1086	97
Akiyama, Tatsuya	649	49
Aklujar, Muktak	2457	182
Aklujkar, Muktak	2091	143
Aksit, Filiz	1225	102
Aksit, Filiz	1	12
Aksit, Mehmet	1	12
Aksit, Selime	233	22
Aksoy, Serap	1339	107
Aktas, D	1486	113
Akyar, Isin	1580	117
Al Fouzan, Wadha	1161	100
Al Safadi, Rim	2723	196
Alabyev, Boris	1206	101
Al-Adwani, Salma	2541	186
Alam, Mohammad	2326	177
Alami, R	2799	200
Al-Araimi, Amna	2832	202
Alatoom, Adnan	2263	174
Alatoom, Adnan	89	16
Alatoom, Adnan	1244	103
Alba, Fernando	2307	176
Alba-Hurtado, Fernando	621	41
Albert, M. John	1656	123
Alboloushi, Ali	473	33
Alby, Kevin	97	16
Alby, Kevin	1233	103
Alcolea, Pedro	2941	207
Alegado, Rosanna		83
Alekseyenko, Alexander		153
Alem, F	810	56
Alem, Farhang	63	14
Alem, Farhang	812	56
Alemka, Abofu	780	55
Alexander, Richard	2019	140
Alexander, Richard	1567	117
Alexander, Richard	3114	214
Alexander, Trevor	3154	216
Alexander Schmidt, M.	2846	203
Alexandrov, Theodore		77
Alfano, James	2841	203
Alfaro, Teneile	1591	118

Author	Poster Board	Session Number
Alfaro-Aco, Raymundo	279	25
Alfaro-Dominguez, I.	646	42
Alger, Garrison	2240	173
Alger, Garrison	2233	173
Alger, Garrison	1716	126
Alger, Garrison	2238	173
Al-Harbi, Naif Abdullah	2435	181
Al-Hazimi, A.	2163	170
Alhede, Morten	2157	170
AL-Hokail, Abdullah	1728	127
Ali, Afsar	1040	67
Ali, Mohamed	2741	197
Ali, Nawab	1992	139
Ali, S.	1188	100
Ali, Syed	18	12
Aliaga Goltsman, Daniela	1927	136
Allan, Elaine	1116	98
Allard, M.	3038	212
Allard, Marc	3042	212
Allard, Marc	3049	212
Allard, Marc	2639	190
Allard, Marc	2544	186
Allard, Nancy	1335	107
Allard, Sarah	2544	186
Allen, Andrew	1909	135
Allen, Caitilyn	23	13
Allen, Eric	2637	190
Allen, Heather	2462	182
Allen, Heather	3147	216
Allen, Heather	1930	136
Allen, Heather	3143	216
Allen, Heather	3150	216
Allen, Herbert	2836	202
Allen, Jaqueline	1319	106
Allen, Jeff	1471	112
Allen, Jonathan	525	36
Allen, Jonathan		73
Allen, Jonathan	2189	171
Allen, Kevin	1864	133
Allen, Lisa	767	54
Allen, Michael	2193	171
Allen, Michael	349	28
Allen, Michael	1928	136
Allen, Michael	221	22
Allen, Michael	2074	142
Allen, Michael	1921	136
Allen, S.	2146	169
Allen, Simon	2949	207
Allen, Simon	2948	207
Allen, Stephen	107	17
Allen, Stephen	2805	201
Allen, Stephen	2806	201
Allen, Vanessa	2049	141
Allender, Christopher	2196	171
Alleva-Celic, Karen		80
Allison, David	3015	211
Allison, Steven	2455	182
Allison, Tiffany	2358	178
Alm, Eric		78
Alm, Eric	2105	143
Alm, Eric	1538	116
Almaguer-Cantú, Verónica	2589	188
Almajed, Faisal	1013	65
Almand, Erin	681	50
Almanza, Barbara		73
Almarcegui, Rodrigo	2598	188
Almeida, Deepak	1562	117
Almeida, Igor	1755	128
Almeida, Rodrigo		160
Almeida da Silva, Pedro	1564	117
Alonso, J. Luis	1530	115
Alonso, J.Luis	1529	115
Alonso, Jose	2021	140
Alonso-Gutierrez, Jorge	989	64
Alonso-Jiménez, Homero	1949	137
Alonso-Jiménez, Homero	1943	137
Alonso-Jiménez, Homero	1939	137
Alonzo III, Francis	700	51
Al-Rshaidat, Mamoon	1420	110
Alshalchi, Sahar	2164	170
Alsomali, Mona	801	55
Alt, David	1930	136
Alt, David	3147	216
Alt, David	3150	216
Alteri, Chris	2216	172
Alteri, Christopher		84
Alteri, Christopher	27	13
Altermann, Eric	996	65
Altier, Craig	1114	98
Altin, Sedat	1580	117
Altinatas, Ilkay	2637	190
Altman, Tomer	2627	190
Alto, Neal		72
Altwegg, Martin	2245	173
Alum, Absar	2015	140
Alum, Absar	473	33
Alum, Absar	2610	189
Alumn, Absar	3113	214
Alva-Murillo, Nayeli	183	21
Alva-Murillo, Nayeli	181	21
Alvarado, Claudia	1777	129
Alvarado, Debora	3036	211
Alvardo, Debora	1649	123
Alvarenga, Danielly	LB-03	233
Alvares, Aline	121	18
Alvarez, Luis	780	55
Alvarez, Maria	2007	140
Alvarez, Mario	444	32
Alvarez, Miguel	224	22
Álvarez, Sergio	2740	197
Alvarez-Castillo, Alberto	1939	137
Alvarez-Castillo, Alberto	1949	137
Alvarez-Castillo, Alberto	1943	137
Alvarez-Cohen, Lisa	483	34
Alvarez-Cohen, Lisa	413	31
Alvarez-Cohen, Lisa	416	31
Alverdy, John	3086	213
Alverdy, John	719	52
Alves, Maria	2992	209
Amábile-Cuevas, Carlos	3161	216
Amado-Filho, Gilberto	1904	135
Amador-Noguez, Daniel		154
Amalaradjou, Mary	1745	127
Aman, M.	815	56
Aman, M.	818	56
Aman, Mohammed	809	56
Amanianda, Vishu Kumar	853	57
Amann, Alexander	1848	133
Amann, Rudolf	1424	110
Amano, Ayako	651	49
Amaral, Fabio	2176	170
Amaral, Fábio	1670	124
Amarasinghe, Jayaleka	2827	202
Amarillas, Luis	3001	210
Ambalavanan, Namasivayam	864	58
Ambegaokar, S.	2364	178
Ambrose, Catherine	2173	170
Ambrose, Richard	3116	214
Amechi, Bridget	1965	138
Amechi, Bridget	2079	142
Amechi, Bridget	1481	113
Amerson, Megan	657	49
Amezquita, A.	995	65
Amézquita-López, Bianca	2062	142
Amgad, Ramez	831	56
Amils, Ricardo	2941	207
Amin, Mohsena	2802	201
Amir, Mohammad Sairi B.	2054	141
Amitsi, Aristea	1010	65
Amitsi, Aristea	394	29
Amitsi, Aristea	999	65
Ammons, Christine	2530	186
Amoabeng, Opokua	1562	117
Amor, Kaouther	2318	176
Amoros, I.	2021	140
Amorós, Inma	1529	115
Ampel, Neil	1791	130
Ampofo, K.	2260	174
Amrhein, Robert	2287	175
Amrine, Katherine	1555	116
Amsterdam, Dan		223
Amuso, Philip	2773	198
Amy, Penny	1880	134
Amy, Penny	451	32
An, Chang-Hwan	1922	136
An, Jae Hyung	282	25
An, Seung	640	42
Anafu, Amanda	553	37
Anand, Malika	2313	176
Anand, Rajesh	1805	130
Anandan, Shivanthi	1544	116
Anany, Hany	3064	212
Anaqrah, Hiba	2390	179
Andaker, Greta	1496	113
Andam, Cheryl Marie		229
Andeer, Peter	452	32
Andelman, Steven	717	52
Anderl, David	397	30
Andermann, Tessa	2925	206
Andersen, Aaron	1329	107
Andersen, Gary	1926	136
Andersen, Gary	1426	111
Andersen, Gary	3099	214
Andersen, Gary	1432	111
Andersen, Gary	1925	136
Andersen, Gary	894	60
Andersen, Gary	1399	110
Andersen, Gary	3096	214
Andersen, Jody		217
Andersen, Thorbjoern	1655	123
Anderson, Brent	1532	115
Anderson, C.	1163	100
Anderson, C.	741	53
Anderson, Christopher	2786	199
Anderson, Connor	524	36
Anderson, Deborah	2207	172
Anderson, Deborah	787	55
Anderson, Deborah	1279	104
Anderson, Deborah	1669	124
Anderson, Deborah	2866	203
Anderson, Erica	1711	126
Anderson, Gordon	2628	190
Anderson, Gregory	46	14
Anderson, Gregory	2164	170
Anderson, J.	120	18
Anderson, John	542	37
Anderson, Karissa	3104	214
Anderson, Melissa		160
Anderson, Neil	144	19
Anderson, Neil	1171	100
Anderson, Paul	1279	104
Anderson, Roy		11
Anderson, Wayne	1361	108
Andersson, Dan		221
Ando, Tasuke	1645	123
Ando, Tasuke	1096	97
Ando, Yoshifumi	1410	110
Andrade, Ana	68	15
Andrade, Fernando	2173	170
Andrade, Gabriel	2101	143
Andrade, Karen	2495	184
Andrade, Karen	1883	134
Andrade, Melissa	733	53
Andrade, Melissa	734	53
Andrade Ochoa, Sergio	1055	68

Author	Poster Board	Session Number
Andrade Ochoa, Sergio	1560	117
Andrea, Sarah	1237	103
Andrea, Sarah	734	53
Andrea, Sarah	733	53
Andrews, Katharine	1113	98
Andrews, Norma	2678	195
Andrews, Simon	218	22
Andrews Jr., Charles	2325	177
Andrews-Polymenis, Helene	2751	197
Andrews-Polymenis, Helene	1661	124
Andrews-Polymenis, Helene	1113	98
Andriushchenko, A.	3135	215
Andros, Christina	2703	195
Anetoh, Emilia	2363	178
Angelard, Caroline	1541	116
Angert, Esther		71
Angert, Esther		71
Angriani, Kartika	2401	180
Anheuser, Mary Beth	1464	112
Anieto, Ugochukwu	349	28
Annan, Rochelle	1281	104
Annis, Lynn	2265	174
Ansong, Charles	2628	190
Ansong, Charles	401	30
Antala, Swati	2176	170
Antelmann, Haike	1361	108
Anthony, Jennifer	2959	208
Anthony, Jennifer	2953	208
Anthouard, Rebecca	1127	98
Antonara, Stella	2981	209
Antonello, Joseph	569	38
Antonia, Mayer	464	33
Antonopoulos, Dion	765	54
Antonova, Elena		160
Antunes, Ana	85	16
Anzola, Juan	777	54
Aoki, Hiroshi	1104	97
Aoki, Masataka	950	63
Aoki, Takashi	2195	171
Aoki, Takashi	1760	128
Aoki, Takashi	1290	105
Aoki, Takashi	1624	119
Aoki, Yumi	371	29
Apodaca, Jennifer	2100	143
Appia-Ayme, Corinne	2407	180
Arab, Niki	3012	211
Arabyan, Narine	897	60
Arad, Gila	2208	172
Arad, Gila	2892	204
Aragón, Virginia	1612	119
Arai, Hiroyuki	1356	108
Arai, Rie	634	41
Arai, Ryoichi	1823	132
Araj, George	2778	199
Araj, George F	650	49
Arakaki, Atsushi		71
Arakawa, Tsutomu	516	35
Araki, Nobuko	170	20
Araki, Nobuko	2116	144
Arambula, Diego	2202	171
Arambula, Diego	74	15
Aranda-Collado Lucía Viridiana	1945	137
Arango, Catalina	325	27
Aranguré-Peraza, Patricia	2307	176
Arap, Wadih	1750	128
Arau-Roffiel, Luis-Alberto	1949	137
Arbelaez, M.	1575	117
Arce, Gabriela	2544	186
Archer, Gordon	2204	171
Ardell, David	1555	116
Ardell, David	1549	116
Ardila, Diana	491	34
Arduino, Sonia	2770	198
Arévalo, Maria	537	36
Arévalo, Sigifredo	1299	105
Arévalo Gallegos, Sigifredo	1055	68
Arévalo-Gallegos, Sigifredo	2577	187
Arévalo-Niño, Katiushka	2589	188
Arévalo-Niño, Katiushka	1950	137
Arévalo-Niño, Katiushka	1959	137
Arfken, Ann	3120	214
Argimon, Silvia	61	14
Arias, Carolina	987	64
Arias, Cesar	1537	116
ARIAS, COVA	1906	135
Arias, Covadonga	1924	136
Arias-Argaez, Carolina	1018	65
Arjona sabido, Raul	890	59
Arkin, Adam	2443	181
Arkin, Adam	928	62
Arkin, Adam		219
Arkin, Adam		163
Arkin, Adam	881	59
Arkin, Adam	2409	180
Arkin, Adam	213	22
Arkin, Adam	884	59
Arkin, Adam	2935	207
Arkin, Adam	991	64
Arkin, Adam	1438	111
Arkin, Adam	2646	190
Arkin, Adam	2087	143
Arkin, Adam	3091	213
Arkin, Adam	2434	181
Arkin, Adam	3089	213
Arkin, A.	1862	133
Armbrust, E.	2190	171
Armbrust, E. Virginia		87
Armbruster, Chelsie	27	13
Armendarez, Veronica	2255	174
Armitage, David	1444	111
Armour, Maria	218	22
Armstrong, Glen	2831	202
Armstrong, Wendy		155
Arnaout, Christina	2065	142
Arnett, Eusondia	191	21
Arnett, Eusondia	193	21
Arnett, Krista	2719	196
Arnolds, Kathleen	510	35
Arnone, Vincent		83
Arnous, Nema	127	18
Arnvig, Kristine	2653	191
Aroian, Raffi	1749	127
Aronoff, David	1271	104
Aronov, Alexander	1156	99
Arora, Gaurav	592	39
Arora, Kriti	2686	195
Arora, Srishtee	1750	128
Arroyo, Francine	1193	101
Arroyo, Francine	267	24
Arroyo, Francine	896	60
Arshad, Narmeen	1572	117
Arshad, Narmeen	1572	117
Arshad, Narmeen	1601	118
Arshad, Narmeen	2330	177
Arsov, Ivica	2542	186
Artaxo, Paulo		224
Artini, Marco	1983	138
Artsimovitch, Irina		81
Aruni, Wilson	1752	128
Arur, Swathi	2179	171
Arvidson, Rolf	2173	170
Arvizu, M.	36	13
Aryal, Niranjan	2500	184
Asai, Yuji	2833	202
Asakrah, Saja	822	56
Asano, Shizuka	371	29
Asano, Yukiyasu	2989	209
Asayama, Munehiko	1297	105
Asayama, Munehiko	2426	181
Asayama, Munehiko	2366	179
Asfour, Fadi	675	50
Ashbaugh, Alan	1787	130
Ashbolt, Nicholas	1525	115
Ashbolt, Nicholas	2119	144
Ashbolt, Nicholas	1437	111
Ashbolt, Nicholas	1884	135
Ashcraft, Deborah	123	18
Askar, Shane	2071	142
Askew, David	844	57
Askew, David		79
Askew, David	852	57
Aslan, Muge	1	12
Aslan, Muge	1225	102
Aslanzadeh, Jaber	1191	101
Aslanzadeh, Jaber	2292	175
Assad-Garcia, Nacyra	866	58
Assaf, Mona	1628	122
Assefa, Senait	16	12
Assis, Ana	2776	198
Asthana, Deshratn		11
Asthana, Deshratn		222
Asthana, Deshratn		222
Atad, Ilil	3008	210
Atehortua, S	1575	117
Athanasiou, Alcibiade	2687	195
Atkinson, C	776	54
Atkinson, Robyn	1585	118
Atkinson, T	860	58
Atkinson, Thomas	864	58
Atlas, Ronald		90
Atluri, Vidya	204	21
Atmar, Robert	2682	195
Ato, Manabu	2664	191
Atoui, Samira	2180	171
Attia, Ahmed	831	56
Attrée, Ina	2228	172
Attwood, Graeme	1345	107
Atueyi, Nnenna	2991	209
Atwill, Edward	1073	69
Atwill, Edward	2539	186
Au, Aaron	640	42
Au, Chun Hang	2738	197
Au, Kelly	3084	213
Auburger, Josef	2303	176
AuCoin, David	576	38
Auer, Manfred		220
Auerbuch, Victoria	1639	122
Augustin, René	2316	176
Ausland, Jennifer	383	29
Austin, Laura	2217	172
Auw, Max Jin Quan	2044	141
Avci, Ayse	351	28
Avci, Recep	75	15
Averhoff, Beate	24	13
Avery, Lyndsay	249	23
Avery, Lyndsay	242	23
Avila, Maria	802	55
Ávila-Sosa Sánchez, Raul	1017	65
Avilés-Reyes, Alejandro	73	15
Avrani, Sarit		229
Awaya, Jonathan	952	63
Axen, Seth	1369	108
Axen, Seth	962	63
Axthelm, Michael	2314	176
Ayala, Guadalupe	1681	125
Ayala, Juan	2585	188
Ayalew, Sahlu	1622	119
Ayanbimpe, Grace	2789	200
Ayata, Minoru	2663	191
Ayers, Sherry	1999	139
Ayoubi-Canaan, Patricia	1488	113
Ayre, Brian	1921	136
Aytekin, Nihan	1580	117
Ayyappan, Sophie		152
Azad, Kamran	1222	102

Author	Poster Board	Session Number
Azam, Nidha	2775	198
Azeredo, Juliana	2776	198
Azevedo, Marli	533	36
Azim, Nasir	668	49
Azizan, Azliyati		222

B

Author	Poster Board	Session Number
Baarda, Benjamin	1239	103
Baba, Takashi	395	30
Babady, Ngolela	174	20
Babakerkhail, Naseer	2799	200
Babiker, Wisal	749	53
Babiker, Wisal	2235	173
Babin, Brett	3082	213
Babin, Brett		72
Babu, Uma	1688	125
Babujee, Lavanya	2100	143
Bacosa, H.	1489	113
Badalamenti, Jonathan	2564	187
Badawy, Hope	2148	169
Badawy, Hope	2137	169
Bader, Joel	2661	191
Bader, Rebecca	2855	203
Badgley, Brian	1440	111
Bae, Dongryeoul	3051	212
Bae, Jun	2561	187
Bae, Taeok	1109	98
Bae, Taeok	1275	104
Baek, Hyun	1846	133
Baek, Joon-Young	843	57
Bæk, Kristoffer	2184	171
Bagley, Susan	972	64
Bahamon, Isabella	2570	187
Bahar, Ali	2522	185
Bai, Shijie	957	63
Bai, Yong	1306	106
Baidoo, Edward	2409	180
Baidoo, Edward	1364	108
Baidoo, Edward	2946	207
Bailey, Jennifer	633	41
Bailey, Morgan	1858	133
Bailey-Person, Mary	731	53
Bain, Timothy	1487	113
Bakanidze, L.	1148	99
Bakardjiev, Anna	1748	127
Bakardjiev, Anna	199	21
Baker, Ashley	2052	141
Baker, Brett	966	63
Baker, Brett		78
Baker, Ethan	1483	113
Baker, Henry	192	21
Baker, Natali	161	19
Baker, Neil		1
Baker, Robert	1020	65
Baker, Shenda	2697	195
Baker, Tania		219
Baker, Tania	1863	133
Bakken, Ayla	2338	177
Bakshi, Chandra Shekhar	2847	203
Bakshi, Chandra Shekhar	2853	203
Bal, Bijay	1844	133
Balada-Llasat, Joan-Miguel	2251	173
Balakrishnan, Venkatesh	2100	143
Balan, Kannan	1688	125
Balasubramanian, Deepak	2199	171
Baldasarri, Lucilla	98	16
Balderas, Miriam	1666	124
Balish, Amanda	3139	215
Balish, Mitchell	860	58
Ball, A.R.	518	35
Ballard, Jimmy		159
Ballard, Jimmy	1134	99
Ballard, Jimmy	2215	172
Ballesté, Elisenda	3095	214
Ballester, Karina	2618	189
Ballinas-Casarrubias, Lourdes	2593	188
Ballinas-Casarrubias, María de	1956	137
Ballok, Alicia	2319	176
Balsera, Monica	899	60
Baltrus, David		157
Balzer, Sandra	2287	175
Bamford, Vicky	218	22
Banaei, Niaz	LB-09	233
Banaei, Niaz		80
Banawas, Saeed	1121	98
Bandara, Aloka	714	52
Bandea, Claudiu	2322	177
Banerjee, Anirban	2871	204
Banerjee, Tuhina	2851	203
Banes, Michelle	1608	119
Banfield, Jillian		85
Banfield, Jillian	2579	188
Banfield, Jillian	1539	116
Banfield, Jillian	943	63
Banfield, Jillian		6
Banfield, Jillian		224
Banfield, Jillian		149
Banfield, Jillian	966	63
Banfield, Jillian		229
Banfield, Jillian	775	54
Banfield, Jillian	1883	134
Banfield, Jillian	2495	184
Banfield, Jillian	1927	136
Banfield, Jillian	960	63
Banfield, Jillian	2090	143
Banfield, Jillian	1758	128
Bang, John	423	31
Bang, Ye-Ji	1845	133
Bangar, Hansraj	2880	204
Bani-Hashemi, Tara	1271	104
Banik, Sukalyani	50	14
Bankert, David	2265	174
Bankert, David	2242	173
Bankowski, Matthew	172	20
Bankowski, Matthew	1184	100
Bann, Darrin	540	37
Bannai, Hisaichi	577	38
Banning, Frederike	1988	138
Banno, Fumiya	2048	141
Bannov, Vasilii	648	49
Banta, Lois	587	39
Banta, Lois	498	34
Bao, Jian	1199	101
Bao, Weichao	785	55
Baquero, Monica	1611	119
Baran, Richard	2935	207
Barbaux, Laurence	1217	102
Barbe, Valerie		83
Barbier, Mariette	696	51
Barbieri, Joseph	2211	172
Barbieri, Joseph	2219	172
Barbieri, Joseph	1699	125
Barbieri, Joseph	2226	172
Barbieri, M. Alejandro	184	21
Barbieri, Nicolle	635	41
Barbour, Alan	2197	171
Barbour, Elie	1628	122
Barbu, E.	1750	128
Barcelo, Nicolas	1207	101
Barcelos, Gisely	459	33
Bardiau, Marjorie	1615	119
Bardy, Sonia	908	61
Barendt, Skye	1326	106
Bargoma, Emilee	1426	111
Bargoma, Emilee	1024	66
Bargu, Sibel	2927	206
Barillova, Petra	1551	116
Barillova, Petra	2734	197
Barkay, Tamar	1908	135
Barkay, Tamar	1887	135
Barker, Adam	1212	102
Barker, Adam	1195	101
Barker, Bridget	849	57
Barker, Elizabeth Barker	1239	103
Barkey, Anthony	3138	215
Barlow, Miriam	2905	205
Barnes, Lou	2132	169
Barnes, Samantha	827	56
Barnett, Melanie	2937	207
Barnette, Dustyn	1618	119
Barnewall, Roy	1629	122
Barney, Trenda	1716	126
Barney, Trenda	2238	173
Barney, Trenda	2233	173
Barney, Yolanda	2609	189
Baron, Ellen		166
Baron, Ellen	2810	201
Baron, Julianne	2611	189
Baros, Brandi	2152	169
Baroud, Maysa	650	49
Barquera, Blanca	2421	181
Barr, John	2862	203
Barragan, Jhosdyn	2151	169
Barrangou, Rodolphe	2746	197
Barrangou, Rodolphe		229
Barrangou, Rodolphe	636	41
Barrangou, Rodolphe	1539	116
Barrangou, Rodolphe		149
Barrera, Carlos	559	38
Barreto, Jose	453	33
Barreto, Patricia	453	33
Barrett, Anne	1571	117
Barrett, Brett	1239	103
Barrett, Heather	125	18
Barrett, John	1085	97
Barrett, Jonathan	1872	134
Barrett, Stacy	2276	174
Barrett, Stacy	2277	174
Barretto, Kathryn	1861	133
Barron, Nicole	964	63
Barrowman, Nicholas	2800	200
Barrows, Frederic	3024	211
Barry, Clifton	1082	97
Barry, Clifton	2686	195
Barry, Clifton	2698	195
Barry, Clifton	2700	195
Barry, Eileen	2161	170
Barry, Eileen	2737	197
Barry, Michael	2340	177
Bart, Marieke	2088	143
Barta, Michael	1701	125
Barta, Michael	911	61
Bartelt-Hunt, Shannon	1046	67
Bartlett, Jannifer	2337	177
Bartlett, Jennifer	2338	177
Bartlett, Paul	1442	111
Barton, David	760	54
Barton, Hazel		232
Barton, Hazel	268	24
Barton, Hazel	2645	190
Barton, Hazel		74
Barton, Michael	2645	190
Bartsch, Michael	889	59
Barua, Soumitra	2215	172
Baruffi, Marcelo	2346	178
Basaraba, Randall	2162	170
Baselski, Vickie		48
Baselski, Vickie		48
Basner, Ann	103	16
Basoren, Pinar	1580	117
Bass, David	2077	142
Bassler, Bonnie	284	25
Bassler, Bonnie	295	25
Bassler, Bonnie		227
Bassler, Bonnie	287	25

Author	Poster Board	Session Number
Bassler, Bonnie	291	25
Bassler, Bonnie	283	25
Bassler, Bonnie	294	25
Basu, Indira	1568	117
Bates, Jennifer	2864	203
Bates, Paul	2304	176
Batista, Jacimaria	451	32
Batth, Tanveer	989	64
Batth, Tanveer	992	64
Batth, Tanveer	1458	112
Battista, John	873	59
Battista, John	1535	116
Battistoni, Andrea	688	50
Batts, Donald	124	18
Bauer, Carl		226
Bauer, Margaret	1742	127
Bauman, Sean	1212	102
Baumgarten, Axel	661	49
Baumgarten, Tracey	2499	184
Baumler, Andreas		84
Baumler, Andreas	725	52
Baumler, David		232
Baumler, David	2100	143
Bäumler, Andreas	2863	203
Bäumler, Andreas	2299	176
Bäumler, Andreas	2303	176
Bäumler, Andreas	1735	127
Bäumler, Andreas	38	13
Bäumler, Andreas	240	23
Baumohl, Jason	2409	180
Baums, Christoph	1682	125
Bavananthasivam, Jegarubee	1619	119
Bavari, Sina	1322	106
Bavoil, Patrik	801	55
Bavoil, Patrik	792	55
Baxter, Jennifer	2138	169
Bay, Denice	938	62
Bay, Denice	936	62
Bayer, Arnold	2415	180
Bayer, Arnold	1653	123
Bayer, Cimelio	963	63
Bayer, Edward		152
Bayles, Darrell	3150	216
Bayles, Darrell	3147	216
Bayles, Darrell	1930	136
Bayles, Kenneth	2914	205
Bayles, Kenneth	2415	180
Bayles, Kenneth	2725	196
Bayles, Kenneth	32	13
Bayles, Kenneth		75
Bayman, Paul	2362	178
Bayman Gupta, Paul	1342	107
Bayman-Gupta, Paul	854	57
Be, Nicholas		73
Beach, Michael		43
Beahm, Aleigh	3123	215
Bearson, Bradley	1606	119
Bearson, Bradley	3150	216
Bearson, Bradley	3155	216
Bearson, Shawn	3150	216
Bearson, Shawn	1606	119
Bearson, Shawn	3155	216
Beasley, Clara	2543	186
Beasley, David	229	22
Beattie, Gwyn	2950	207
Beaty, Patrick	167	20
Beaubrun, J-G	3061	212
Beauchemin, Karen	1443	111
Beauchemin, Nicholas	2096	143
Beaudin, Julie	446	32
Beaudin, Julie	1337	107
Beaudin, Julie	1335	107
Beaulieu, Derek	2592	188
Beaulieu, Ellen		160
Bebout, Brad	1392	109
Bebout, Brad	3085	213
Bécavin, Christophe		219
Becerril-Montes, Pola	1642	123
Becher, D.	1361	108
Bechtel, Hans	894	60
Beck, James	3009	210
Beck, Nicola	1513	114
Beck, Tim	2128	169
Becker, Jamie	2460	182
Becker, Karsten	2983	209
Becker, Nicholas	2368	179
Beckers, Justin	2473	183
Beckman, Erin	1169	100
Bedard, Lynn	3075	213
Beenhouwer, David	2223	172
Beernink, Peter	823	56
Beernink, Peter	2335	177
Beernink, Peter T.	811	56
Beers, Karen	1020	65
Begemann, Matthew		154
Behar, Sam		231
Behnsen, Judith		158
Behum, Paul	1391	109
Beineke, Andreas	1682	125
Beiza, Andrea	2471	183
Belardo, Edward	1199	101
Belardo, Mary Ann	1199	101
Belasco, Joel	1676	124
Belay, Tesfaye	208	21
Belcher, Richard	1493	113
Belcher, Richard	458	33
Belenky, Peter		79
Belfort, Marlene		219
Beliaev, Alexander	2410	180
Bell, Rebecca	2544	186
Bell, Theodore	2265	174
Bell, Thomas	3078	213
Bell, Thomas	2077	142
Bell, Todd	1689	125
Beller, Harry	2897	205
Beller, Harry	2582	188
Beller, Harry	358	28
Beller, Harry	1390	109
Beller, Harry	1371	109
Beller, Harry	971	64
Beller, Harry	342	28
Bellini, William		158
Bello, H.	3159	216
Bellows, Lauren	2708	196
Beloin, Christophe	2392	179
Belonozhka, L.	3135	215
Beltrán-Alzate, Juan	1064	68
Bemquerer, Marcelo	2380	179
Benahmed, Faiza	2532	186
Benardini, James	1426	111
Benardini, James	397	30
Bender, Kelly	1391	109
Bender, Kelly	884	59
Bender, Kelly	881	59
Bendtsen, Jannick	2640	190
Benedict, Christan	1638	122
Benet, Zachary	2225	172
Benge, Kirk	1585	118
Benison, Kathy		224
Benitez, Alvaro	1722	126
Benitez-Hernandez, Eli-Emanuel	1943	137
Benjamin, Jeremy	2904	205
Benke, Peter	2409	180
Bennett, David	623	41
Bennett, Jennifer	248	23
Bennett, Jennifer	2080	142
Bennett, Joan		45
Bennett, Joan	3013	211
Bennett, Missy	591	39
Bennett, Shannon		156
Bennke, Christin	1424	110
Benson, Carlie	266	24
Benson, Gifty	16	12
Benson, Jodi	1929	136
Benson, Lee	254	23
Benson, Meredith	1672	124
Benson, Meredith	1678	124
Bentley-Tammero, Lance	1322	106
Bento, Joana	1878	134
Bentolila, Laurent	1740	127
Bentson, Laura	244	23
Ben-Yaacov, D.	2030	141
Benzing, Stephanie	2924	206
Berenjian, Aydin	1948	137
Beres, Carolyn	1464	112
Berg, Douglas	2179	171
Bergamini, Alzira	2774	198
Berger, Daniel	2548	186
Berger, Daniel	111	17
Berger, Dolores	2281	175
Berger, Martine	285	25
Berger, Martine	2438	181
Bergeron, Michel	2979	209
Bergholz, Peter	3053	212
Bergholz, Teresa	3044	212
Bergholz, Teresa	3043	212
Bergholz, Teresa	379	29
Bergkessel, Megan	280	25
Berk, Veysel		76
Berkes, Charlotte	2331	177
Berman, Hillary	1091	97
Bermudez, Luiz	2838	202
Bermudez, Luiz	803	55
Bermúdez de León, Mario	2667	191
Bermúdez de León, Mario	1642	123
Bernal, Diego	164	20
Bernard, Clay	2540	186
Bernard, Clay	2547	186
Bernard, Kathryn	1186	100
Bernard IV, Clay	2548	186
Bernarding, Sean	964	63
Bernardy, Eryn		160
Bernasconi, Enos	851	57
Bernèche-D'Amours, Audrey	1336	107
Bernhard, Anne	1903	135
Bernier, Anne-Marie	2387	179
Bernier, Anne-Marie	2385	179
Bernier-Casillas, Yomarie	1889	135
Bernier-Casillas, Yomarie	1477	113
Berns, Kenneth		192
Bernstein, Carol	2111	144
Berrada, Zenda	1165	100
Berrada, Zenda	3124	215
Berrada, Zenda	1192	101
Berrocal, Liliana	2828	202
Berry, Jaime	2288	175
Berthiaume, Chris	2190	171
Berthiaume, Philippe	2009	140
Bertoli Ertoli Avella, M	1599	118
Bertolo, Lisa	77	15
Bertrand, Jessica	2843	203
Bertsch, David	6	12
Bertz, Phillip	2796	200
Bérubé, Ève	2979	209
Bess, Leah	2113	144
Bess, Leah	2822	202
Besser, John		147
Besser, John		147
Besser, Thomas	1015	65
Bestervelt, Lorelle	1504	114
Beston, Julie	1527	115
Betancor, Laura	690	51
Betancourt, Julio L.	967	63
Betancourt, Marisol	846	57
Bethel, Cindy	1251	103

Author	Poster Board	Session Number
Beverly, Patricia	2267	174
Bevins, Charles		89
Beyenal, Haluk	466	33
Beyer, Andrea	540	37
Beyersmann, Paul	285	25
Beyrouthy, Racha	2372	179
Bezotte, Christine	1049	67
Bhaduri, Prianca	772	54
Bhandari, Tamara	1779	129
Bharti, Balambal	2394	179
Bhartia, Rohit	2034	141
Bhaskaran, Archana	2263	174
Bhatnagar, Deepak	600	40
Bhatnagar, Srijak	1746	127
Bhattacharjee, Ananda	3007	210
Bhattacharya, Pamela	1844	133
Bhattacharyya, Debasish	1844	133
Bhattacharyya, Indraneel	2311	176
Bhattad, Ujwal	2408	180
Bhatti, Alexandra	1581	117
Bhavsar, Jaysheel	488	34
Bhavsar, Tapan	738	53
Bhaya, Devaki	299	26
Bhaya, Devaki	1935	136
Bhaya, Devaki	247	23
Bhaya, Devaki	258	23
Bhaya, Devaki	280	25
Bhaya, Devaki	1936	136
Bhukhen, Akta	2793	200
Bhukhen, Arti	2793	200
Bhunia, Arun	1745	127
Bhutani, Natasha	2580	188
Bhutto, Ali	2970	209
Bi, Changhao	358	28
Bi, Changhao	2897	205
Bi, Hongkai	277	25
Biais, Nicolas	726	52
Bibbs, Ronda	2375	179
Bichsel, Candace	1154	99
Bickel, Ryan	124	18
Bidawid, Sabah	2800	200
Bidle, Kelly	895	60
Biehl, Bryan		232
Biehl, Bryan	2100	143
Bielli, Alessandra	148	19
Bierschenk, Damien	1087	97
Biesecker, Steven	1783	129
Biffinger, Justin	2563	187
Biffinger, Justin	2562	187
Biggin, Mark	2949	207
Biggin, Mark	2948	207
Bigley, Elmer	2326	177
Bigley, Elmer	1688	125
Bijaya, Haobam	2083	143
Bikard, David		149
Billig, Maria	2777	198
Billingham, Jesse	2623	189
Billings, Gabriel		71
Binet, Rachel	2766	198
Bingham-Ramos, Lacey	674	50
Binnebose, Andrea	1324	106
Birch, Cierra	1326	106
Birch, Elsa	303	26
Biron, Christine		222
Biryukov, Stanely	2190	171
Bisha, Bledar	2017	140
Bishop, J	2945	207
Bishop, Karen	135	18
Bisson, Greg	1803	130
Bissonnette, Cyntia	446	32
Biswas, Indranil	1323	106
Biswas, Indranil	32	13
Bittner, Alycia	2937	207
Bivolarski, Veselin	2952	208
Bjarnsholt, Thomas	2157	170
Bjarnsholt, Thomas	1262	104
Björck, Lars	2301	176
Black, Carolyn	2322	177
Black, Jeffrey	2967	208
Black, Jennifer	1723	126
Black, Michael	1932	136
Black, Michael	1933	136
Black, Michael	1931	136
Black, Miles	614	40
Black, Miles	2677	195
Black, Susan		75
Blackburn, Jason	3137	215
Blackburn, Jason	3133	215
Blacksell, Stuart	1248	103
Blackshaw, Robert	2478	183
Blackwell, Meredith M.	3022	211
Blackwood, Christopher	2377	179
Blainey, Paul	407	31
Blake, Sean	2898	205
Bland, David	1669	124
Bland, David	1279	104
Bland, Michael		146
Blank, Bryant	189	21
Blanke, Steven	1685	125
Blanke, Steven	1139	99
Blanke, Steven	200	21
Blankenberg, Francis		230
Blankson, Joel	545	37
Blaschke, Anne	2238	173
Blaschke, Anne	1239	103
Blaschke, Anne		166
Blaser, Martin	3033	211
Blaser, Martin	2095	143
Blaser, Martin		153
Blaser, Martin	1759	128
Blaser, Martin		95
Blasiak, Leah	2491	183
Blecker-Shelly, Deborah	1204	101
Blewett, Earl	1285	105
Blickenstaff, Karen	1072	69
Bloch, Karen	LB-07	233
Bloch, Kristen	1715	126
Block, David		84
Block, Denise	2993	209
Blondel-Hill, Edith	168	20
Blonsky, Sarah	2225	172
Bloodworth, Ruhullah	2180	171
Bloomfield, Sally	1505	114
Blosser, Sara	849	57
Blount, Zachary		221
Bluhm, Andrew	1263	104
Bluhm, Andrew	671	50
Blum, Faith	2219	172
Blum, Jodi	1372	109
Blum, Jodi	1375	109
Blumer, Bridget		80
Blyn, Lawrence	869	58
Bo, Tao	2861	203
Bobenchik, April	129	18
Bobenchik, April	110	17
Bocher, Ben	2568	187
Bochsler, Philip	693	51
Bodeis-Jones, Sonya	1994	139
Bodeis-Jones, Sonya	386	29
Bodeis-Jones, Sonya	3148	216
Bodhidatta, Ladaporn	517	35
Bodhidatta, Ladaporn	2759	198
Bodine, Truston	2103	143
Boedeker, Edgar	2852	203
Boedeker, Edgar	2126	169
Boedeker, Edgar	2344	177
Boehm, Alexandria	3095	214
Boehm, Alexandria	3093	214
Boehm, Alexandria	1502	114
Boehm, Alexandria	3094	214
Boehm, Alexandria	3098	214
Boehm, Susan	2982	209
Boehm, Susan	1181	100
Boehme, Maria	2687	195
Boel, Cornelis	1270	104
Boetius, Antje		152
Boetius, Antje		152
Boettger, Cynthia	551	37
Bogachev, Alexander	1367	108
Bogadi, Lindsey	2179	171
Boggess, May	632	41
Bogomolnaya, Lydia	2751	197
Bogomolnaya, Lydia	1113	98
Bohannan, Brendan	1382	109
Bohannan, Brendan		224
Bohannan, Brendan		221
Bohannan, Brendan		229
Böhlke, John Karl	1388	109
Böhme, Katja	1111	98
Boi, Muriel	91	16
Boissy, Raymond	2376	179
Bokhari, Syed Habib	14	12
Bokinsky, Gregory	1364	108
Bokulich, Nicholas	1919	136
Bokulich, Nick	778	54
Bold, Richard	2033	141
Boles, Blaise	2177	170
Bolger, Cathryn	2766	198
Bolival, Benjamin	866	58
Bolivar, Steven	1404	110
Bolognini, Marie	1908	135
Bolster, Carl	1531	115
Bolton, Elizabeth	1891	135
Bolton, Elizabeth	2494	184
Bomar, Lindsey	3000	210
Bomar, Lindsey	1808	131
Bombach, Adrienne	1203	101
Boncy, J	1592	118
Boncy, Jacques		46
Bond, Daniel		76
Bond, Daniel	941	62
Bond, Daniel	1379	109
Bond, Daniel		148
Bondy-Denomy, Joe	309	26
Boneca, Ivo	720	52
Bonemann, G	3061	212
Bonfanti, Jessica	85	16
Bongio, Nicholas	3128	215
Bonilla-Lemus, P.	646	42
Bonito, Gregory	3016	211
Bonner, Aleta	2275	174
Bonnet, Richard	2372	179
Bonney, Megan	717	52
Bono, James	2154	170
Bonocora, Richard	1291	105
Bonten, Marc	485	34
Bonten, Marc	1545	116
Bonten, Marc	1087	97
Bonvin, Alexandre	2679	195
Booe, Kristina	1185	100
Boonanantanasarn, Kanitsak	679	50
Boone, Charlie	606	40
Boone, Jeremy	114	17
Boone, Jeremy	115	17
Boonlayangoor, Subhit	1251	103
Boonmak, Chanita	1476	113
Boonthimat, Chetsada	1255	103
Boopathy, Raj	1616	119
Boopathy, Raj	357	28
Boor, Kathryn	3044	212
Boor, Kathryn	2932	207
Boor, Kathryn	3043	212
Boor, Kathryn	379	29
Boor, Kathryn	2399	180
Boor, Kathryn	1354	108

Author	Poster Board	Session Number
Booth, Ian		75
Booth, Ian		75
Booth, Ian		75
Booth, Veronica	3032	211
Booth, Veronica	3030	211
Bootsma, Hester	1763	129
Borel, Agnes	2343	177
Borenstein, Lee	1586	118
Borglin, Sharon	490	34
Borglin, Sharon	1926	136
Borglin, Sharon	1925	136
Borin, Sara	1908	135
Boritsch, Eva	1108	98
Borja Santa Cruz, Nelly	1051	68
Bornman, D	484	34
Bornstein-Forst, Susan	1324	106
Borrett, Stuart	1389	109
Borucki, Monica	525	36
Borzenkov, Valerii	648	49
Bosch, Thomas		91
Bosch, Thomas		85
Bose, Arpita		154
Bose, Jeffrey	2914	205
Boshoff, Helena	2698	195
Boshoff, Helena	2700	195
Boshoff, Helena	2686	195
Boss, Angela	732	53
Botchway, Felix	1590	118
Botero, Luz	777	54
Bothner, Brian	853	57
Bothwell, Ian	1858	133
Bottomley, Peter	318	27
Bouchard, Eric	2385	179
Bouchard, Stephanie	2235	173
Bouchard, Stephanie	749	53
Bouchard, Stephanie	2242	173
Boucher, Yan	2205	171
Bouchez, Caroline	1988	138
Boudreau, Beth	2430	181
Boudreau, Dominique	2979	209
Boudreaux, Crystal	543	37
Bougnoux, Marie-Elisabeth	1790	130
Bougoure, Jeremy	946	63
Bouley, Stephanie	514	35
Boundy, Sam	2204	171
Boundy-Mills, Kyria	362	28
Boundy-Mills, Kyria	2578	187
Boundy-Mills, Kyria	3021	211
Bounpheng, Mangkey	1603	119
Bounty, Sarah	1524	115
Bourbeau, P	95	16
Bourgis, Alexandra	685	50
Bourke, Billy	780	55
Bourke, Billy	1124	98
Bourke, Billy	201	21
Bourlioux, Pierre	1988	138
Bourne, Chuck	2673	191
Bourne, David	2472	183
Bourne, Nigel	2881	204
Bourzac, Kevin	2267	174
Bourzac, Kevin	1248	103
Bourzac, Kevin	1715	126
Boushey, Homer	3035	211
Bouskill, Nicholas	1369	108
Bouskill, Nicholas	1381	109
Bouskill, Nicholas	962	63
Bouveret, Emmanuelle		226
Bouyer, Donald	LB-07	233
Bowen, Barbara	3044	212
Bowen, Ben	962	63
Bowen, Ben	966	63
Bowen, Benjamin	1369	108
Bowen, Benjamin	2935	207
Bowen, Benjamin	928	62
Bowen, Benjamin	960	63
Bowen, Michael	2264	174
Bower, James	1568	117
Bowers, J	2201	171
Bowers, John	390	29
Bowers, Jolene	1187	100
Bowers, Jolene	2098	143
Bowers, Jolene	2782	199
Bowes, Michael	2077	142
Bowes, Michael J	3078	213
Bowlin, Ann	792	55
Bowman, Charles	1866	134
Bowman, Charles	1869	134
Bowman, Joshua	2670	191
Bowman, Kimberly	422	31
Bowman, Kimberly	439	32
Boyaval, Patrick		149
Boyaval, Patrick	298	26
Boyd, David	158	19
Boyd, Stephen	2451	182
Boyer, Anne	2862	203
Boyett, Matthew	1900	135
Boyett, Matthew	3083	213
Bozkurt-Güzel, Cagla	2140	169
Bozue, Joel	1689	125
Bozue, Joel	810	56
Bozue, Joel	812	56
Brackman, Gilles	2705	196
Bradley, Kenneth	1685	125
Bradley, Nadine	1892	135
Bradley, Stephen	2853	203
Bradley , G.	1519	115
Bradley , G.	2005	140
Bradshaw, David	3030	211
Brady, Allison	825	56
Brady, Linda	915	62
Brady, Nancy	2361	178
Brady, Rebecca	1274	104
Braga, Emily	823	56
Braga, Gilberto	2346	178
Braigen, Stephen	2334	177
Brake, David	1603	119
Brake, Simon	558	38
Bramucci, Anna	2473	183
Brancaccio, Vincenzo	2920	206
Brandl, Maria	3048	212
Brandt, Kevin		227
Brandt, Marilyn	1816	131
Brantner, Christine	2382	179
Brantner, Justin	2148	169
Brantner, Justin	2137	169
Branton, Scott	863	58
Brass, Abraham	553	37
Bratina, Bonnie	3076	213
Brau, Lambert	2477	183
Bräuer, Suzanna	900	60
Braughton, Kevin	1683	125
Bray, Walter	1639	122
Brayton, Kelly	1015	65
Breaker, Ronald	2642	190
Breckler, Liza	1885	135
Brehm-Stecher, Byron	3039	212
Brehm-Stecher, Byron	1100	97
Breitenbach, Cathy	1516	115
Brelles-Mariño, Graciela	934	62
Brem, Rachel		88
Bremer, Martina	2115	144
Brennan, Christopher	1317	106
Brennan, Patrick	1064	68
Brennan, Rachel	2590	188
Brennan, Robert	1272	104
Brenneman, Karen	2403	180
Brenner, Kristen	1521	115
Brenner, Steven	2949	207
Brensan, John	111	17
Breshears, Laura	2224	172
Breukink, Eefjan	2136	169
Breukink, Eefjan	2679	195
Brevik, Megan	709	51
Brickner, Jason		146
Bridge, Linda	2671	191
Bridgham, Scott	1382	109
Bridou, Romain	1852	133
Brière, Rachelle	2387	179
Briers, Yves		71
Briese, Thomas		228
Briles, David	2820	202
Briles, David	68	15
Brinkhoff, Thorsten	2438	181
Brinkhoff, Thorsten	2469	183
Brinkhoff, Thorsten	285	25
Brinkhoff, Thorsten	1409	110
Brinkman, Fiona	2726	196
Brinkman, Nichole	1033	66
Briones, Aurelio	440	32
Brissette, Catherine	2816	202
Brissette, Catherine	2824	202
Brisson, Vanessa	483	34
Brito, Benito	635	41
Britt, James	533	36
Britt, Zachary	2122	144
Brittnacher, Mitchell	1817	131
Britton, Rob		78
Britton, Robert	1442	111
Brock, Megan	1855	133
Brock, Nelson	2438	181
Brocks, Jochen	2495	184
Brodie, Eoin	327	27
Brodie, Eoin	1369	108
Brodie, Eoin	2582	188
Brodie, Eoin		85
Brodie, Eoin	1381	109
Brodie, Eoin	2455	182
Brodie, Eoin	962	63
Brodie, Eoin	1371	109
Brodie, Eoin	319	27
Brodie, Eoin	2638	190
Brodie, Eoin	3022	211
Brody, Eoin	946	63
Brohawn, Kathy	1038	67
Bronner, Denise	1769	129
Brooks, Brandon	1758	128
Brooks, Brandon “Bubba”	775	54
Brooks, Rhys	225	22
Brooks, Scott	2586	188
Brooks, Scott	2453	182
Brooks, Scott	165	20
Broomall, Stacey	2450	182
Brosnahan, Amanda	1151	99
Brothwell, Julie	800	55
Broto-Hernandez, Alicia	862	58
Broukhanski, George	391	29
Broussard, Gregory	1867	134
Brovold, Matthew	254	23
Brown, Aaron	2906	205
Brown, Bradley	1174	100
Brown, Bryan		73
Brown, C. T.	330	27
Brown, C. Titus	2507	184
Brown, Charles	2626	190
Brown, Christopher	338	27
Brown, Daniel	858	58
Brown, Daniel	868	58
Brown, Daren	2430	181
Brown, Ellen	2609	189
Brown, Ellen	1074	69
Brown, Eric		147
Brown, Eric	381	29
Brown, Eric	2549	186
Brown, Eric	3049	212
Brown, Eric	2639	190

Author	Poster Board	Session Number
Brown, Eric	2544	186
Brown, Jennifer	1897	135
Brown, Jeremy	1619	119
Brown, Jessica	1795	130
Brown, Joshua	521	36
Brown, Laura		83
Brown, Lisa	2386	179
Brown, Mitchell	3136	215
Brown, Reid	3118	214
Brown, S.	2129	169
Brown, Steve	146	19
Brown, Steven	2454	182
Brown, Steven	2087	143
Brown, Steven	1438	111
Brown, Steven	2434	181
Brown, Stuart		85
Brown, Stuart	61	14
Brown, Tanya	2472	183
Brown, Titus	3026	211
Brown-Elliott, B	1194	101
Brown-Elliott, Barbara	2671	191
Brown-Smith, Ke'Ara	2508	184
Brox, Tim	1897	135
Broz, Petr		158
Brubaker, Scott		70
Bruce, David	2096	143
Bruce, Thiago	1904	135
Bruchertseifer, Frank	2354	178
Bruckbauer, Steven	2908	205
Bruckner, James	969B	63
Brum, Jennifer		224
Brumbaugh, Ariel	824	56
Brumfeld, Vlad		146
Brunelle, Brian	1606	119
Brunelle, Brian	3150	216
Brunner, Jorg	1093	97
Bruns, Victoria	249	23
Bruß, Christina	334	27
Brust, Flavia	162	19
Bry, Tyson		152
Bryan, Ruth	2354	178
Bryant, Amy	1071	69
Bryant, David	2865	203
Bryant, Jessica	2460	182
Bryant, Kendall	120	18
Brzezinski, Ryszard	1335	107
Btiro-Argaez, Ligia	1018	65
Bucar, Edie	539	36
Bucci, John	3102	214
Buchan, Alison	1418	110
Buchan, Alison	1402	110
Buchan, Blake	1667	124
Buchan, Blake	1171	100
Buchan, Blake	2240	173
Buchan, Blake	1172	100
Buchan, Blake	1190	101
Buchan, Blake	134	18
Buchan, Blake	165	20
Buchan, Blake	1242	103
Buchan, Blake	144	19
Buchanan, Bob	899	60
Buchard, Anders	1631	122
Bucher, Bernard		11
Buchhagen, Jordan	506	34
Buchhagen, Jordan	1719	126
Buchko, Garry	2748	197
Bucholz, Brigette	2122	144
Büchs, Jochen	1367	108
Buck, C.	3034	211
Buckley, Daniel	336	27
Buckley, Daniel	2491	183
Buckley, Daniel	1383	109
Buckley, Daniel		229
Buckley, Daniel	2400	180
Buckley, Daniel	1428	111
Buckley, Daniel	1444	111
Buckner, Rebecca	2235	173
Buckner, Rebecca	749	53
Buckner, Rebecca	146	19
Buckner, Rebecca	1707	126
Buckner, Rebecca	93	16
Buckner, Rebecca	1711	126
Buckner, Rebecca	92	16
Budhathoki, Bimal	2118	144
Budvytiene, Indre		80
Bueno, Arnaldo	2992	209
Bueno, Susan	2743	197
Bueno, Susan	2727	197
Bueno de Mesquita, Matt	100	16
Bufano, Collin	1931	136
Buhse, Thomas	1681	125
Bui, Duy	3145	216
Bui, Girolama	2185	171
Bui, Nhat Khai	1817	131
Bui, Uyen	2251	173
Bui, Uyen	2781	199
Buisson, Christiane	180	20
Buisson, Christiane	2131	169
Bulgrin, Bronnyn	626	41
Bullard, James	1828	132
Bullard, Stephen	1906	135
Bullitt, Esther	1155	99
Bülow, Elena	485	34
Bunescu, Irina	2979	209
Bunge, John	2462	182
Bunnell, Annette	1510	114
Bunnell, Annette	1721	126
Buono, Sean	667	49
Buono, Sean	1586	118
Burall, Laurel	3059	212
Burall, Laurel	3058	212
Burans, James	567	38
Burbank, Malcolm	2402	180
Burch, Adrien	2475	183
Burd, Eileen	1236	103
Burd, Eileen	139	18
Burd, Helcio	1364	108
Burdass, Dariel	589	39
Burden, Derek	574	38
Burdsall, Deborah	2982	209
Burdz, Tamara	1186	100
Burgess, Catherine	1996	139
Burghout, Peter	1763	129
Burgos, Jonathan	883	59
Burke, Erin	1271	104
Burke, Thomas	1126	98
Burkhardt, David		219
Burkholder, Tate	1872	134
Burman, Bill	2977	209
Burmeister, William	2605	189
Burne, Robert	290	25
Burne, Robert	1357	108
Burne, Robert		160
Burnell, Jacqueline	143	19
Burnham, Carey-Ann		194
Burnham, Carey-Ann		194
Burnham, Carey-Ann	1249	103
Burnham, Carey-Ann	2975	209
Burnham, Carey-Ann	1720	126
Burnham, Carey-Ann	2256	174
Burns, Andrew	1391	109
Burns, Andrew	884	59
Burns, Andrew	881	59
Burns, Drusilla	1274	104
Burns, Justin	2565	187
Buron, Vladimir	2810	201
Burow, Luke	3085	213
Burrough, Eric	1607	119
Burrowes, Vanessa	1495	113
Burrows, Erik	2544	186
Burrows, Lori	78	15
Burrows, Lori L.	309	26
Burton, Robert	825	56
Burton, Whitney	332	27
Busch, Julia	2467	183
Buschiazzo, Emmanuel	1905	135
Buschiazzo, Emmanuel	1816	131
Buse, Helen	1437	111
Buse, Helen	2119	144
Bush, Karen	1095	97
Busman, Mark	2430	181
Bustamante, Paula	1293	105
Bustamante, Victor	1118	98
Bustamante, Victor	1679	124
Bustos, Jose	777	54
Bustos-Martínez, Jaime	2753	197
Bustos-Martínez, Jaime	1137	99
Bustos-Martínez, Jaime	1690	125
Butcher, Eugene	2115	144
Butland, Gareth	2948	207
Butler, Brian	1277	104
Butler, D.	2129	169
Butler, Meghan	1720	126
Butler, Meghan	1249	103
Butler-Wu, Susan	103	16
Buttaro, Bettina	2836	202
Buxton, Roger	2653	191
Buzzo, John	1376	109
Byappanahalli, Murulee	3105	214
Byappanahalli, Muruleedhara	2010	140
Byappanahalli, Muruleedhara	1515	115
Byappanahalli, Muruleedhara	1516	115
Bybee, Trevor	2351	178
Byington, C	2260	174
Byrd, Isaac	2852	203
Byrd, Wyatt	2344	177
Byrd, Wyatt	2126	169

C

Author	Poster Board	Session Number
Cabana, Michael	766	54
Cabán-Hernández, Kimberly	580	38
Cabán-Hernández, Kimberly	575	38
Cabezas, Luisa	2570	187
Cabezas, Maria	91	16
Cabral, Anderson	1894	135
Cabrera, B.	120	18
Cabrera-Alvar-Gonzalez, Javier	83	16
Cabrera-Alvar-Gonzalez, Jorge	98	16
Cabugao, Jasselle	1371	109
Cadieux, Nathalie	2673	191
Cadillo-Quiroz, Hinsby	1382	109
Cady, Kyle		149
Cady, Nathaniel	2138	169
Caesar, Anthony	2069	142
Caesar-TonThat, TheCan	2069	142
Cafaro, Matías	1819	131
Cafaro, Matías	1344	107
Cai, Lin	353	28
Cai, Lin	1452	111
Cai, Peng	1531	115
Caierão, Juliana	2779	199
Cain, Rion	1872	134
Calapai, Maria	616	41
Calcutt, Michael	867	58
Caldelari, Isabelle	705	51
Calderón, Iván	1118	98
Calderón, Iván	2921	206
Calders, Rudy	LB-06	233
Caldwell, Adam	1439	111
Caldwell, Harlan	2113	144
Caldwell, Harlan	2822	202
Calfee, Michael	1514	114
Calhoun, Leslie	LB-08	233
Calix, Juan	825	56
Calix, Juan	715	52

Author	Poster Board	Session Number
Call, Douglas	1015	65
Call, Douglas	1619	119
Call, Douglas	2739	197
Call, Douglas	466	33
Call, Dustin	2351	178
Callahan, Sean	223	22
Callaway, Ragan	3011	211
Callicott, Kenneth	2514	185
Callister, Stephen	401	30
Calnan, Wendy	1189	100
Calomiris, Jon	1029	66
Calum, Henrik	2837	202
Calva, Edmundo	1679	124
Calva, Edmundo	885	59
Calva, Edmundo	1118	98
Calvert, Alamanda	482	34
Calvo, Ana	2524	185
Camacho, Diogo		79
Camacho, Marcela	601	40
Camargo, F	1235	103
Camargo, Flavio	963	63
Cambray, Guillaume	213	22
Cambridge, Chino	835	56
Cameron, D.	1066	69
Cameron, Douglas	2538	186
Cameron, Douglas	1473	112
Cameron, Jeffrey	940	62
Cameron, Todd	907	61
Camesano, Terri	370	29
Camilli, Andrew	58	14
Cammarata, Robert	1222	102
Campagna, Shawn	1484	113
Campbell, Ashley		229
Campbell, Barry	1627	119
Campbell, Davina	114	17
Campbell, Davina	115	17
Campbell, Mary	1167	100
Campeau, Shelley	2197	171
Campellone, Kenneth	2850	203
Campioni, Fabio	2774	198
Campos, Juliana	1566	117
Campos-Rivera, Paola	2183	171
Canakis, Andrew	60	14
Candotti, Fabio		85
Caner, Vildan	466	33
Canfield, Gregory	679	50
Canfield, Gregory	2724	196
Cann, Isaac	945	63
Cannavo, Joseph	2814	201
Cannon, Mary Elizabeth	1319	106
Cannons, Andrew	2773	198
Cannons, Andrew	1713	126
Cannons, Andrew	1070	69
Cantão, Maurício	489	34
Cantarel, Brandi		85
Cantarelli, Vlademir	162	19
Canter, Jessica	859	58
Cantin, André	2172	170
Cantin, Greg	1471	112
Cantrell, Keri	479	33
Cantrell, Sharon	585	39
Cantrell, Sharon	1477	113
Cantú Cárdenas, Maria Elena	1829	132
Cao, Guojie	2639	190
Cao, Guojie	3042	212
Cao, Ling	75	15
Cao, Shenyan	982	64
Cao, Shenyan	2054	141
Cao, Shugeng		83
Cao, Weiping	548	37
Cao, Yanlu	1855	133
Cao, Yiping	3103	214
Cao, Yiping	3094	214
Cao, Yiping	3096	214
Cao, Yiping	3095	214
Caoili, Eddie	1207	101
Caon, Angelo	2810	201
Capes, Melinda	2650	190
Caplin, Jonathan	3117	214
Caporaso, Greg	320	27
Capps, Nancy	1621	119
Capps, Nancy	2086	143
Cappuccinelli, Piero	728	52
Cappuccio, Jenny		220
Capraro, Gerald	176	20
Caputo, Gregory	356	28
Caran, Kevin	2151	169
Caravelli, Andressa	684	50
Carazo-Carrión, Anamary	1916	136
Carballido-Lopez, Rut		5
Cardenas, David	1299	105
Cardenas, Erick	330	27
Cardona, Nestor	642	42
Cardona, Silvia	2180	171
Cardona-Castro, Nora	1064	68
Cardoso, Holly	933	62
Cardozo, Flávio	1430	111
Cardozo, Flávio	1400	110
Cardozo, Flávio	1416	110
Carey, Charles	849	57
Carey, Roberta		80
Carey, Roberta		96
Carini, Paul	1401	110
Carini, Paul	2092	143
Carl, Mike	2975	209
Carl, Mike	1817	131
Carl, Mike	2227	172
Carlos, Maria	1589	118
Carlos, Maria	3140	215
Carlson, Erin	845	57
Carlson, Erin	1791	130
Carlson, H. K.	2961	208
Carlson, Hans	2437	181
Carlson, Hans	2436	181
Carlson, Hans	1559	116
Carlson, Jonathan	656	49
Carlson, Kimberly	2682	195
Carlson, Kimberly	2103	143
Carlson, Paul	685	50
Carlson, Tyler	1075	69
Carlstrom, Charlotte	400	30
Carmany, Dan	2683	195
Carmany, Daniel	2038	141
Carmody, Lisa	771	54
Carmona, Ellese	2871	204
Carner, Margaret	2780	199
Carnes, Jodi	968	63
Caro-Aguilar, Ivette	569	38
Caro-Canales, Irma	1982	138
Caroff, Martine	729	52
Carolan, Heather	1228	102
Carolan, Jacob		79
Carpenter, Michael	985	64
Carr, Jennifer	2899	205
Carr, Jennifer	1650	123
Carrano, Carl	2404	180
Carrasquillo, Jean	2624	189
Carrell, Alyssa	3014	211
Carrell, Alyssa	505	34
Carreno, Mario	2073	142
Carretero, Pascal	136	18
Carrias, Abel	1621	119
Carrillo, A. Celena	1322	106
Carrillo, Alda	229	22
Carrillo-Yañez, Hector	3001	210
Carrillo-Yañez, Hector	3055	212
Carroll, Karen	1250	103
Carroll, Karen	1196	101
Carroll, Karen	2235	173
Carroll, Karen	130	18
Carroll, Karen		166
Carroll, Karen	90	16
Carroll, Karen	1237	103
Carroll, Karen	749	53
Carroll, Karen		166
Carroll , Karen	88	16
Carson, Monica	1776	129
Carswell, Jessica	2543	186
Carter, J	2547	186
Carter, J.	2540	186
Carter, J.	615	41
Carter, John	2548	186
Carter, Laurenda	3065	212
Carter, Michelle	1997	139
Carter, Michelle	2750	197
Carty, Nancy	1313	106
Caruso, Joseph	590	39
Carvalhaes, Cecilia	147	19
Carvalhanas, Telma	LB-03	233
Cary, Adam	972	64
Cary, Jeffrey	2524	185
Carychao, Diana	2539	186
Casabona, Maria	2228	172
Casadavall, Arturo		2
Casadavall, Arturo	1804	130
Casadevall, Arturo	819	56
Casadevall, Arturo	2386	179
Casadevall, Arturo		79
Casadevall, Arturo	797	55
Casadevall, Arturo	2354	178
Casadevall, Arturo	826	56
Casanova, A	1575	117
Casanova, Lisa	2603	189
Casanova, Lisa	1507	114
Casaroli, Caroline	1454	112
Casavant, Carol	2541	186
Casavant, Robert R.	969	63
Casciotti, Karen		87
Case, Rebecca		151
Cashdollar, Jennifer	1033	66
Casillas-Martinez, Lilliam		78
Caslake, Laurie	2922	206
Caslake, Laurie	2066	142
Caspi, Ron	2627	190
Cassassuce, Florence	2608	189
Cassel, Nicole	1304	106
Cassiday, Pamela	2783	199
Cassone, Marco	276	25
Castañeda-Ruelas, Marisol	388	29
Castanha, Cristina	327	27
Castanheira, Mariana	2758	198
Castanheira, Mariana	1641	123
Castanheira, Mariana	660	49
Castanheira, Mariana	1210	102
Castelle, Cindy	2943	207
Castellon, Juan	259	23
Castiaux, Virginie	3045	212
Castille, Deshala	871	59
Castillo, Carmelo	1624	119
Castillo, Mª Angeles	1530	115
Castillo, Nancy	2381	179
Castillo-Morales, Lucia	2593	188
Castric, Peter	71	15
Castriciano, Santina	177	20
Castriciano, Santina	748	53
Castrillón, D	1575	117
Castro, Marcia	2788	200
Castro, Nohelia	3003	210
Castro del Campo, Nohelia	3055	212
Castro Del-Campo, Nohelia	3001	210
Castro-del Campo, Nohelia	2607	189
Castro-del Campo, Nohelia	388	29
Castro-del Campo, Nohelia	2062	142
Castro-Gonzalez, Hector	3016	211
Castro-Lopez, Natalia	1800	130

Author	Poster Board	Session Number
Castro-Lopez, Natalia	1802	130
Catanzaro, Antonino	1193	101
Catanzaro, Antonino	1192	101
Cattoir, Vincent	309	26
Caufield, Page	61	14
Caulfield, Adam	2294	176
Caulfield, Adam	2867	203
Cauyan, Gil	3125	215
Cavaco, Courtney	2324	177
Cavalcante, Rafael	1454	112
Cavalcante, Rafael	829	56
Cavalcanti, Giselle	1904	135
Cavanaugh, Colleen	1436	111
Cazanave, Charles	138	18
Cazanave, Charles	89	16
Ceballos, Camila	2213	172
Cebula, Thomas	1542	116
Cebula, Thomas	484	34
CEGELSKI, LYNETTE	905	61
Cegelski, Lynette	2170	170
Cegelski, Lynette	1825	132
Ceja-Navarro, Javier	3022	211
Celen, Shari	2705	196
Celli, Jean	2822	202
Cellier, Marie	1217	102
Cellini, Andrea	1983	138
Cepeda, Martha	777	54
Cerca, Nuno	1878	134
Cerk, Brendan	200	21
Cerniglia, Carl	1492	113
Cerniglia, Carl	1491	113
Cerniglia, Carl	1089	97
Cerniglia, Carl	762	54
Cerniglia, Carl	448	32
Cerri, Domenico	1987	138
Cerwinka, Paul	1222	102
Cesar, Dionéia	489	34
Cespedes, Maria	209	21
Cetinic, Ivona	1378	109
Cha, Chang-Jun	1980	138
Cha, In Seok	1290	105
Cha, In Seok	1624	119
Cha, In Seok	1760	128
Cha, Jaeho	701	51
Chabalgoity, José	690	51
Chacón Vargas, Karla	1055	68
Chacón Vargas, Karla	1560	117
Chae, Jong Chan	2084	143
Chae, Jong-Chan	471	33
Chai, Benli	2626	190
Chai, Benli	2451	182
Chai, Benli	331	27
Chai, Benli	2507	184
Chai, Young Gyu	1692	125
Chaichi, Mohammad	1346	107
Chaidez, Cristobal	2607	189
Chaidez, Cristobal	3003	210
Chaidez, Cristobal	3001	210
Chaidez, Cristobal	664	49
Chaidez, Cristobal	3052	212
Chaidez, Cristobal	3055	212
Chaidez, Cristobal	1008	65
Chaidez, Cristobal	2062	142
Chaidez, Cristobal	388	29
Chain, Patrick	330	27
Chain, Patrick	2458	182
Chain, Patrick	322	27
Chain, Patrick	2750	197
Chakraborty, Romy	1925	136
Chakraborty, Romy	490	34
Chakraborty, Trinad	821	56
Chakravartty, Vandana	1348	108
Challacombe, Jean	961	63
Cham, Ojulu	1239	103
Chambaud, Isabelle	1988	138
Chamberlain, William	2292	175
Chamberland, Robin	2256	174
Chambers, Henry	2793	200
Chambers, Yildiz	2014	140
Chambovey, Alain	2687	195
Champagne, Marie-Josée	2009	140
Champion, Anna	714	52
Champlin, Franklin	16	12
Champlin, Franklin	1828	132
Chamseddine, Arije	650	49
Chan, Chi	2447	181
Chan, Chio Mui	1860	133
Chan, Crystal	2819	202
Chan, David	987	64
Chan, Elton	1306	106
Chan, Eva	495	34
Chan, Francis	2800	200
Chan, John	2395	180
Chan, Leo	2331	177
Chan, Peter	408	31
Chan, Pui	164	20
Chan, Rossana	989	64
Chanal, Angelique	993	64
Chandler, Jeffrey	2017	140
Chandler, Josephine		77
Chandonia, John-Marc	2949	207
Chandonia, John-Marc	2948	207
Chandra, Jyotsna	1799	130
Chandra, Jyotsna	1798	130
Chandra, Jyotsna	1796	130
Chandra, Subhash	2886	204
Chandramohan, Lakshmi	657	49
Chandramohan, Lakshmi	1231	103
Chang, Aimee Caye	3125	215
Chang, Alexander	1700	125
Chang, Chia-Wei	1056	68
Chang, Christophe	358	28
Chang, Chulhun	17	12
Chang, Chung	1044	67
Chang, E.	765	54
Chang, Fei	1494	113
Chang, Fu-Hsian	360	28
Chang, Gladys	1509	114
Chang, HeeSoon	756	54
Chang, Hsiao-Chuan	1874	134
Chang, In Seop	352	28
Chang, In Seop	343	28
Chang, In Seop	436	32
Chang, In Seop	2576	187
Chang, Jui-Jen	2901	205
Chang, Jui-Jen	341	28
Chang, Michelle		163
Chang, Perng-Kuang	2518	185
Chang, Phan-Shick	1845	133
Chang, Rosemary	2673	191
Chang, Tom	559	38
Chang, Yan	519	35
Chang, Yoonjee	1876	134
Chang, Yoonjee	3002	210
Chang, You-Cheng	1061	68
Chang, Yun	855	57
Chang, Yung-Fu	2886	204
Chang, Yungfu	2731	197
Chang, Yungfu	2730	197
Chang, Yungfu	2729	197
Chang, Zanetta	1300	105
Chang-Chien, Guo-Ping	429	31
Chang-Hwa, Song	804	55
Chan-Myers, Harriet	1509	114
Chan-Rodríguez, David	2957	208
Chan-Rodríguez, David	1018	65
Chanton, Jeff	326	27
Chanturia, G	1148	99
Chanturia, Gvantsa	LB-02	233
Chao, Lin	1546	116
Chao, Yanjie	214	22
Chapin, Kimberle	1237	103
Chapin, Kimberle	734	53
Chapin, Kimberle	733	53
Chapin, Travis	3053	212
Chapin-Robinson, Kimberle		48
Chapman, Belinda	1005	65
Chapman, Jessica	994	65
Chapman, Jessica	1725	126
Chappell, Jim	1705	126
Charkowski, Amy	1132	99
Charpentier, Emmanuelle		149
Charron, Mickaël	298	26
Chartrand, Jennifer	100	16
Charusanti, Pep	2525	185
Chary, Vasant	888	59
Chase, Eva	1039	67
Chastain, Brendon	271	24
Chatterjee, Som	2222	172
Chatterjee, Subhadeep		160
Chattopadhyay, Sujay	2636	190
Chattopadhyay, Sujay	1547	116
Chattopadhyay, Sujay	1540	116
Chattopadhyay, Sujay	2777	198
Chaturongakul, Soraya	2932	207
Chaturvedi, Ashok	1801	130
Chaturvedi, Sudha	2357	178
Chaturvedi, Sudha	2350	178
Chaturvedi, Vishnu	2357	178
Chaturvedi, Vishnu	840	57
Chaturvedi, Vishnu	2350	178
Chau, Jennifer	1737	127
Chau, Jennifer	1277	104
Chau, Rosanna	1936	136
Chau, Rosanna	258	23
Chau, Rosanna	247	23
Chaudhary, Manu	1636	122
Chaudhry, Rama	2765	198
Chaudhry, Sumra	1831	132
Chaudry, G	LB-10	233
Chauhan, Anil	3162	216
Chauhan, Archana	332	27
Chauhan, Ashvini	1895	135
Chauhan, Ashvini	1500	113
Chauhan, Sadhana	28	13
Chaurasia, Akhilesh	1487	113
Chavarria, Emmanuel	2500	184
Chavarria, Krysle	1926	136
Chavarria, Krystle		220
Chavez, Alba	3027	211
Chavez, Ana	1053	68
Chavez, Maria	584	39
Chavez, Renato	598	40
Chavez, Renato	2471	183
Chavez-Bueno, Susana	692	51
Chavez-Dozal, Alba	1754	128
Chazin, Walter	688	50
Checinska, Aleksandra	2402	180
Chee-Sanford, Joanne	1917	136
Chen, Aaron	2703	195
Chen, Arlene	1038	67
Chen, Arlene	2493	184
Chen, Arlene	1542	116
Chen, Bin	3100	214
Chen, Bin	3101	214
Chen, Bingming	2406	180
Chen, Chang-Chih	2662	191
Chen, Chao-Ying	2481	183
Chen, Cheng-Yu	1940	137
Chen, Chi	1353	108
Chen, Chien Li	1967	138
Chen, Chun	1129	98
Chen, Chun-Liang	2859	203
Chen, Feiming	2281	175
Chen, Feng	492	34

Author	Poster Board	Session Number
Chen, Guokai	1767	129
Chen, Hao	2311	176
Chen, Huang-Yau	1056	68
Chen, Huiyi		81
Chen, Huizhong	1495	113
Chen, Huizhong	448	32
Chen, Hung-Chia	2536	186
Chen, J.	1012	65
Chen, James	2536	186
Chen, Jenn-Wei	2730	197
Chen, Jenn-Wei	2729	197
Chen, Jenn-Wei	2731	197
Chen, Jenn-wei	2886	204
Chen, Jin-Qiang	2550	186
Chen, Jing	2637	190
Chen, John	2200	171
Chen, Kai	2532	186
Chen, Kai-Shun	2533	186
Chen, Kai-Shun	2553	186
Chen, Kevin	2703	195
Chen, Liang	2983	209
Chen, Liang	2804	201
Chen, Linna	2566	187
Chen, Linna	435	32
Chen, Qing	879	59
Chen, Qingwen	228	22
Chen, Rong	1230	102
Chen, Shiau-Chian	2662	191
Chen, Shicheng	1318	106
Chen, Shih-Shan	898	60
Chen, Shouyi	1073	69
Chen, Shu	2049	141
Chen, Tsute	281	25
Chen, Tzu-Hao	2024	140
Chen, W. Y.	1012	65
Chen, Wen-Jen	2232	172
Chen, Wilbur	815	56
Chen, Xiaoling	1620	119
Chen, Xiaotong	2218	172
Chen, Yahua	44	14
Chen, Yi	3038	212
Chen, Yi-Ming	1942	137
Chen, Yi-Ywan	916	62
Chen, Yu		85
Chen, Yu-Hsuan	893	60
Chen, Yuan-Chuan	1306	106
Chen, Zhiwei	973	64
Chen , Huan	306	26
Cheng, Chi Keung	2738	197
Cheng, Chorng	2532	186
Cheng, Chorng-Ming	2533	186
Cheng, Chorng-Ming	2553	186
Cheng, Gang	2682	195
Cheng, Karen	340	27
Cheng, Karen	1043	67
Cheng, Lei	1448	111
Cheng, Lei	1446	111
Cheng, Lei	955	63
Cheng, Luisa	2214	172
Cheng, Meng-Dawn	1043	67
Cheng, Pui	2747	197
Cheng, Zhihui	782	55
Cheng Vollmer, Amy		78
Cheong, Hoon	2295	176
Chern, Eunice	1521	115
Chern, Eunice	2050	141
Chernesky, Max	2289	175
Cherukuri, Keerthi	2408	180
Chessa, Daniela	728	52
Cheung, Gordon	2222	172
Cheung, Kong	1764	129
Cheung, Man Kit	2738	197
Cheung, William	2738	197
Chew, Cynthia Xin Yu	10	12
Chew, Cynthia Xin Yu	13	12
Chew, Lawrence	1471	112
Chhabra, Swapnil	2897	205
Chhabra, Swapnil	971	64
Chhabra, Swapnil	358	28
Chhabra, Swapnil	2948	207
Chhabra, Swapnil	991	64
Chhabra, Swapnil	973	64
Chi, B.	1361	108
Chi, Feng	2861	203
Chia, Bing Shao	1570	117
Chia, Bing-Shao	562	38
Chiang, Chao-Ming	2662	191
Chiang, Hsing-Mei	1818	131
Chiang, Y-C.	916	62
Chiang-Ni, Chuan	2797	200
Chibucos, Marcus	2911	205
Chiefari, Amy	1180	100
Chiem, Tania	2019	140
Chien, I-Chieh	1882	134
Chien, I-Chieh	1881	134
Childers, Susan	397	30
Childs, Lauren	1757	128
Childs, Tawanna	833	56
Chimetto, Luciane	2101	143
Chin, Kuk-Jeong	2091	143
Chin, Li-Te	1256	104
Chin, Tsu-Yuan	341	28
Ching, Yung-Hao	2024	140
Chintalacharuvu, Archana	2223	172
Chintalacharuvu, Koteswara	2223	172
Chistoserdov, Andrei	2053	141
Chitsaz, Hamidreza	2456	182
Chiu, Annie		217
Chiu, Bor-Han	2203	171
Chiu, C. P.	1990	139
Chiu, Charles	229	22
Chiu, Charles		167
Chiu, Charles		167
Chiu, Charles	2264	174
Chiu, Chih-Hsien	1730	127
Chiueh, Pei?Te	2024	140
Chivian, Dylan	973	64
Chivian, Dylan	991	64
Cho, Byung-Kwan	1468	112
Cho, Byung-Kwan	363	28
Cho, ByungKwan	1294	105
Cho, Eunae	981	64
Cho, Eunae	365	28
Cho, Hoonsik	1109	98
Cho, Ilseung		153
Cho, Jonathan	2421	181
Cho, Juliana	256	23
Cho, Kun-Ching	426	31
Cho, Kyung-Suk	3069	213
Cho, Kyung-Suk	3070	213
Cho, Kyung-suk	2063	142
Cho, Min-Jeong	373	29
Cho, Soo-Na	804	55
Cho, Yen-Ching	216	22
Cho, Yong-Hyun	1328	106
Cho, Yong-Hyun	293	25
Cho, Yong-Joon	2097	143
Cho, Young-Joon	2635	190
Chobert, Jean-Marc	2965	208
Choe, Yunjeong	716	52
Chohnan, Shigeru	2427	181
Chohnan, Shigeru	2426	181
Choi, Bong-Kyu	2885	204
Choi, Bong-Kyu	1736	127
Choi, Bong-Kyu	1732	127
Choi, Dong Geon	436	32
Choi, Euna	2290	175
Choi, Go	754	54
Choi, Han-Gyu	2676	191
Choi, Hee	1002	65
Choi, Hyo-Kyung	1846	133
Choi, In Geol	436	32
Choi, In-Geol	2576	187
Choi, Jae Min	365	28
Choi, Jae Min	981	64
Choi, Jessica	1406	110
Choi, Ji-Ae	804	55
Choi, Jung-Hye	1980	138
Choi, Ki Young	2084	143
Choi, Kyoung-Seong	2878	204
Choi, Megan	2948	207
Choi, Sang Ho	2706	196
Choi, Sang Ho	2889	204
Choi, Sang Ho	1120	98
Choi, Sang Ho	275	25
Choi, Sang Ho	1352	108
Choi, Sang Ho	1845	133
Choi, Sang Ho	2704	196
Choi, Sang Ho	62	14
Choi, Seon	2187	171
Choi, Seon	1038	67
Choi, Seon	484	34
Choi, Seon	1542	116
Choi, Soo-Keun	1986	138
Choi, Soo-Keun	2405	180
Choi, Sunju	2576	187
Choi, Yu-Jung	2885	204
Choi, Yu-Jung	1732	127
Choi, Yu-Jung	1736	127
Choi, Yung-Hyun	843	57
Chomel, Bruno		86
Chon, Jung-Whan	1004	65
Chong, Haengcha	1723	126
Chong, Hui Qing	462	33
Chopp, David	902	61
Chorover, Jon	472	33
Chou, Andrew	2682	195
Chou, Chung-Hsi	1730	127
Chou, Chung-Hsi	3127	215
Chou, Han-ting	599	40
Chou, Kyson	2537	186
Chou, Luoth	3058	212
Chou, Seemay	2227	172
Chou, Siaw Kiang	982	64
Choudhari, Shaymal	1680	125
Choudhari, Shyamal	2218	172
Choudhari, Shyamal	1701	125
Choudhary, Geetika	2855	203
Choudhury, Momena	1331	107
Choudhury, Saugata	1216	102
Choudoir, Mallory		229
Chourey, K.	2498	184
Chourey, Karuna	340	27
Chourey, Karuna	944	63
Chourey, Karuna	943	63
Chourney, Karuna	3082	213
Chourney, Koruna		152
Chow, Elaine	3021	211
Chow, Jomay	1979	138
Chow, Sek	228	22
Chow, Siu-Kei	826	56
Chowdhury, Fatema	2872	204
Chowdhury Paul, Sangita	1844	133
Choy, Hyon E.	1107	98
Christen, Matthias	253	23
Christensen, K.		226
Christensen, Kyle	3060	212
Christian, L.	1486	113
Christie, Gail	1872	134
Christie, Gail	1878	134
Christie, Gail	301	26
Christner, B.	406	30
Christner, Brent	1897	135
Christophersen, Lars	1262	104
Christophersen, Lars	2837	202

Author	Poster Board	Session Number
Chrzanowski, Thomas	2058	141
Chrzanowski, Thomas	3011	211
Chu, Binh	1886	135
Chu, Chishih	1614	119
Chu, Chishih	1256	104
Chu, Kung-Hui	2061	142
Chu, Kung-Hui	426	31
Chu, Kung-Hui	432	31
Chu, Kung-Hui	431	31
Chu, Sheena	669	49
Chu, Steven		76
Chu, Tin-Chun	2153	169
Chu, Tin-Chun	2142	169
Chu, Tin-Chun	1407	110
Chu, Ying	1521	115
Chua, Te-Kuan	447	32
Chua, Teck	977	64
Chuang, Yu-Min	2659	191
Chuang, Yu-Min	2657	191
Chuenchitra, Thippawan	1597	118
Chukkapalli, Sasanka	2311	176
Chukwuanukwu, Rebecca	2363	178
Chukwuma, Chioma	2363	178
Chum, Winnie	2738	197
Chun, Chan Lan	1515	115
Chun, Jongsik	2187	171
Chun, Jongsik	2416	180
Chun, Jongsik	2635	190
Chun, Jongsik	2097	143
Chun, Se-Jin	227	22
Chung, Dawoon	841	57
Chung, Robert	2395	180
Church, Bruce	418	31
Church, Bruce	421	31
Church, John	3149	216
Churchill, Mair	696	51
Ciofu, Oana	1083	97
Cioni, Joel	2963	208
Ciou, Yong-Ping	1940	137
Cirimotich, Chris		156
Cisar, Cindy	2059	142
Cisneros, Jessica	268	24
Cisneros, Jessica	269	24
Citti, Christine		157
Ciuffo, Marina	557	37
Claassen, Stephanie	2812	201
Claesen, Jan		77
Clancy, Kevin		81
Clancy, Kevin	2945	207
Clardy, John	1914	136
Clardy, Jon		83
Clarizia, Lisa-Jo	1253	103
Clark, Alison	1951	137
Clark, Andrew	721	52
Clark, Douglas		225
Clark, Iain	2437	181
Clark, Iain	2436	181
Clark, Iain	1559	116
Clark, Ian	1915	136
Clark, Ian	951	63
Clark, Jasmine		230
Clark, Nivedita	2377	179
Clark, Rex	2236	173
Clark, Richard	1222	102
Clark, Richard	1199	101
Clarke, Anthony	926	62
Clarke, Anthony	935	62
Clarke, Anthony	927	62
Clarke, Aryel	523	36
Clarke, Edwina	2504	184
Clarke, Sean	1538	116
Clarridge, Jill	2794	200
Clarridge, Jill	2781	199
Clarridge, Jill	2251	173
Claverie, Jean		162
Clavijo, Alfonso	1603	119
Clayden, Robert	2220	172
Clayden, Robert	1702	125
Clayton, April		156
Clayton, James	3130	215
Cleary, Ian	1801	130
Clegg, Steven	1547	116
Cleghorn, Michael	2417	180
Clement, Ernest	2357	178
Clemente, Jose	3033	211
Clevinger, Curtis	2470	183
Clifford, Robert	654	49
Clifton, Sandra	2099	143
Clinical and Epidemiological Team Work of Hospital Sentinels of São Paulo district	LB-03	233
Clinical Microbiology Service	174	20
Clinical Microbiology Service	174	20
Clinical Microbiology Service	174	20
Clinton, Allie	1258	104
Clinton, Allie	2155	170
Close, Dan	1456	112
Close, Dan	1455	112
Closek, Collin	1905	135
Closek, Collin	1816	131
Clotilde, Laurie	2548	186
Clotilde, Laurie	2547	186
Clotilde, Laurie	2540	186
Cloutier, Danielle	3076	213
Coady, Alison	1768	129
Coate, Eric	2207	172
Coates, J. D.	2961	208
Coates, John	2951	208
Coates, John	400	30
Coates, John	2436	181
Coates, John	2440	181
Coates, John	2437	181
Coates, John	449	32
Coates, John	1460	112
Coates, John	1559	116
Coats, Erik	345	28
Coats, Karen	543	37
Coats, Mamie	2820	202
Coats, Mamie	2375	179
Coats, Stephen	2310	176
Cobb, Jesse	370	29
Cobine, Paul	1621	119
Cochran, Stacey	1036	66
Cockayne, Alan	1179	100
Cockerill, Franklin	1164	100
Codd, Sarah	1897	135
Codee, Jeroen	724	52
Coelho, Carolina	797	55
Coelho, Cíntia	489	34
Coelho, Idelta	668	49
Coelho-Souza, Talita	2755	198
Coenye, Tom	2705	196
Coetzee, Gerrit	1193	101
Coffey, Barbara	46	14
Coffman, Jonathan	369	29
Cofre-Araneda, Glenda	196	21
Cogan, Tristan	1003	65
Cohen, Ilana	2868	204
Cohen, Jacob	79	15
Cohen, Mitchell	1780	129
Cohen, Paul	678	50
Cohen, Sam	1195	101
Cohen Stuart, J.	1093	97
Cohen Stuart, James	2756	198
Cohen-Or, Ifat	1349	108
Cohn, Marianne	1655	123
Coillins, James		79
Coker, James	2967	208
Colasante, Georgia	92	16
Colasante, Georgia	93	16
Cole, Alexander	544	37
Cole, Alexander	1784	129
Cole, Alexander	2984	209
Cole, Alexander	1785	129
Cole, Amy	1784	129
Cole, Amy	544	37
Cole, Amy	1785	129
Cole, Brett	2309	176
Cole, Garry	2345B	177
Cole, Garry	1802	130
Cole, Garry	1800	130
Cole, James	765	54
Cole, James	330	27
Cole, James	331	27
Cole, James	2626	190
Cole, James	2451	182
Cole, James	2507	184
Cole, Jim	463	33
Cole, Stephen	630	41
Cole, Stephen	629	41
Coleman, Russell	1471	112
Collao, Bernardo	2921	206
Collier, Stephanie	863	58
Collin, Mattias	2304	176
Collinetti, Esther	801	55
Collings, David	188	21
Collins, Andrew	1331	107
Collins, James		2
Collins, James	2685	195
Collins, James	791	55
Collison, Lisa	2925	206
Collo, Melizza Jane	3125	215
Colman, Rebecca	1719	126
Colman, Rebecca	506	34
Colon-Guasp, Wilfredo	2012	140
Colón-Lorenzo, Emilee	643	42
Colonna, Marco		231
COLORES, GREGORY	2508	184
Coloso, James	1406	110
Coltella, Luana	1579	117
Colvin, Kelly		225
Colwell, Rita	1038	67
Colwell, Rita	2187	171
Colwell, Rita	2493	184
Colwell, Rita	1733	127
Colwell, Rita	484	34
Colwell, Rita	1542	116
Comas, Inaki	2653	191
Comolli, Luis	1394	109
Compton, Kylene	937	62
Condell, Orla	1996	139
Conkey, Bev	2234	173
Conlan, Sean	755	54
Conlan, Sean		85
Conlan, Sean	774	54
Conly, John	1264	104
Connetti, Jacqueline	1650	123
Connon, Stephanie		152
Connor, Lynn	1917	136
Conrad, Alison	1373	109
Conrad, Patricia		90
Contag, Christopher		230
Conter, Laura	748	53
Contreras, Heidi		84
Contreras, Ines	2747	197
Contreras, Inés	2740	197
Contreras, Monica	3146	216
Contreras Cordero, Juan	2523	185
Contreras-Cordero, Juan	530	36
Converse, Paul	1563	117
Converse, Paul	1562	117
Converse, Reagan	2001	140
Conway, Tyrrell	678	50
Cook, Darcie	2421	181
Cook, James	1635	122

Author	Poster Board	Session Number
Cook, Peggy	1020	65
??		
Cooke, Cara	2823	202
Cooke, Peter	1647	123
Cooley, Benjamin		76
Cooley, Kristin	3148	216
Cooley, Louise	3136	215
Cooley, Michael	2042	141
Cooley, Michael	2539	186
Cooley, Michael	2062	142
Cooley, Michael	1462	112
Coombes, Brian		84
Coombes, Brian	677	50
Cooper, Cindy	1527	115
Cooper, Kerry	2750	197
Cooper, Lauren	2181	171
Cooper, Rebecca	1393	109
Cooper, Tim	1834	132
Cooper, Timothy		221
Cooper, William	326	27
Cope, Leslie	830	56
Cope, Sara	1659	124
Copeland, A.	2096	143
Coradin, Mariel	2624	189
Corbeil, Marie-Michelle	1337	107
Corbett, J.	326	27
Corby-Harris, Vanessa	1764	129
Corcionivoschi, Nicolae	780	55
Corcoran, Jennifer	847	57
Cordero, Otto	2105	143
Cordero, Otto		148
Cornelis, Pierre	2726	196
Cornelis, Pierre	1143	99
Cornelisen, Chris	3111	214
Cornet, François	872	59
Cornish, Nancy		193
Correa, Jose	1331	107
Corrier, Kristen	318	27
Cortes, Teresa	2653	191
Cortes Garcia, Mario	1816	131
Cortese, Margaret	2264	174
Corzett, Christopher		221
Cossart, Pascale		219
Costa, G	2945	207
Costa Jr., Valmir	1511	114
Costa-Hurtado, Mar	1612	119
Costello, Elizabeth	3033	211
Costello, Elizabeth		153
Costner, Jamie	2417	180
Cota-Alvarez, America	3055	212
Cote, Christopher	1689	125
Cote, Christopher	810	56
Cote, Christopher	812	56
Cote, Pamela	683	50
Cote, Pamela	1671	124
Cote, Pamela	1125	98
Côté, Jean-Sébastien	746	53
Cotrupe, Catherine	2924	206
Cott Chubiz, Jessica	187	21
Cotta, Michael	1955	137
Cotta, Michael	1431	111
Cotta, Michael	350	28
Cott-Chubiz, Jessica	1674	124
Cotter, Peggy		161
Cotter, Peggy		161
Cotter, Peggy		160
Cotter, Peggy	1122	98
Cotty, Peter	2514	185
Cougnoux, Antony	2372	179
Couliby, Maimouna	2387	179
Coull, James	93	16
Coull, James	1711	126
Coull, James	92	16
Coulson, Thomas	882	59
Courbière, Estelle	1217	102
Courcol, René	1633	122
Courcol, René	108	17
Courtois, Sophie	2039	141
Courvalin, Patrice	1658	123
Courvalin, Patrice		93
Couté, Yohann	2228	172
Couturier, Brianne	1206	101
Couturier, Marc	1201	101
Couturier, Marc	2995	209
Covert, Markus	2625	190
Covert, Markus	303	26
Covert, Markus	866	58
Cox, Eric	297	26
Cox, Georgina	1644	123
Cox, Laura		153
Cox, Nancy	548	37
Coyle, Scott		217
Coyne, Sarah	1169	100
Crable, Bryan	2441	181
Crabtree, Juliet	1792	130
Craft, David		95
Craft, David		95
Crago, Bryanne	753	54
Cramer, Jeffrey	2563	187
Cramer, Robert		79
Cramer, Robert		79
Cramer, Robert	849	57
Cramer, Robert	841	57
Cramer Jr., Robert	853	57
Crandall, Claudia	3124	215
Crane, John	2126	169
Crane, John	2852	203
Crarey, Emily	1994	139
Craven, Heather	1007	65
Craven, Kathryn	633	41
Crawford, Jamaal	149	19
Crawford, Kevin	2923	206
Crawford, Robert	725	52
Cremers, David	1465	112
Crépin, Sébastien	2388	179
Cresawn, Steven	1872	134
Crespo, Rocio	2541	186
Crespo-Medina, Melitza	1908	135
Crespo-Rodriguez, Maria	996	65
Criddle, Craig	2586	188
Criddle, Craig	1469	112
Crisler, James	1910	135
Crisp, Rob	2233	173
Crisp, Robert	1239	103
Crisp, Robert	2260	174
Crispell, Emily	2114	144
Criss, Alison		159
Crist, Arthur	2265	174
Crist, Arthur	2242	173
Crofts, Terence		148
Crofts, Terence	2433	181
Cromme, Christoph	2843	203
Cromwell, William	2511	185
Crona, Kristina	2905	205
Cronan, John	354	28
Cronan, John	1348	108
Cronan, John	277	25
Crosby, Kathleen	64	14
Cross, Alan	2208	172
Cross, Alan	2892	204
Crosson, Sean		226
Crosthwait, Jennifer	1261	104
Crouch, Marie	674	50
Crowe, Chris	2548	186
Crowe, Jason	1071	69
Crowley, David	1041	67
Crowley, David	1493	113
Crowley, Paula	915	62
Crozier, J.	3119	214
Crozier, J. Brooks	3106	214
Cruchon, Mélina	851	57
Crudu, Valeriu	1193	101
Crudu, Valeriu	1058	68
Cruz, Ariadnna	3161	216
Cruz Morales, Michelle	1342	107
Cruz-Fisher, Maria	3158	216
Cruz-Garcia, Claribel	2968	208
Cruz-Nicolás, Guillermo	1960	137
Crystal, Benjamin	93	16
Csencsits, Roseann	2087	143
Cuaron, Jesus	1652	123
Cuaron, Jesus	1647	123
Cude, William	1402	110
Cuebas-Irizarry, Mara	1528	115
Cuenca-Verde, Cesar	2307	176
Cuenca-Verde, César	621	41
Cuesta, G	2021	140
Cuevas, Daniel	2101	143
Cuevas, Luis	987	64
Cuevas-Glory, Luis	2957	208
Cugini, Carla	39	13
Cui, Longzhu	560	38
Cullberg, Malin	2282	175
Culotti, Alessandro	1820	131
Culumber, Michele	266	24
Culumber, Michele	262	24
Cummings, C	2945	207
Cummings, Craig	2857	203
Cummins, Carol	2288	175
Cummins, Carol	1708	126
Cunderla, Brent	1910	135
Cunha, Antônio	2992	209
Cunningham, Francis		45
Cunningham, Scott	89	16
Cunningham, Scott	2803	201
Cunningham, Scott	1244	103
Cuomo, Christina		151
Curel, Christian	136	18
Currie, Bart	506	34
Currie, Bart	1719	126
Currie, Cameron	481	33
Currie, Cameron		83
Currie, Christopher	440	32
Currie, Devin	986	64
Curtis, Daniel	2586	188
Curtis, Jeffrey	1806	130
Curtis, S.	3061	212
Curtiss, Roy	2329	177
Curtiss, Roy	81	15
Curtiss, Roy	2403	180
Curtiss III, Roy	254	23
Cushion, Melanie	1787	130
Cutler, Sally		86
Cutright, Teresa	2148	169
Cvitkovitch, Dennis	2702	195
Cywes Bentley, Colette	2336	177
Cywes-Bentely, Colette		225
Cywes-Bentley, Colette	848	57
Czarnecka, Jolanta	2287	175
Czarnecki, Marlene	2	12
Czornyj, Elizabeth	2202	171

D

Author	Poster Board	Session Number
d'Enfert, Christophe	1790	130
D'Hondt, Rebecca	2827	202
da Silva, Aline		160
da Silva, Manoela	2270	174
da Silva, Miriam	2188	171
da Silva, Teane	793	55
Dabisch, Jennifer	1248	103
Dabisch, Jennifer	2267	174
Dabo, Sira	1586	118
Dada, Nsa	2032	141
Dadachova, Ekaterina	2354	178
Dadhania, Vipulkumar	738	53

Author	Poster Board	Session Number
Dadhania, Vipulkumar	169	20
Dadson, Robert	457	33
Dagit, Rosi	3122	214
D'Agostino, Christina	1317	106
Dahl, Robert	1458	112
Dahlberg, Albert	2899	205
Dahlberg, Albert	1650	123
Dai, Dongjuan	246	23
Dai, Lei	3157	216
Dai, Ru-Yu	1942	137
Daibo, Onesirosan	3132	215
Daines, Dayle	781	55
Dakay, Katarina	451	32
Dako, Étienne	2385	179
Dalbøge, Christina	1631	122
Daley, C	1575	117
Dalhoff, Kim	1631	122
Dall Bello, Aline	2353	178
Dallaire, Geneviève	1605	119
Dalmasso, Guillaume	2372	179
Dalsing, Beth	23	13
Dalvi, Sonal	1486	113
Daly, Judy	1716	126
Daly, Judy	2233	173
Daly, Judy	1239	103
Daly, Judy	2238	173
Daly, Judy	2240	173
Dam, Lisa	128	18
Dam, Lisa	130	18
Damashek, Julian	1901	135
Damkiær, Søren	1103	97
Damkiær, Søren	1558	116
Damron, F.	696	51
Dan, X. L.	1011	65
Danboise, Brook	2267	174
Dandro, Amy	114	17
Dandro, Amy	115	17
Danelishvili, Lia	803	55
Dangi, Tanushree	2801	200
Daniel, Kia	919	62
Daniel, Rolf	1409	110
Daniel, Rolf	2085	143
Danielson, Richard	2081	142
Danton, Makenzie	2596	188
Danyluk, Michelle	385	29
Danzeisen, Jessica	482	34
Dao, Doan-hieu	76	15
Dao, My	79	15
Dapkevicius, Maria de Lurdes Nunes Enes	402	30
Dar, Shabir	1385	109
Dara, Jasmeen	2804	201
Darabpour, Esmaeil	470	33
Darcy, Jack	949	63
Darjany, Lindsay	965	63
Darji, Ayub	821	56
Darkoh, Charles	1115	98
Darling, Aaron	495	34
Darnell, Stephen	1743	127
Darnell, Steve	810	56
Daroub, Samira	338	27
Darst, Seth		81
Dartt, Darlene	2842	203
Darveau, Richard	2310	176
Darville, Toni	794	55
Darville, Toni	2325	177
Darwin, Andrew	1325	106
Das, Bimal	2765	198
Das, K	856	58
Das, Sanchita	2786	199
Das Neves, Luiz	1511	114
Das Neves, Luiz	1512	114
Dasari, Samyuktha	1303	106
Dasch, Gregory	1553	116
Dasch, Gregory		156
DaSilva, Evan	1810	131
Da-Silva, Livia	2992	209
Dassa, Bareket		152
Dassanayake, Rohana	1619	119
DasSarma, Priya	2650	190
DasSarma, Shiladitya	2650	190
Datcu, Raluca	2283	175
Datsenko, Kirill	3006	210
Datta, Anirban	2865	203
Datta, Atin	3058	212
Datta, Atin	3059	212
Datta, Kausik	563	38
Datta, Suchitra	2410	180
Daugherty, Sean		157
Dave, Johnson	464	33
Davenhill, Pamela	2773	198
Davey, Mary-Ellen	39	13
David, Donna	1105	97
David, Maude	318	27
David, Oluwole	1995	139
Davidson, Alan	309	26
Davidson, John	3024	211
Davidson, Maureen	3158	216
Davies, Julian	1864	133
Davies, Tiffany	1095	97
Davila, Maria	2362	178
Davila-Romero, Luis	530	36
Dávila-Velderrain, José	2667	191
Dávila-Velderrain, José	1642	123
Davis, Lora	1059	68
Davis, Danielle	1016	65
Davis, Debra	954	63
Davis, Elaine	2653	191
Davis, Ellen	270	24
Davis, Jenna	1502	114
Davis, Justin	1211	102
Davis, Mari	2052	141
Davis, Meghan	3160	216
Davis, Michael	1806	130
Davis, Michael		79
Davis, Nicole	1660	124
Davis, Thomas	1707	126
Davis, Thomas	107	17
Davis, Thomas	2235	173
Davis, Thomas	2805	201
Davis, Thomas	2290	175
Davis, Thomas	749	53
Davis, Thomas	2806	201
Davis, Timothy	176	20
Davis, Tom	146	19
Davis, Tom	1171	100
Davison, James	3156	216
Davison, Michelle	299	26
Davis-Richardson, Austin	338	27
Davis-Richardson, Austin	963	63
Dayrit, Jeremy		79
Dayrit, Jeremy	1806	130
D'Azevedo, Pedro	162	19
D'Azevedo, Pedro	2125	144
D'Azevedo, Pedro	2779	199
Dbaibo, Ghassan	650	49
de Aquino-Lopez, Jose Alexis	2608	189
de Bruijn, Frans	1334	107
De Buck, Jeroen	1583	117
de Castro-Ontengco, Delia	118	18
De Filippis, Ana Maria	2270	174
de Jager, Peter	1706	126
De Jesus, Magdia	2870	204
De Jesús, Antonio	2549	186
De la Cruz, Miguel	1679	124
de la Maza, Luis	820	56
de la Maza, Luis M.	2364	178
de Leeuw, Erik	2679	195
De Leon, Justin	2227	172
de Leoz, Maria	778	54
De Long, Susan	2040	141
De Masi, Leon	2831	202
De Masi, Leon	726	52
de Moissac, Danielle	2387	179
de Oliveira, Aline	2153	169
de Oliveira, Aline	2142	169
de Paula, Sérgio	1265	104
de Sousa, Carla	2270	174
de Vries, Stefan	1763	129
Deak, Eszter	2093	143
DEAN, AMY	2791	200
DeAraujo, Alice	2505	184
DeAraujo, Alice	2035	141
Dearborn, Altaira		85
deArruda Indig, Monica	165	20
De-Azeredo, Andrea	2992	209
Deb, Manorama	2765	198
DeBardeleben, Hilary	304	26
Debnath, Anjan	1638	122
Deck, Joanna	2373	179
Deck, Melissa	1711	126
Deck, Melissa	92	16
Deck, Melisssa	93	16
Dedrick, Rebekah	2998	210
Dedrick, Rebekah	296	26
Deerinck, T	2498	184
Dehal, Paramvir	2409	180
Dehal, Paramvir	1862	133
Dehghani, Fariba	1948	137
Dehner, Carolyn	683	50
Dehner, Carolyn	1125	98
Deike, Paige	1099	97
Deiwick, Susanne	2734	197
Dejsirilert, Surang	1255	103
Deka, Srilekha	2258	174
Dekas, A	2498	184
Dekhtyar, Alexander	1933	136
Dekimpe, Valérie	2172	170
Dekker, Nynke	876	59
Del Bel Cury, Altair	2206	171
del Cardayre, Stephen	1458	112
del Castillo, Carmelo	2195	171
Del Cid, Abdiel	598	40
Del Mastro, Richard	573	38
del Olmo-Fernández, Esther	1642	123
Del Portillo, Patricia	777	54
Del Re, Deanna	2702	195
Delacruz-Calvo, Fernando	3036	211
de-la-Torre, Alejandra	642	42
Delbrassinne, Laurence	3045	212
DeLeo, Frank	1683	125
DeLeon, Stephanie	1258	104
Deleon, Stephanie	2155	170
Delgado, Anca	415	31
Delgado, Daniel	2583	188
Delgado, Javier	2007	140
Delgado, Julio	2121	144
Delgado, Luisa	777	54
DeLisa, Matthew	914	61
Della Latta, Phyllis	93	16
Della Latta, Phyllis	92	16
Della Latta, Phyllis	1711	126
Della-Latta, Phyllis	1173	100
Dell'Aringa, Mark	1417	110
Dellone, Bernadette	2281	175
Delmas, Julien	2372	179
Delneri, Daniela	234	22
DeLong, Edward	2460	182
Delwart, Eric		167
Dembele, Marieme	1589	118
Demcovitz, Dina	868	58
Demeter, Janos	2632	190
Deming, Clay	755	54
Deming, Clay		85
Deming, Clay	774	54

Author	Poster Board	Session Number
Demirci, Hasan	1650	123
Deml, Sharon	1194	101
Demons, Samandra	1205	101
Demoor, Tine	3035	211
Dempsey, Graham		76
Dempsey, Kate	561	38
den Bakker, Henk	1873	134
den Bakker, Henk	2857	203
Denef, Vincent	966	63
Denef, Vincent	2090	143
Denes, Thomas	1873	134
Deng, Kaiping	380	29
Deng, Ye	958	63
Deng, Ye	1446	111
Deng, Ye	3074	213
Deng, Ye	324	27
Deng, Ye	1920	136
Deng, Ye	3092	213
Deng, Ye	405	30
Deng, Ye	951	63
Deng, Ye	2482	183
Deng, Ye	1445	111
Deng, Ye	3081	213
Deng, Ye	1447	111
Deng, Ye	955	63
Deng, Ye	2586	188
Deng, Ye	2629	190
Deng, Ye	2503	184
Deng, Ye	956	63
Deng, Ye	953	63
Deng, Ye	3080	213
Deng, Ye	3080	213
Deng, Ye	1915	136
Deng, Ye	2458	182
Deng, Yijie	1405	110
Dennis, Philip	424	31
Dennis, Vida	2691	195
Dennis, Vida	535	36
Dennis, Vida	1738	127
Dennis, Vida	2375	179
Dennis, Vida	538	36
Dennis, Vida	814	56
Dennis, Vida	534	36
Dennis, Vida	834	56
Dennis, Vida	835	56
Denorme, Laurence	2249	173
Denson, Jackie	968	63
Denson, Jackie	625	41
Denton, Kyle	2934	207
Denys, Gerald	2237	173
Denys, Gerald	2240	173
Deora, Rajendar		225
Deora, Rajendar		225
DePass, Christina	77	15
Deresinski, Stanley		93
Deringer, James	1015	65
Deriu, Elisa		84
Dersch, Petra	1111	98
Deryabin, P.	3133	215
DeRyke, C.	1211	102
Desai, Harsha	1227	102
Desai, Kunal	2902	205
Desai, L	518	35
Desai, Prerak	2921	206
Desai, Prerak	2099	143
Desai, Prerak	2739	197
Desai, Shailesh	2272	174
DeSalvo, Michael	2939	207
DeSantis, Rebecca	899	60
DeSantis, Todd	894	60
DeSantis, Todd	1399	110
Deschamps, Jeffrey	2497	184
DeShong, Phillip	2328	177
Deshpande, Lalitagauri	2758	198
Deshpande, Samir	1465	112
Desin, Taseen	2817	202
DesJardin, Lucy	1705	126
Desjarlais, Andre	1043	67
Desmarais, Samantha	1826	132
Desmond, Edward	1193	101
Desmond, Edward	1578	117
Desmond, Edward	1192	101
Desy, Randi	1810	131
DeTolla, Louis	1145	99
Detter, Chris	1586	118
Detweiler, Corrie	708	51
Deutch, C.	36	13
Deutschbauer, Adam	2443	181
Deutschbauer, Adam	2935	207
Deutschbauer, Adam	884	59
Deutschbauer, Adam	881	59
Devareddy, Latha	1968	138
DeVeaux, Linda	878	59
Devlioglu, Omer		76
Devulder, Gregory	1464	112
Dewell, Renee	624	41
Dewhirst, Floyd	758	54
Dewhirst, Floyd	3032	211
Dey, Arup		148
Dey, Swati	2446	181
Déziel, Eric	2172	170
D'haeseleer, Patrik	584	39
Dhakephalkar, Prashant	2971	209
Dhakwa, Jyoti	517	35
Dhandayuthapani, S.	856	58
Dhar, Amlanjyoti	3005	210
Dhar, Rita	1161	100
Dhariwala, Miqdad	2866	203
Dharmasena, Madushini	817	56
Dhiman, Neelam	87	16
Dhole, Tapan	2877	204
Dhole, Tapan	LB-01	233
Dhole, Tapan	1636	122
Dhungana, Nirmala	335	27
Dhyani, Ruchi	2702	195
Di, Doris Yoong Wen	920	62
Di Pietrantonio, Lucrezia	1579	117
Diagne, Cheikh-Tidiane	872	59
Diarra, Moussa Sory	1604	119
Dias, Cicero	85	16
Dias, Roberto	1265	104
Diavatopoulos, Dimitri	1763	129
Diaz, Sandra	136	18
Díaz, Adriana	529	36
Díaz, Greetchen	606	40
Diaz- Camacho, Miguel	2012	140
Diaz Heijtz, Rochellys		164
Diaz-Almeyda, Erika	2939	207
Diaz-Decaro, John	1586	118
Diaz-Munoz, Samuel	1546	116
Diaz-Ochoa, Vladimir	680	50
Diaz-Ruiz, Gloria	1001	65
Dice, Lezlee	1027	66
DiChristina, Thomas	1377	109
DiChristina, Thomas	2574	187
DiChristina, Thomas	1393	109
DiChristina, Thomas	1397	109
Dickenson, Nicholas	1680	125
Dickenson, Nicholas	1155	99
Dickenson, Nicholas	1701	125
Dickenson, Nicholas	911	61
Dickerson, Tamar	1892	135
Dickey, Mandy	2238	173
Dickinson, Michelle	1180	100
Dickschat, Jeroen	2438	181
Dickson, Alexa	542	37
Dickson, James	3039	212
Diehl, Susan	2933	207
Diehl, Susan	1042	67
Diekema, Dan		166
Diekema, Daniel	2986	209
Diekema, Daniel	1210	102
Diekema, Daniel	104	16
Dien Bard, Jennifer	2241	173
Dien Bard, Jennifer	84	16
Diep, Binh	2793	200
Dierick, Katelijne	3045	212
Dieterle, María	1871	134
Dieye, Yahkya	2741	197
Diez-Gonzalez, Francisco	3060	212
Diez-Gonzalez, Francisco	3056	212
Diez-Gonzalez, Francisco	1848	133
Dill, Emma	1830	132
Dillard, Joseph	2225	172
Dillon, Jesse	1414	110
Dillon, Jesse	1421	110
Dillon, Jesse	965	63
Dillon, Jesse	1404	110
DiMarzio, Michael	2746	197
Dimas, Gloria	2581	188
Dimitracopoulos, George	202	21
Dimitrakopoulos, Odyssefs	202	21
Dimitriadis, Emilios	1283	105
Dimopoulos, George		156
Dinetti, Janet	177	20
Ding, Chang	414	31
Ding, Gangqiang	105	17
Ding, Hua	712	51
Ding, Xinxin	1704	125
Dingle, Tanis	2831	202
Dinh, Christopher	1767	129
Dinis, Jorge	760	54
Diniz, Cláudio	489	34
Dinsdale, Elizabeth	2467	183
Dinsdale, Elizabeth	2101	143
Dinsdale, Elizabeth	3025	211
DIONNE, KIM	1196	101
Dionne, Kim	1562	117
Dionne, Kim	1563	117
Dionne, Natasha	137	18
DiPersio, Joeseph	2243	173
DiPersio, Joseph	125	18
DiPersio, Joseph	87	16
DiPersio, Joseph	1170	100
DiPersio, Linda	1170	100
DiRita, Victor	1127	98
DiRita, Victor	1117	98
DiRita, Victor		84
Dirk, Gevers	761	54
Dirk, Springael	464	33
Disashi, Tumba	1202	101
Dissen, Elisabeth	88	16
Dittmer, Jennifer	691	51
Ditzel, Adam	985	64
Diviak, Lynn	3142	215
Division of Infectious Diseases, Department of Medicine	1660	124
Dixit, Visvha		158
Dixon, Brent	2800	200
Dixon, Pamela	595	39
Dixon, Shandee	685	50
Dize, Laura	2291	175
Djuric, Tanja	2245	173
Do, Danh	1776	129
Do, Mia	1223	102
Do, Paulina	2475	183
Doan, Tuan	2075	142
Dobbs, Fred	2479	183
DOBRENIECKI, Sarah	2959	208
Dobson, Curtis	2133	169
Docherty, Kathryn	320	27
Dodd, MIchael	2076	142
Dodd, Michael	1513	114
Dodson, Karen	1146	99
Dodwell, Alex	2334	177

Author	Poster Board	Session Number
Doern, C.	739	53
Doern, Christopher		166
Doern, Christopher		194
Doern, Christopher	2256	174
Doern, Gary	104	16
Doern, Gary	2986	209
Dogs, Marco	2438	181
Dogs, Marco	2469	183
Dohrn, Cassie	2986	209
Dohrn, Cassie	104	16
Doi, Andre	147	19
Dojcinovski, Liljana	2965	208
Dokland, Terje		85
Doktycz, Mitchel	1286	105
Doktycz, Mitchel	3016	211
Doktycz, Mitchel	2454	182
Doktycz, Mitchel	3015	211
Dolieslager, Sanne	623	41
Dolloff, Jessica	101	16
Domask, Adam	1408	110
Domazet-Loso, Tomislav		91
Domek, Matthew	310	26
Domek, Matthew	262	24
Domek, Matthew	266	24
Dominguez, John Jewish	1482	113
Dominguez, M.	3159	216
Dominguez, Miguel	914	61
Domínguez-Bello, María	3146	216
Domínguez-Bello, María	3033	211
Domínguez-Bello, María		153
Domínguez-Bello, María		153
Domínguez-Bello, María		151
Dominguez-Gomez, Daniel	2895	205
Dona, Valentina	2698	195
Donato, Gina	2212	172
Dong, Yiran	945	63
Dong, Yuemei		156
Donkers, Serge	876	59
Donnenberg, Michael	718	52
Donnenberg, Michael	2732	197
Donnenberg, Michael	726	52
Donnenberg, Michael	2831	202
Donnett, Uri	617	41
Donofrio, Robert	1504	114
Donohue, Maura	2119	144
Donohue, Timothy		152
Donohue, Timothy	1359	108
Donovan, Sharon	3086	213
Dora, Ross	165	20
Doran, Kelly	2871	204
Doran, Kelly	2324	177
Doran, Tara	2533	186
Dorange, Fabien	2268	174
Dorji, Tshering	2759	198
Dornenburg, James	1938	137
Doroghazi, James		229
Doroghazi, James		157
Doron, Shira	571	38
Dörr de Quadros, Patricia	963	63
Dörr de Quadros, Patricia	338	27
Dorrell, Nick	1116	98
Dorrestein, Pieter	1269	104
Dorrestein, Pieter		154
Dorrestein, Pieter		77
dos Santos, Flavia	2788	200
Dos santos, Flavia	2270	174
Dose, Hitomi		78
Dosler, Sibel	2141	169
Dossani, Zain	364	28
Douady, Julien	1751	128
Doucet, Nicolas	1605	119
Doucette, Chris	2289	175
Dougherty, Kevin		157
Dougherty, Michael	2955	208
Douglas, Angela		91
Douglas, James	1057	68
Douglas, James	1058	68
Douglas, James	1574	117
Dove, Simon	2227	172
Downing, Kenneth	2087	143
Downs, Diana	1853	133
Downs, Diana	2955	208
Doyle, Adina	2196	171
Doyle, Laura	2266	174
Doyle, Laura	732	53
Doyle, Michael		43
Doyoungan, Alison	383	29
Dozois, Charles	1605	119
Dozois, Charles	2388	179
Drake, Harold	334	27
Drake, John	2479	183
Drake, Meghan	1027	66
Drake, Meghan	2434	181
Drake, Steven	LB-08	233
Drake, Tim	1236	103
Drees, Kevin	1057	68
Drews, Steven	753	54
Dricot, Amelie	805	55
Driebe, E.	2201	171
Driebe, Elizabeth	2782	199
Driebe, Elizabeth	1187	100
Driebe, Elizabeth	2098	143
Driks, Adam	2501	184
Druen, LaNae	94	16
Dryga, Sergey	1253	103
Dryja, Diane	2246	173
D'Souza, Doris	2527	186
D'Souza, Doris	1966	138
D'Souza, Nandika	1921	136
D'souza, Nigel	500	34
Du, Jing	1343	107
Duan, Jichuang	324	27
Duan, Jichuang	317	27
Dubay, Ryan	2592	188
Dubchak, I.	1862	133
Dubey, Mohan	832	56
Dubie, Clarissa	263	24
Dubilier, Nicole		83
Dubilier, Nicole		83
Dubinsky, Eric	3099	214
Dubinsky, Eric	1925	136
Dubinsky, Eric	3096	214
Dubinsky, Eric	1926	136
Dubois, Damien	2372	179
Duboise, Samuel	1875	134
Dubovickaya, V.	1247	103
Ducey, Thomas	479	33
Ducklow, Hugh		224
Duddleston, Khrystyne	3034	211
Dudley, Edward	2746	197
Dudley, Edward	1129	98
Dudley, Kim	376	29
Dufentester, Sonja	2848	203
Duffy, Carol	508	35
Duffy, Lynn	860	58
Duffy, Patrick		222
Dufour, Alfred	2001	140
Dufour, Alfred	2006	140
Dufour, Delphine	292	25
Dufour, Yann	238	23
Dufresne, Simon	563	38
Dufresne, Simon	2349	178
Dugan, Christine	1775	129
Dugas, Andrea	88	16
Duggan, Megan	618	41
Duggan, Megan	1725	126
Duhamel, Gerald	2857	203
Duim, Birgitta	1292	105
Duim, Birgitta	2095	143
Duim, Birgitta	2744	197
Duim, Birgitta	2094	143
Duke, Brian		160
Dulal, Santosh	1647	123
Dulal, Santosh	1652	123
Dumas, Nellie	1180	100
Duménil, Guillaume		72
Dumenyo, C Korsi	1327	106
Dumey, Nicolas	2268	174
Dumler, J. Stephen	2878	204
DuMont, Ashley	1672	124
Dumont, Larry	2278	174
Dunbar, John	961	63
Duncan, Carla		227
Duncan, David	567	38
Duncan, Miles	1639	122
Duncan, Robert	1598	118
Duncan, Robert	645	42
Duncan, Sara	1252	103
Dunkerley, Eric	508	35
Dunn, Barbara		217
Dunn, Joe	195	21
Dunn, William	2839	203
Dunne, Dylan	858	58
Dunny, Gary	2712	196
Dunny, Gary	1343	107
Duno, Morten	1631	122
Dupke, Steohan	661	49
DuPont, Herbert	1115	98
Dupont, Ryan	419	31
Duprez, Jean-Noël	1615	119
Duque, Abigail	1578	117
Duran, Jorge	2209	172
Durand-Heredia, Jorge	1831	132
Durbin, Lisa	2780	199
Durham-Colleran, Meghan	1119	98
Durmaz, Gul	1	12
Durrant, Robert	1201	101
Dusich, Irene	741	53
Dussán, Jenny	2585	188
Dustin, Meyers	672	50
Dutilh, Bas	2101	143
Dutilly, Devin	3039	212
Dutta, Noton	2661	191
Dutta, Vikrant	996	65
Duty, Chad	979	64
Dwivedi, Mukesh	2801	200
Dwivedi, Shalini	2765	198
Dwyer, Courtney	1903	135
Dyatlov, Ivan	1088	97
Dyatlov, Ivan	648	49
Dykes, Colin	1253	103
Dynin, Irina	615	41
Dyszel, Jessica	2741	197
Dzib-León, Rubiel	1018	65
Dzib-León, Rubiel	2957	208

E

Author	Poster Board	Session Number
Eade, Colleen	1784	129
Eade, Colleen	1785	129
Eakley, Nicholas	693	51
Eakley, Nick	709	51
Eardly, Bertrand	2596	188
Easterbrook, Judith	808	56
Eaton, Kathryn	2723	196
Ebdon, James	3117	214
Ebentier, Darcy	3122	214
Ebentier, Darcy	3094	214
Eberhard, Carl	2098	143
Eberhard, Carl	2782	199
Eberhart, Lauren	1015	65
Eberl, Timothy	1910	135
Eberly, Jed	970	64
Ebert, Jessica	1387	109
Ebisutani, Kazuki	468	33
Ebrahimi, Avesta	1699	125

Author	Poster Board	Session Number
Ebrahimi, Celia	1749	127
Eby, Josh	2212	172
Eca, Anika	1649	123
Eckelt, Elke	42	13
Ecker, David	567	38
Ecker, David	869	58
Eckert, Karen	2281	175
Eckman, Katie	964	63
Eckmann, Kaye	1079	69
Eckmann, Kaye	742	53
Eclipse, Ariel	2185	171
Edberg, Stephen	1587	118
Edberg, Stephen	1588	118
Edgar, Robyn	494	34
Edgar, Robyn	500	34
Edgar, Rotem	1288	105
Edgar, Rotem	1283	105
Edirisinghe, Janaka	2960	208
Edith, Coronado	464	33
Edmiston, Charles	2834	202
Edmonds, Theresa	174	20
Edson, Daniel	175	20
Edson, Daniel	2531	186
Edwards, Alison	919	62
Edwards, Elizabeth	408	31
Edwards, Elizabeth	418	31
Edwards, Elizabeth		220
Edwards, Elizabeth		220
Edwards, Elizabeth	407	31
Edwards, Elizabeth	424	31
Edwards, Elizabeth	1469	112
Edwards, Justine	745	53
Edwards, Michelle		75
Edwards, Rachel	2700	195
Edwards, Robert	688	50
Edwards, Robert	687	50
Edwards, Robert		158
Edwards, Robert	2101	143
Edwards, Robert	680	50
Edwards, Robert		84
Edwards, Stephanie	329	27
Egan, Charlotte		80
Egan, Christina	1180	100
Egan, Richard	2275	174
Egesten, Arne	2304	176
Ehrlich, Kenneth	2518	185
Ehrlich, Kenneth	600	40
Eichelberger, Maryna	808	56
Eichenbaum, Zehava	26	13
Eichmiller, Jessica	1517	115
Eickhardt, Steffen	2157	170
Eiler-McManis, Eileen	2839	203
Einck, Leo	2139	169
Eisele, Nicholas	787	55
Eisen, Jonathan	495	34
Eisen, Jonathan		73
Eisen, Jonathan		73
Eisen, Jonathan	2464	182
Eisen, Jonathan	1746	127
Eisen, Jonathan	1383	109
Eisen, Judith	2864	203
Eisinger, Stephen	128	18
Eisinger, Stephen	130	18
Ekambaram, Nadia	2687	195
Ekhmimi, Tariq	2250	173
Ekinci, Fatma	2551	186
Eko, Francis	2322	177
El Hosseiny, Noha	831	56
Elagin, Slava	2247	173
Elagin, Slava	565	38
Elakhal Naouar, Ines	645	42
Elasri, Mohamed	2159	170
Eleazar, Clara	1600	118
Eleazar, Clara	2991	209
Elfaki, Mohamed	1728	127
Elfakir, Anissa	1988	138
El-Farash, Ameer	1143	99
El-Hajj, Ziad	2915	205
El-Hassan, Ahmed Taher	2883	204
Elias, Dwayne	1852	133
Elias, Dwayne	1438	111
Elias, Dwayne	1386	109
Elias, Dwayne	1027	66
Elias, Dwayne	2434	181
Elias, Dwayne	2087	143
Elijah, Nyairo	1457	112
Elk, Michael	2011	140
Elkins, Chris	1068	69
Elkins, Chris	2733	197
Elkins, Chris	2641	190
Elkins, Christopher	1067	69
Elkins, Christopher	1976	138
Elkins, Christopher	2306	176
Elkins, Christopher	1975	138
Elkins, Karen	2875	204
Elkins, Karen	2884	204
Ellermeier, Jeremy	187	21
Ellerson, Debra	2322	177
Ellis, Austin	2984	209
Ellis, Austin	1784	129
Ellis, Brandon	2235	173
Ellis, Brandon	1250	103
Ellis, Brandon	749	53
Ellis, Terri	2417	180
Ellis, William	1311	106
Ellisman, M	2498	184
Ellisman, Mark	2637	190
Ellison, Alysha	2556	186
Elmaraachli, Wael	1192	101
Elmendorf, David	2390	179
Elmendorf, David	2573	187
El-Mowafi, Shaima	2681	195
Elnemr, Wessam	1412	110
El-Rami, Fadi	652	49
El-Samad, Hana		88
Else, Terry Ann	451	32
Elsen, Sylvie	2228	172
Elshahed, Mostafa	892	60
Elshahed, Mostafa	1434	111
Elsheikh, Maher	1322	106
Elsheikh, Maher	229	22
Eltahir, Yasmin	2832	202
Elwell, Cherylin	2819	202
Ely, Janet	1165	100
Elyan, Diaa	1593	118
Embree, Mallory	1822	131
Embree, Mallory	2456	182
Embree, Mallory	2489	183
Emch, Alex	542	37
Emerson, David	1379	109
Emerson, David	1378	109
Emerson, David	1896	135
Emerson, Joanne	2495	184
Emerson, Joanne	1883	134
Emery, Christopher	2836	202
Emmert, Elizabeth	985	64
Emonet, Thierry	238	23
Emonet, Thierry		4
Empson, Sue	2531	186
Emrich, Scott	2463	182
Endale, Dinku	1534	115
Enderle, Janet	2312	176
Enderlin, Michel	2687	195
Endo, Akiko	2083	143
Endres, Jennifer	2725	196
Engel, Joanne	1836	132
Engel, Joanne	2865	203
Engel, Joanne	2819	202
Engel, Joanne	1703	125
Engelbrecht, Kathleen	1506	114
Engelbrektson, A.	2961	208
Engelbrektson, Anna	1559	116
Engelbrektson, Anna	2951	208
Engelbrektson, Anna	400	30
Engelhardt, John	622	41
Engelhardt, John	2337	177
Engelthaler, D.	2201	171
Engelthaler, Dave	2782	199
Engelthaler, Dave	2098	143
Engelthaler, David	1719	126
Engelthaler, David	506	34
Engelthaler, David	2093	143
Engesser, Karl-H	1475	113
England, Whitney	1757	128
Englen, Mark	1085	97
Engler, Howard	1709	126
Englethaler, David	1187	100
Engman, Augustin	1911	135
Engstrom, Michael	1687	125
Eniola, Kenny	2079	142
Enninga, Jost		230
Enos-Berlage, Jodi	1319	106
Enos-Berlage, Jodi	581	39
Enríquez, Arturo	1773	129
Enterprise Content Management	174	20
Enweani, Ifeoma	2789	200
Enweani, Ifeoma	1215	102
Eom, Hye-Won	1778	129
EOM, HYUN-JU		84
Epler, Chelsea	1155	99
Eppendorfer, Madena	334	27
Eppinett, Kristen	1938	137
Eppinger, Mark		157
Eran, Yonatan	1703	125
Eran, Yonatan	2865	203
Erb-Downward, John	1724	126
Erbilgin, Onur	929	62
Erickson, Alison		85
Erickson, Melissa	615	41
Eriotou, Effimia	1010	65
Eriotou, Effimia	394	29
Eriotou, Effimia	393	29
Eriotou, Effimia	999	65
Erken, Martina	3027	211
Erkkila, Tracy	1586	118
Ernst, Robert	2868	204
Ernst, Stephen	2315	176
Eroglu, Erdal	538	36
Erosa De La Vega, Gilberto	1055	68
Erosa de la Vega, Gilberto	530	36
Erum, Rakhshanda	18	12
Erum, Rakhshanda	2143	169
Eruslanov, Boris	648	49
Ervin, Jared	3098	214
Ervin, Jared	3097	214
Escalante-Semerena, Jorge	2428	181
Escalante-Semerena, Jorge	1350	108
Escalante-Semerena, Jorge	2447	181
Escano, Jerome	2511	185
Esch, Victor	1253	103
Escorcia, Magdalena	3161	216
Eshete, Bemnet	1222	102
Eshoo, Mark	567	38
Eshraghi, Aria	1685	125
Eslava, Carlos	1001	65
Eslava-Campos, Carlos	2307	176
Esona, Mathew	2264	174
Espada, Xavier	2480	183
Espimo, Ana	572	38
Espín, Guadalupe	1367	108
Espino, Ana	575	38
Espino, Ana	580	38
Espino, Erik	1690	125
Espinosa, Kiana	667	49
Espinoza, Abraham	1649	123

Author	Poster Board	Session Number
Espinoza-Hicks, José	2418	180
Esquilin-Lebron, Karla	59	14
Esquilin-Lebron, Karla	49	14
Essmyer, Cynthia	94	16
Esteban, David	587	39
Esteban, David	498	34
Estell, Christopher	561	38
Estes, Steven	3116	214
Esteve-Gasent, Maria	807	56
Esteve-Gassent, Maria	632	41
Esteve-Gasssent, Maria	723	52
Estevez, Verónica	690	51
Estrada, Fernando	3153	216
Esumeh, Fredrick	1215	102
Eswara Moorthy, Prahathees	1283	105
Etienne, Kizee	2093	143
Eucker, Tyson		158
Eucker, Tyson	2854	203
Eugenin, Eliseo	1794	130
Eui-Hong, Byun	2676	191
Eulgem, Thomas	1776	129
Evangelista, Michael	2103	143
Evans, Chris	1110	98
Evans, David	1259	104
Evans, David	1766	129
Evans, David	796	55
Evans, David	185	21
Evans, Jeff	863	58
Evans, P.	3038	212
Evans, Thomas	2673	191
Evasco II, Henry	1574	117
Evasco II, Henry	1058	68
Everhart, Kathy	1712	126
Ewert, Ruth	2289	175
Ewing, Cheryl	77	15
Ewing, Cheryl	2745	197
Ewing, Laura	376	29
Ezaki, Takayuki	1238	103
Ezaki, Takayuki	1582	117
Ezeji, Thaddeus	346	28
Ezekwueme, Nkechi	2363	178

F

Author	Poster Board	Session Number
Faber, Franziska	38	13
Fabian, Marian	1138	99
Fabio, Scordino	2789	200
Facciotti, Marc	897	60
Facciotti, Marc	1383	109
Facciuolo, Antonio	2109	144
Faden, Howard	2976	209
Fadl, Amin	693	51
Fadl, Amin	709	51
Fadrosh, Doug	1542	116
Fagade, Obasola	441	32
Fagen, Jennie	338	27
Fagerquist, Clifton	1462	112
Faheem, Sultan	3077	213
Faherty, Christina	2161	170
Faherty, Christina	1150	99
Fahey, Catherine	370	29
Fahlgren, Anna	2300	176
Fahlman, B	446	32
Fair, Joseph		167
Fairclough, Stephen		83
Fairfax, Marilynn	127	18
Fairley, Stacie	1738	127
Fairley, Stacie	834	56
Faisal, Syed	2886	204
Faith, Seth	484	34
Faixs, Dennis	2267	174
Faizi, Shaheen	2143	169
Fakhr, Mohamed	3050	212
Falcão, Juliana	2774	198
Falcão, Juliana	1287	105
Falck, J		231
Falero-Perez, Juliana	1526	115
Fällman, Maria	2300	176
Famurewa, Oladiran	1995	139
Fan, Baochang	800	55
Fan, Hongxia	830	56
Fang, Ferric		84
Fang, Ferric	2994	209
Fang, Ferric	674	50
Fang, Ferric		155
Fang, Hebert	3087	213
Fang, Herbert	353	28
Fang, Wei	1494	113
Fang, X		226
Fang, Xing	1014	65
Fang, Yang-Chi	3127	215
Fang, Zemin	1494	113
Fankhauser, Melissa	LB-07	233
Fanning, S.	2089	143
Fanning, Séamus	3054	212
Fanning, Séamus	389	29
Fanning, Séamus	1996	139
Fanning, Séamus	995	65
Farah, Jehan	2780	199
Farhat, Shaker	668	49
Faria, Nieli	2788	200
Faria, Nieli	2270	174
Faria-Junior, Celio	1098	97
Farias, Luiz	2380	179
Farley, M.	3121	214
Farley, Monica	2114	144
Farmer, Jack	1398	109
Farnleitner, Andreas	3098	214
Farnleitner, Andreas	3095	214
Faro, Jonathan	135	18
Faro, Sebastian	135	18
Faron, Matthew	1667	124
Faron, Matthew	69	15
Farone, Anthony	1761	129
Farone, Mary	1761	129
Farrance, Christine	1504	114
Farrar, J	2872	204
Farrell, David	117	18
Farrell, David	4	12
Farrell, David	5	12
Farrell, Sarah	1641	123
Farrell, Sarah	2758	198
FARRIS, HEATH	2521	185
Farris, Rachel	3106	214
Fasano, Alessio	1257	104
Fasano, Alessio	1150	99
Fasano, Genevieve	1775	129
Fassio, Sara	1366	108
Fassio, Sara	66	14
Fathepure, B	1486	113
Fathepure, Babu	1488	113
Fathima, Sumana	753	54
Fatima, Ghulam	2123	144
Fatima, Ghulam	531	36
Fatima, Syeda	2163	170
Faulina, Sarah	3021	211
Faulina, Sarah	362	28
Faull, Kym	2337	177
Faulwetter, Jennifer	3114	214
Fauntleroy, Kathy		80
Favaro, Marco	177	20
Favaro, Marco	1579	117
Faybishenko, Boris	1438	111
Fazal, Nadeem	1276	104
Fazal, Nadeem	2890	204
Fazeli, Fariba	1935	136
Fechter, Buckley	1408	110
Fechter, Pierre	705	51
Fechtner, Linnea	1406	110
Federle, Michael	2902	205
Federle, Michael	56	14
Federle, Michael		160
Fedorka-Cray, Paula	659	49
Fedorova, Natalie		79
Fei, Huang	1219	102
Feinberg, Judith	2117	144
Feinen, Brandon	816	56
Feist, Adam	2489	183
Feitel, Susan	1208	102
Feldmann, Erik	223	22
Feldmesser, Marta	563	38
Felgner, Philip	793	55
Fels, Samuel	2898	205
Feng, Ji-Ming	3131	215
Feng, Jing	212	22
Feng, Jinhui	448	32
Feng, Jinhui	1495	113
Feng, Lihui	294	25
Feng, Lihui	295	25
Feng, Sun	1219	102
Feng, Wenchao	1697	125
Feng, Xizhi	844	57
Feng, Xizhi	852	57
Fengler, Vera	1108	98
Fenical, William	54	14
Fenn, Nate	2238	173
Fennell, Donna	396	30
Fenner, Kathrin		220
Fenton, Lissa	735	53
Ferguson, Donna	2003	140
Ferguson, John	3060	212
Ferguson, John	1882	134
Ferguson, John	1496	113
Ferguson, John	1881	134
Ferguson, Ryan	2876	204
Fernandes, Gabriel	2327	177
Fernandes, Kenner	1265	104
Fernandes, Péricles	459	33
Fernandez, Jason	1222	102
Fernandez, Marcela	1340	107
Fernandez, Rachel	729	52
Fernandez, Rachel	713	52
Fernandez, Victor	1788	130
Fernandez Delgadillo, Sergio S.	1829	132
Fernandez-Casanova, Belen	2485	183
Fernández-Delgado, Milagro	3146	216
Ferreira, Anielly	2788	200
Ferreira, Daniela	1273	104
Ferreira, Jorge	1273	104
Ferreira, Luis	829	56
Ferreira, Luis	1454	112
Ferreira, Luis	1454	112
Ferreira, Luis	1454	112
Ferreira, Rita	1454	112
Ferreira, Rita	829	56
Ferrell, James	2413	180
Ferrell, Rebecca	2071	142
Ferrer González, Edgar	496	34
Ferrer-Gonzalez, Frank	1092	97
Ferro, B.	1575	117
Ferro, Pam	807	56
Ferrús, Mª Antonia	1529	115
Ferrús, Mª Antonia	1530	115
Fey, P.	120	18
Fiandaca, Mark	1707	126
Fiandaca, Mark	1711	126
Fiandaca, Mark	92	16
Fiandaca, Mark	93	16
Fida, Tekle Tafese	464	33
Fiedler, Tina	773	54
Fiedler, Tina	2317	176
Field, Dawn	3078	213
Field, Dawn	2077	142
Field, Katharine	1034	66
Fields, Andrew	486	34
Fields, Matthew	2949	207

Author	Poster Board	Session Number
Fields, Matthew	2458	182
Fields, Patricia	2767	198
Fields, Patti	113	17
Fierer, Noah	1427	111
Figueroa, Aliosha	2073	142
Figueroa, Israel	2440	181
Filimonova, A.	1247	103
Filippov, Andrey	1677	124
Filippova, Svetlana	2345	177
Filloux, Alain	2229	172
Fimland, Gunnar	2902	205
Findlay, Lorraine		74
Findlay, R.	2504	184
Findlay, Robert	954	63
Findlay, Robert	1422	110
Findley, Keisha	755	54
Fink, Ryan	3056	212
Fink, Ryan	1848	133
Fink, Ryan	3060	212
Finkel, Steven		221
Finley, J	1480	113
Finn, Sarah	995	65
Finneran, Kevin	427	31
Finneran, Kevin	361	28
Fiole, Daniel	1751	128
Fiore, Cara	493	34
Fiorentino, Maria	1257	104
Firek, Brian	775	54
Firestone, Mary	946	63
Firmani, Marcia	2382	179
Fischbach, Michael		154
Fischbach, Michael		77
Fischer, Elizabeth	2686	195
Fischer, Elizabeth	2222	172
Fischer, Marc	327	27
Fischer, Markus	1998	139
Fischer, Markus	2230	172
Fischer, Markus	3042	212
Fischer Langley, Gayle	1074	69
Fischetti, Vincent	82	15
Fish, Jordan	330	27
Fish, Jordan	2451	182
Fish, Jordan	2507	184
Fish, Jordan	2626	190
Fishbach, Michael		77
Fisher, Carolyn	1598	118
Fisher, Dwight	1534	115
Fisher, Jenny	969B	63
Fisher, Kimberly	2242	173
Fisher, Mark	1206	101
Fisher, Mark	1201	101
Fisher, Mark	161	19
Fisher, Meredith	1436	111
Fisher, Susan	2949	207
Fitchett, Karen	561	38
Fitzgerald, Christopher	3118	214
Fitzgerald, Collette	2767	198
Fitzgerald, Collette	113	17
Fitzgerald, Collette		147
Fitzgerald, Devon	1291	105
Fitzgerald, Lisa	2563	187
FITZGERALD, LISA	2562	187
Fitz-Gibbon, Sorel	1869	134
Fitzhugh, Connor	1403	110
Fitzpatrick, Megan	2673	191
Fitzsimmons, Liam	20	13
Flajnik, Martin	726	52
Flamm, Robert	660	49
Flamm, Robert	1630	122
Flamm, Robert	140	19
Flamm, Robert	117	18
Flanagan, Kelly	1814	131
Flanigan, Sarah	1110	98
Flannery, Andrew	2678	195
Flannery, Elizabeth	2972	209
Fleischer, Jennifer	669	49
Fleiszig, Suzanne	796	55
Fleiszig, Suzanne	1766	129
Fleiszig, Suzanne	1259	104
Fleiszig, Suzanne	185	21
Fleming, Emily	1896	135
Fleming, Emily	1378	109
Fletcher, Hansel	1752	128
Fletcher, Jacqueline		43
Fletcher, Jacqueline		43
Fletcher, Josh	1667	124
Fletcher, Joshua	69	15
Fletcher, K.	96	16
Floden, Angela	2816	202
Floden, Angela	2824	202
Flood, Matt	948	63
Flood, Matthew	316	27
Flora, Alyssa	1159	99
Flores, Dan Carlo	1822	131
Flores, Ligia	2988	209
Flores-Campuzano, Liliana	1001	65
Flores-Cruz, Zomary	2483	183
Flores-González, María del Socorro	1959	137
Florez, Laura	2213	172
Floyd, Dalton	948	63
Floyd, Dalton	316	27
Fluit, Ad	1270	104
Fluit, Ad	2756	198
Fluit, Ad	1093	97
Flynn, Joanne		230
Flynn, Kaitlin	2194	171
Foecking, Mark	867	58
Foey, A.	2005	140
Fofanov, Viacheslav		73
Fokar, Mohammed	880	59
Folch, Benjamin	1605	119
Folch-Mallol, Jorge	1949	137
Foley, Matt	679	50
Foley, Steven	1105	97
Foley, Steven	3151	216
Foley, Steven	197	21
Foley, Steven	1618	119
Folimonova, Svetlana	3018	211
Folkesson, Anders	1103	97
Folster, Jason	662	49
Folster, Jason	3049	212
Folster, Jason	659	49
Fong, Jiunn		76
Fong, Nicole	2525	185
Fontagne-Faucher, Cathy	2952	208
Fontana, Carla	748	53
Fontana, Carla	177	20
Fontana, Carla	1579	117
Foote, Monica	2345	177
Forbes, Betty		155
Forbes, Sarah	2688	195
Forbes, Sarah	2133	169
Ford, Bradley	1146	99
Ford, Byron	1637	122
Fornabaio, T	1235	103
Forney, Larry		47
Foroni, Elena	2826	202
Forquin-Gomez, Marie-Pierre	1865	133
Forrest, Graeme	LB-05	233
Forst, Steven	1330	107
Forster, Robert	1443	111
Forsyth, Jenna	1513	114
Forsyth, Mark	60	14
Forsyth, Mark	2186	171
Forsyth, Mark	2185	171
Forsythe, Stephen	1550	116
Forsythe, Stephen	1007	65
Forsythe, Stephen	1556	116
Forsythe, Stephen	1013	65
Fortenberry, J. Dennis		47
Fortney, Julian	1926	136
Fortney, Kate	1742	127
Fortwendel, Jarrod	836	57
Foster, James	2462	182
Foster, Jeffery	1057	68
Foster, Jeffrey		145
Foster, Kevin		161
Foster, Timothy	1750	128
Fothergill, Amy	1236	103
Fothergill, Amy	1232	103
Fothergill, Amy	1231	103
Fouad, Ashraf	499	34
Fouché, M	1592	118
Fouke, Bruce	945	63
Fournier, Gregory		78
Fout, Garland	1525	115
Fox, Donna	2281	175
Foxman, Betsy	757	54
Foxman, Betsy	2122	144
Fozo, Elizabeth	332	27
Frabutt, Dylan	316	27
Frabutt, Dylan	948	63
Frace, Michael		156
Frace, Michael	1552	116
Fragoso, Cristina	851	57
Fraimow, Henry	142	19
Frana, Timothy	622	41
Frana, Timothy	3123	215
Francesconi, Stephen	1148	99
Francino, M. Pilar	1816	131
Francino, Pilar	1905	135
Francis, Christopher	1901	135
Francis, Christopher	1899	135
Francis, Mat	602	40
Franco, A	2089	143
Franco, Augusto	2714	196
Franco, Augusto	389	29
Franco, Augusto	22	13
Franco, Shelli	2466	183
Franco Mora, A.	3061	212
Francoeur, Steven	1422	110
Francois, Fritz		85
Francois, Patrice	1264	104
Frank, Bart	1272	104
Frank, Carolin	1811	131
Frank, Carolin	3014	211
Frank, Carolin	505	34
Frank, Karen	1251	103
Frank, Kristi	2712	196
Frank, Kristi	1343	107
Frankel, Gad	791	55
Frankel, Nicholas	238	23
Franklin, Dorcas	1534	115
Franklin, Jesse	2180	171
Franklin, Michael	937	62
Franklin, Michael	2954	208
Franklin, Michael	939	62
Franks, Sarah	1749	127
Franzin, Fernanda	1675	124
Fraser-Liggett, Claire		157
Fraser-Liggett, Claire		85
Fraser-Liggett, Claire		85
Fraser-Liggett, Claire	499	34
Fraser-Liggett, Claire		85
Fraser-Liggett, Claire	2736	197
Fraser-Liggett, Claire	2732	197
Fraser-Pitt, Douglas	2152	169
Fraud, Sebastien	1646	123
Fraud, Sebastien	1090	97
Fraud, Sebastien	1084	97
Frawley, Elaine	674	50
Frazer, Anne	1460	112
Frazer, Lauren	794	55
Frazzitta, Aubrey	846	57
Frech, Georges	2352	178

Author	Poster Board	Session Number
Fredendall, Richard	458	33
Frederiksen, Rikki	1695	125
Fredricks, David	2631	190
Fredricks, David	773	54
Fredricks, David	2317	176
Freedy, Henry	2	12
Freeman, Alexandra		85
Freeman, John	2922	206
Freeman, Joshua	1568	117
Freeman, Molly	1077	69
Freeman, Molly	742	53
Frees, Dorte	1655	123
Frees, Dorte	2184	171
Freiberg, Alex	229	22
Freij, Joudeh		79
Freitag, Nancy	700	51
French, Jacob	2313	176
French, Todd	1668	124
Freund, Frédéric	2268	174
Frick, Inga-Maria	2301	176
Fridman, Arthur	830	56
Friedberg, Iddo		78
Friedland, Gregory	991	64
Friedland, Gregory	973	64
Friedman, Adam	2355	178
Friedman, Sharon	2535	186
Friesen, Mona	2387	179
Frischkorn, Kyle	2943	207
Fritsche, Thomas	627	41
Fritsche, Thomas	2792	200
Fritsche, Thomas	1714	126
Fritsche, Thomas	626	41
Fritsche, Thomas	2796	200
Fritz, David	1689	125
Fritz, Jamie	76	15
Fritz, Stephanie		194
Froelich, Brett	2552	186
Frølund, Maria	2282	175
Frost, Eric	2172	170
Frye, Jonathan	1085	97
Fryslie, Bandon	1918	136
Fu, Li	801	55
Fu, Tze-Kai	216	22
Fu, Zhuji	2211	172
Fuchs, Bernhard	1424	110
Fuchs, Martin	92	16
Fuerst, John		71
Fugère, Alexandre	2172	170
Fuhrman, Jed		229
Fujihara, Eriko	651	49
Fujihara, Eriko	1554	116
Fujikawa, Hiroshi	2510	184
Fujimura, Kei	3035	211
Fujioka, Roger	2010	140
Fujiwara, Nagatoshi	2660	191
Fujiwara, Nagatoshi	1054	68
Fujiwara, Nagatoshi	2666	191
Fujiwara, Nagatoshi	2663	191
Fujiwara, T.	1543	116
Fukai, Kotaro	2561	187
Fukuda, Kazumasa	2663	191
Fukuda, Takeshi	2664	191
Fukui, Ryo	2069	142
Fukui, Youhei	2468	183
Fulcher, Carol	2627	190
Fuller, DeAnna	749	53
Fuller, DeAnna	1171	100
Fuller, DeAnna	1167	100
Fuller, DeAnna	1172	100
Fuller, Deanna	93	16
Fuller, Deanna	92	16
Fuller, Deanna	1707	126
Fuller, Deanna	1711	126
Fuller, Deanna	2235	173
Fuller, DeAnna	2290	175
Fuller, Jeffery	1213	102
Fuller, Kendall	1450	111
Fuller, Mark	426	31
Fullerton, Heather	433	31
Fulton, Alexandra	524	36
Fulton, Ben	1670	124
Fulton, Kelly	714	52
Fulton, Robert	2099	143
Fung, Tiffany	158	19
Fung, Wendy	2738	197
Funk, Vanessa	2683	195
Fuqua, Clay		156
Fuqua, William		156
Furlan, Mike	511	35
Furlong, Edward	2615	189
Furman, Ran		81
Furnholm, Teal	2096	143
Fursova, Nadezhda	1088	97
Fursova, Nadezhda	648	49
Furukawa, Nayuta	2083	143
Furukawa, Takashi	1413	110
Fuscoe, James	203	21
Fuscoe, James	1744	127
Futamura, Ayana	1297	105
G		
Gaboyard, Manuel	2268	174
Gabriel, Bruno	2952	208
Gabriel, Valerie	2952	208
Gabriel-Ajobiewe, Ruth	152	19
Gabrielyan, Lilit	2557	187
Gaca, Anthony	2942	207
Gadjeva, Mihaela	1786	129
Gaertner, Mika	2687	195
Gage, Daniel	1365	108
Gaillard, Jean-François	1886	135
Gaillot, Olivier	108	17
Gaines, Dennis	2326	177
Gaines, Dennis	1688	125
Gaines, Stuart	1994	139
Gaines, Stuart	2532	186
Gaines, Stuart	386	29
Gaines, Stuart	3148	216
Gaitonde, Sapna	1341	107
Gajer, Pawel	801	55
Gajer, Pawel	792	55
Gakhar, Lokesh	2338	177
Galang, Stephanie	3035	211
Galbraith, Allison	1311	106
Galbraith, Elizabeth	1929	136
Galens, Kevin		157
Gales, Ana	147	19
Gall, Daniel	1359	108
Gallagher, Aaron	2631	190
Gallegos, Karen	549	37
Gallegos-Candela, Maribel	2862	203
Gallegos-Graves, La Verne	961	63
Gallery, Rachel	320	27
Galofré-Milà, Núria	1612	119
Gambrell, Robert	2927	206
Gamou, Shinobu	211	22
Gamston, Courtney	1938	137
Gan, Yan	2478	183
Gan, Yunn-Hwen	44	14
Gandhi, Bharat	736	53
Gandhi, Chris		75
Gangiredla, Jayanthi	2104	143
Gangiredla, Jayanthi	1067	69
Gangiredla, Jayanthi	2102	143
Gannon, Victor	1864	133
Gano, Kelsey	338	27
Gant, Anastasia	1671	124
Gant, Anastasia	2928	206
Ganz, Holly	319	27
Ganz, Julia	2864	203
Gao, Chunxu	2844	203
Gao, Dawen	465	33
Gao, Jin	808	56
Gao, Lingfang	348	28
Gao, Xiang	2370	179
Gao, Yi-Shun	913	61
Gao, Yuan	2474	183
Gao, Yuan	1495	113
Gao, Zhan	1759	128
Garbers, Sarah	2697	195
Garcia, Erin		160
Garcia, Gizele	1904	135
Garcia, Juan	453	33
Garcia, Maricarmen	1048	67
Garcia, Michel	601	40
Garcia, Minerva	2814	201
Garcia, Omar	475	33
Garcia, Preston		44
Garcia, Ruth	1649	123
García, Dolores	2770	198
García, Jhon Alexander	1773	129
Garcíaa Alvarado, José	2523	185
García-a Casanova, Leticia	1055	68
Garcíaa Rivera, Myriam	1051	68
García-Amado, Maria	3146	216
García-Amado, Maria Alexandra		151
Garcia-de-la-Guarda, Ruth	1051	68
Garcia-Martin, Hector	989	64
Garcia-Orta, Luis	2480	183
Garcia-Peterson, Liz	1526	115
Garcia-Pichel, Ferran	1837	132
Garcia-Pichel, Ferran	1369	108
Garcia-Pichel, Ferran	962	63
Garcia-Pichel, Ferran	988	64
Garcia-Regalado, Denny	2067	142
Garcia-Ruiz, Juan Manuel	250	23
Garcia-Triana, Antonio	2067	142
Garcia-Vallejo, Laura-Aidee	1943	137
Garcia-Vallejo, Laura-Aidee	1939	137
Garcia-Vallejo, Laura-Aidee	1949	137
Gärdes, Astrid	2404	180
Gardner, Donald	1683	125
Gardner, Jeffrey	914	61
Gardner, Jordan	2233	173
Gardner, Jordan	1716	126
Gardner, Mona	2057	141
Gardner, Shea	515	35
Gardner, Shea	229	22
Garénaux, Amélie	1605	119
Garfein, Richard	1193	101
Garg, Saurabh	1860	133
Gargi, Amandeep	1685	125
Gargis, Shaw	1074	69
Gargis, Shaw	1552	116
Garner, Harold	2643	190
Garner, Ronald	1777	129
Garner, Ronald	1782	129
Garoutte, Aaron	330	27
Garrasi, Michelle	1176	100
Garrasi, Michelle	1178	100
Garrasi, Michelle	2244	173
Garrido, Daniel		84
Garrido, Daniel	1981	138
Garrido, M.	3159	216
Garrone, Nicholas	1239	103
Garza-Lozano, Hector	2183	171
Gaskin, John	2069	142
Gaskins, D	1717	126
Gasser, Jeremy	2041	141
Gast, Rebecca	2002	140
Gastelum, Aurora	2607	189
Gater, Susan	1279	104
Gaudier, José	575	38
Gaudier, José	580	38
Gaudioso, Zara	356	28

Author	Poster Board	Session Number
Gaultney, Robert	2824	202
Gaultney, Robert	2816	202
Gautam, Rashi	2264	174
Gauthier, David	629	41
Gauthier, Yves	2343	177
Gautom, Romesh	1079	69
Gautom, Romesh	1576	117
Gavilan, Ronnie	1051	68
Gavilan, Ronnie	1078	69
Gavira, Jose	250	23
Gawad, Agata	2318	176
Gaydos, Charlotte	2291	175
Gaydos, Charlotte	869	58
Gaylord, Charlene	731	53
Gaynor, Matthew	1755	128
Gaytán, Itzel	442	32
Gaywee, Jariyanart	1597	118
Gaze, William	3078	213
Gazi, Michal	209	21
Gazos-Lopes, Felipe	1755	128
Ge, Beilei	3148	216
Gealt, Michael	595	39
Gebru, Solomon	1068	69
Gedalanga, Phillip	1485	113
Geiger, Robert	248	23
Geisbrecht, Brian	911	61
Geisbrecht, Brian	1701	125
Geller, Jil	2949	207
Geller, Jil	2946	207
Geller, Jil	2948	207
Geller, Jil	3089	213
Gelnett, Mary	2807	201
Gendron, Mark	174	20
Geng, Jing	2392	179
Gentry, Terry	2458	182
Gentry-Shields, Jennifer	1035	66
George, Kevin	992	64
George, Michael	512	35
George, Miriam	827	56
Gerba, Charles	2607	189
Gerba, Charles	1008	65
Gerba, Charles	2016	140
Gerba, Charles	2015	140
Gerba, Charles	1506	114
Gerber, Josiah	509	35
Gerber, Madelyn	3156	216
Gerceker, A. Alev	2140	169
Gerceker, Ayse	2141	169
Gerke, Tammie	1884	135
German, Bruce	778	54
Gerner-Smidt, Peter		228
Gerner-Smidt, Peter	1592	118
Gerner-Smidt, Peter		228
Gerrin, S.	1066	69
Gerrin, Sean	1473	112
Gerrin, Sean	2538	186
Gerwick, William	2525	185
Gesink, Dionne	2283	175
Geslin, Claire	1877	134
Gesu, Giovanni	148	19
Geszvain, Kati	1376	109
Getz, Wayne	319	27
Ghadiri, Farsheed	760	54
Ghadiri, Jamsheed	760	54
Ghajar, Minoo	1567	117
Ghannoum, Mahmoud	1798	130
Ghannoum, Mahmoud	1796	130
Ghannoum, Mahmoud	1799	130
Ghebremedhin, Beniam	1094	97
Ghebremedhin, Beniam	2769	198
Ghei, Rashmi	2014	140
Gheorghe, Alexandra	2157	170
Ghigo, Jean-Marc	2392	179
Ghinet, Mariana	1335	107
Ghirardi, Sandrine	1217	102
Ghnassia, Jean-Claude	136	18
Ghodbhane-Gtari, Faten	2096	143
Ghosh, Pallavi	2670	191
Ghosh, Pallavi	2996	210
Ghosh, Shreya	1441	111
Ghosh, Sonali	220	22
Ghosh, Sonali	226	22
GHOSH, SUDESHNA	2177	170
Ghoshal, Uday	2763	198
Ghosh-Banerjee, Jayeeta	1733	127
Ghotra, Sumreet	1439	111
Gialanella, Philip	2279	175
Giambiagi-deMarval, Marcia	1415	110
Giambiagi-deMarval, Marcia	1887	135
Giannone, Richard	3020	211
Giao, M	2043	141
Giao, Maria	2167	170
Giardello, Raquel	147	19
Gibbons, Henry	2649	190
GIBBONS, HENRY	2106	143
Gibbons, Henry	2450	182
Gibbons, William	1941	137
Gibbs, Richard	764	54
Gibney, Patrick	611	40
Gibold, Lucie	2372	179
Gibson, Kristen	2008	140
Gielda, Lindsay	2294	176
Giercke, Sandra	106	17
Giese, Megan	1408	110
Giesting, Kristen	2080	142
Gietman, Bradley	2406	180
Giglio, Michelle	2911	205
Giglio, P.	1717	126
Gihring, Thomas	2586	188
Gil, Fernando	2921	206
Gil, Fernando	1118	98
Gilbert, Jack	2501	184
Gilbert, Jack	1934	136
Gilbert, Jeffery	2279	175
Gilbert, Maarten	2095	143
Gilbert, Maarten	2094	143
Gilbert, Wil	1968	138
Gilbreath, Jeremy	33	13
Gilchrist, Jodi	2289	175
Gileva, Alena	2777	198
Gilhuley, Kathleen	174	20
Gill, Ann	679	50
Gill, Steven	679	50
Gill, Steven	2724	196
Gillece, J.	2201	171
Gillece, John	506	34
Gillece, John	2098	143
Gillece, John	2782	199
Gillece, John	2093	143
Gillespie, Michelle	60	14
Gillette, Amani	1332	107
Gillie, Lynn	1049	67
Gilligan, Peter		80
Gilligan, Peter	97	16
Gillings, Michael	3152	216
Gillis, Annika	308	26
Gillman, Aaron	2224	172
Gilmanshin, R.	1066	69
Gilmanshin, Rudolf	1473	112
Gilmanshin, Rudolf	2538	186
Gilmore, Michael	2842	203
Gilmore, Robert		227
Gilmour, Christie	1090	97
Gilmour, Matthew	106	17
Giloteaux, Ludovic	2592	188
Giloteaux, Ludovic	2457	182
Gilroy, Peter	589	39
Giltner, Carmen	110	17
Giltner, Carmen	129	18
Gingery, Mari	2202	171
Gingery, Mari	74	15
Gingras, Bruce	1252	103
Ginocchio, Christine		96
Gioiosa, Laura	2826	202
Giorno, Rebecca	1830	132
Giovannoni, Stephen		6
Giovannoni, Stephen	1401	110
Giovannoni, Stephen		87
Giovannoni, Stephen	1870	134
Giovannoni, Stephen	2092	143
Gipson, Ilene	182	21
Girão, Valéria	2755	198
Girão, Valéria	2992	209
Girguis, Peter		154
Giri, Chad	1753	128
Girón, Jorge	81	15
Giroux, Richard	2979	209
Gislason, April	2180	171
Gitai, Zemer		76
Gitai, Zemer		76
Giubergia, Sonia	1144	99
Giuntini, Serena	2335	177
Giuseppe, Criseo	2789	200
Givskov, Michael	2157	170
Gladstone, Michael	174	20
Glaring, Mikkel	1466	112
Glasius, Patricia	2286	175
Glasius, Patricia	2273	174
Glasner, Jeremy	2100	143
Glass, John	864	58
Glass, John	868	58
Glass, John	866	58
Glasser, Nathaniel	2445	181
Glassmeyer, Susan	2615	189
Glassmeyer, Susan	2011	140
Glaubman, Jessica	717	52
Glavina del Rio, T	2096	143
Glavina del Rio, Tijana	337	27
Glegg , G.	1519	115
Glenn, LaShanda	1085	97
Gler, Tarcela	1193	101
Glick, Teri	175	20
Glod, John	644	42
Glomski, Ian		230
Glomski, Ian	2862	203
Glomski, Ian		230
Glomski, Ian	2315	176
Glover, William	1079	69
Gluck, Linda	2235	173
Gnacinski, Stacey	134	18
Gnacinski, Stacey	1242	103
Go, Miller	2784	199
Godichaud, Sandrine	2268	174
Godoy-Munoz, Lenin	546	37
Godoy-Vitorino, Filipa		4
Godoy-Vitorino, Filipa		151
Godwin, Hilary	1586	118
Goeku, Chohachiro	1238	103
Goel, Ramesh	3007	210
Goesmann, Alexander	2178	171
Goethe, Ralph	806	55
Goethe, Ralph	42	13
Goettge, Michelle	847	57
Goez-Revillas, Yenny	209	21
Goffredi, Shana	3026	211
Goforth, John	711	51
Goguen, Kelsey		77
Goh, Ee Been	342	28
Goheen, Michael	2834	202
Gohl, Regina	2469	183
Gokulan, Kuppan	2860	203
Gokulan, Kuppan	197	21
Gokulan, Kuppan	1618	119
Gold, Barbara	2948	207
Gold, Larry	2248	173

Author	Poster Board	Session Number
Goldbeck, Jessica	692	51
Goldberg, Joanna		44
Goldberg, Joanna	696	51
Goldblatt, Matthew	2834	202
Golden, J	2945	207
Golden, S	2945	207
Golderg, Andrew	1727	127
Goldfarb, David	2800	200
Golding, Ido		4
Goldstein, Beth	132	18
Goldstein, Ellie		86
Goldston, Amanda	LB-04	233
Golomb, Benjamin	1451	111
Golubeva, Yekaterina	187	21
Gomelsky, Mark	1014	65
Gomelsky, Mark	1310	106
Gomelsky, Mei		226
Gomes, Ciro	2913	205
Gomes, Tânia	1430	111
Gomez, Erika	209	21
Gomez, Karen	2173	170
Gomez, Luz	174	20
Gomez, Manuel	2941	207
Gomez, V	1575	117
Gómez, Gerardo	1592	118
Gomez Ramirez, Arlen	1611	119
Gómez Treviño, Alberto	1829	132
Gomez-Alvarez, Vicente	1884	135
Gomez-Alvarez, Vicente	2502	184
Gomez-Duarte, Oscar	2764	198
Gomez-Garcia, Maria	1935	136
Gómez-Gil, Bruno	3052	212
Gomez-Marin, Jorge		9
Gomez-Marin, Jorge	642	42
Goncalves, Teresa	797	55
Gonçalves, Bianca	2270	174
Gong, Hao	3100	214
Gong, Hao	1306	106
Gong, Ping	2378	179
Gong, Xiangli	1073	69
Gonwong, Siriphan	1597	118
Gonzalez, David	1269	104
Gonzalez, G.	3159	216
Gonzalez, Julissa	1748	127
Gonzalez, Martin	1858	133
Gonzalez, Rodrigo	1734	127
Gonzalez, Tammy	2824	202
Gonzalez, Tammy	2816	202
Gonzalez, Teresita	485	34
González, Adriana	442	32
González, Andrés	491	34
González, Andrés	2570	187
Gonzalez y Merchand, Jorge	2654	191
Gonzalez-Carrillo, Carolina	2183	171
González-Escalante, Laura	2667	191
Gonzalez-Escalona, Narjol	1998	139
Gonzalez-Escalona, Narjol	3042	212
Gonzalez-Escobedo, Geoffrey	2305	176
Gonzalez-Gil, Francisco	57	14
González-Horta, Maria	530	36
Goo, Eunhye	282	25
Good, Christopher	3024	211
Goodall, Emma	2795	200
Goodlett, David	1817	131
Goodluck, Helen	218	22
Goodman, Anya	1933	136
Goodman, Danielle	297	26
Goodman, Myron		217
Goodman, Myron		221
Goodman, Steven		146
Goodman, Steven	39	13
Goodner, Brad	2910	205
Goodrich-Blair, Heidi	1330	107
Goodrich-Blair, Heidi	1329	107
Goodridge, Amador	2674	191
Goodridge, Amador	1053	68
Goodridge, Lawrence	2017	140
Goodridge, Lawrence	385	29
Goodridge, Lawrence	1032	66
Goodwin, Andrew	2086	143
Goodwin, Lynne	2096	143
Goodwin, Reed	1365	108
Goodyear, Abbey	2189	171
Goodyear, Nancy	593	39
Goodykoontz, Mary	114	17
Goodykoontz, Mary	115	17
Gopalkrishnan, Saumya	2397	180
Gophna, Uri	891	60
Gopinath, G	2089	143
Gopinath, Gopal	376	29
Gopinath, Gopal	22	13
Gopinath, Gopal	389	29
Gopinath, Gopal	2714	196
Gopinath, Gopal	390	29
Gopinathrao, Gopal	3061	212
Gordon, Jeffrey		153
Gordon, Stuart	2910	205
Gordon, Vernita	703	51
Gordon, Vernita		76
Gore, Richard	3105	214
Gorgos, Linda	2317	176
Gorkiewicz, Gregor	2302	176
Gorkiewicz, Gregor	2744	197
Gorman, Clayton	1754	128
Gorski, Lisa	3057	212
Gose, Severin	656	49
Gosrani, Sheetal	299	26
Gößner, Anita	334	27
Goswami, Kakolie	1129	98
Gotoh, Kazuyoshi	2231	172
Gotoh, Naomasa	2815	202
Gotoh, Naomasa	273	25
Gottel, Neil	3016	211
Gottesman, Susan	210	22
Gottlieb, Roberta	2394	179
Gottschalk, Gerhard	2085	143
Gottschalk, Marcello	1255	103
Gottschalk, Sanne	2419	180
Gottschall, Richard	179	20
Gottschall, R.	109	17
Gough, Andrea	40	13
Gough, Heidi	1496	113
Gough, Heidi	1882	134
Gough, Heidi	1881	134
Goulart, Christiane	2905	205
Goulden, Michael	2455	182
Goulet, Matthew	1317	106
Goulian, Mark	1833	132
Gourmelon, Michele	3098	214
Gourmelon, Michèle	3094	214
Gourmelon, Michèle	3095	214
Goutte, Marion		85
Govindarajan, Bharathi	182	21
Govorun, V.	1247	103
Goyal, Kapil	2254	174
Graber, Joseph		152
Grabon, Aby	2851	203
Graciano, Thomas	2057	141
Graf, Joerg	3000	210
Graf, Joerg	1808	131
Graf, Joerg		156
Graf, Joerg		156
Graham, Carrie	2173	170
Graham, Coila	584	39
Graham, David	1386	109
Graham, Garrett		220
Graham, Lori	206	21
Graham, Margaret	LB-05	233
Graham, Martha	1000	65
Graham, William		217
Graham-Howard, Rachel	480	33
Grahl, Nora	853	57
Grajeda-Uribe, Ilse	2593	188
Gralnick, Jeffrey	1379	109
Gralnick, Jeffrey	2964	208
Gralnick, Jeffrey		148
Gram, Lone	1991	139
Gram, Lone	3047	212
Graminski, Sharon	165	20
Granados, Andrea	2795	200
Granados-Baeza, Luis-Wenefrido	1949	137
Granados-Baeza, Luis-Wenéfrido	1939	137
Granados-Baeza, Manuel-Jesus	1943	137
Granados-Baeza, Manuel-Jesús	1949	137
Granados-Baeza, Manuel-Jesús	1939	137
Granados-Baeza, Manuel-Jesús	1962	137
Granato, Thomas	3105	214
Grand-Pre, Ranae	2238	173
Granoff, Dan	2335	177
Granoff, Dan	823	56
Granoff, Dan M.	811	56
Grant, Ashley	547	37
Grant, Debra	2263	174
Grantcharova, Nina	2707	196
Grassel, Christen	2737	197
Gratz, Jean	1718	126
Graves, Heidi	1208	102
Gray, Arianna	1394	109
Gray, Ericka		74
Gray, Jeffrey	1099	97
Gray, Jeffrey	2752	197
Gray, Jeffrey	2689	195
Gray, Kimberly	1886	135
Gray, Kimberly	1425	110
Gray, Larry		165
Gray, Larry	1170	100
Gray, Mary	2212	172
Gray, Steven	2572	187
Grayes, Althea	1181	100
Grayes, Althea	2982	209
Grayes, Althea	2978	209
Grazhdanov, A.	3135	215
Greco, A	2	12
Green, Bessie	457	33
Green, Caroline	2115	144
Green, David	2404	180
Green, Elizabeth	1905	135
Green, Gabriel	1764	129
Green, Hyatt	1034	66
Green, Jacalyn	1358	108
Green, Jacalyn	2128	169
Green, Jeffrey	2653	191
Green, Jessica		224
Green, Jessica	1427	111
Green, Marc	558	38
Green, Richard	2628	190
Green, Stefan	1500	113
Green, Stefan	1895	135
Green, Stefan	326	27
Green, Stefan	2453	182
Greenberg, E		77
Greenberg, E.		160
Greene, Christine	2158	170
Greene, Cydney	681	50
Greene, Sarah		227
Greengrass, Eyal		229
Greenhut, Isaac	3028	211
Greenlee, Morgan	1777	129
Green-Tringe, Susannah	2458	182
Greenwald, Melissa		70
Greenwood-Quaintance, Kerryl	2165	170
Greenwood-Quaintance, Kerryl	1634	122
Greenwood-Quaintance, Kerryl	138	18
Greer, C.	446	32
Greer, Charles	1337	107

Author	Poster Board	Session Number
Gregiore, Patrick	2951	208
Gregoire, Patrick	2961	208
Gregoracci, Gustavo	1904	135
Gregoracci, Gustavo	1894	135
Gregory, Kelvin	3073	213
Gregory, Steven	1650	123
Gregory, Steven	2899	205
Gregory-Ksander, Meredith	2842	203
Gregston, Lindsay	2314	176
Greig, Denise	1617	119
Gremminger, Roger	2285	175
Grenier, Myriam	137	18
Grenz, Jesse	1674	124
Gresko, K.	36	13
Grethe, Jeffrey	2637	190
Greune, Lilo	1152	99
Greune, Lilo	2845	203
Grice, Elizabeth	774	54
Griep, Judith	2287	175
Gries, Casey		75
Grieshaber, Nicole	1315	106
Grieshaber, Nicole	1316	106
Grieshaber, Scott	1316	106
Griffen, Ann	1278	104
Griffin, Alec	2351	178
Griffin, Matt	2086	143
Griffis, Joshua	1473	112
Griffith, John	3095	214
Griffith, John	3103	214
Griffith, John	1907	135
Griffith, John	3094	214
Griffith, John	3098	214
Griffith, John		145
Griffith, John	3096	214
Griffiths, Mansel	3064	212
Griggs, Lauren	189	21
Grigorenko, Elena	2614	189
Grigorenko, Elena	1598	118
Grigoriev, Igor		224
Grillot-Courvalin, Catherine	1658	123
Grim, C	3061	212
Grim, C	2089	143
Grim, Chris	3065	212
Grim, Christopher	2714	196
Grim, Christopher	389	29
Grim, Christopher	22	13
Grimes, D	1038	67
Gronau, K	1361	108
Gronert, Karsten		231
Gröning, Janosch	1467	112
Grooms, Daniel	1442	111
Gross, Carol	2912	205
Gross, Carol		81
Gross, Carol		219
Gross, Carol		81
Gross, Carol	235	22
Gross, Carol		88
Gross, Carol		88
Gross, Dennis	2950	207
Grossman, Arthur	1935	136
Grote, Alexandra	258	23
Grote, Alexandra	1935	136
Grote, Jana	2092	143
Grover, Simranjeet	1307	106
Groves, Stephanie	972	64
Grozinger, Christina	2499	184
Gruber, Jordon	288	25
Grundner, Christoph	2655	191
Grunwald, Didier	2228	172
Grznarova, Petra		230
Gtari, Maher	2096	143
Gu, Alice	2720	196
Gu, Alice	1665	124
Gu, Cheng	2451	182
Gu, Chunfang	1770	129
Gu, Chunfang	779	55
Gu, G.	2545	186
Gu, Huan	2171	170
Gu, Huan	1654	123
Gu, Ji-Dong	947	63
Gu, Xiaoping	1742	127
Guadarrama, Carmen	885	59
Guang, Sun	1219	102
Guard, Jean	2739	197
Guardian, Ana	391	29
Guazzelli, Luciana	2353	178
Gubbay, Jonathan	2049	141
Gudo, Eduardo Samo		46
Guelta, Mark	2038	141
Guerardel, Yann	1581	117
Guerra, Julio	2764	198
Guerry, Patricia	77	15
Guerry, Patricia	2745	197
Guevara, Jose	1340	107
Guevarra, Ezzle Jay	118	18
Guglielmetti, Simone	2826	202
Guiamal, Zahara Joy	1470	112
Guida, Brandon	1837	132
Guilhabert, Magalie	29	13
Guillemin, Karen	2864	203
Guillemin, Karen	260	23
Guillemin, Karen		85
Guimaraes, Ana	857	58
Guimaraes, Joao	213	22
Guiton, Pascale	2712	196
Gulati, Kartike	1358	108
Gulig, P.	682	50
Gulig, Paul	306	26
Gulland, Frances	1617	119
Gülmez, Dolunay	173	20
Gulvik, Chris	1402	110
Gulvik, Christopher	1418	110
Gunasekara, Sanjiva	1307	106
Gunasekaran, Muthukumaran	2435	181
Gunn, John	2305	176
Gunsalus, Robert	2441	181
Gunsch, Claudia	2065	142
Gunsch, Claudia	2060	142
Gunter, Lee	3016	211
Guo, Feng	1453	111
Guo, Huatao	2202	171
Guo, Huatoa	74	15
Guo, Jianying	2487	183
Guo, Jiarong	330	27
Guo, Lihong	767	54
Guo, Monica		81
Guo, Qiang	290	25
Guo, Suxia	231	22
Guo, Xiao	1016	65
Guo, XIAO-LEI	519	35
Gupta, Prashant	2974	209
Gupta, Prashant	1209	102
Gupta, Prashant	1224	102
Gupta, Puneet Kumar	2118	144
Gupta, Rajesh	2389	179
GUPTA, Shweta	2953	208
Gupta, Sunil	2765	198
Guragain, Manita	2926	206
Gurfield, Nikos		90
Guss, Adam	986	64
Gustafson, John	1652	123
Gustafson, John	1647	123
Gut, Ian	200	21
Gutek, Amanda	501	34
Guterman, Sonia		44
Gutierrez, Arnaud	870	59
Gutierrez, Miguel	2017	140
Gutierrez, Sarah	1981	138
Gutierrez, Susana	2591	188
Gutierrez-Jimenez, Javier	2608	189
Gutiérrez-Lucas, Luis Raúl	1137	99
Gutiérrez-Méndez, Néstor	1982	138
Gutiérrez-Méndez, Néstor	1017	65
Gutierrez-Rodriguez, Eduardo	998	65
Gutschow, Miriam	866	58
Guttek, Cathy	106	17
Guy, Rebecca	2009	140
Guyard, Cyril		227
Guyard, Cyril	2049	141
Guyon, Soazig	2707	196
Guzman, Joseph	2019	140
Guzman, Joseph	3114	214
Guzmán, Josefina	1367	108
Guzmán-Uriarte, Roberto	388	29
GwangPyo, Ko	761	54
Gwin, Carley	2065	142
Gygax, Scott	257	23

H

Author	Poster Board	Session Number
Ha, Kee Mong	1573	117
Ha, Nam-Chul	917	62
Ha, Seon-Jin	1846	133
Ha, Suk-Jin	1312	106
Haaber, Jakob	1655	123
Haaber, Jakob	710	51
Haarmann, Daniel	2749	197
Haas, Charles	3108	214
Haas, Christian	2473	183
Haber, Melissa	2066	142
Haberling, Dana	3145	216
Habiba, Umme	2142	169
Habil, N.	2005	140
Habtemariam, Tsegaye	1000	65
Hacek, Donna	2982	209
Hacek, Donna	2978	209
Hackel, Meredith	731	53
Hacker, Jill	1165	100
Hackett, Kathleen	2225	172
Hadar, Shahela	1331	107
Hadd, Zach	1806	130
Hadden, Mary	1402	110
Hadfield, Michael		91
Hadfield, Michael		91
Hadjifrangiskou, Maria	2720	196
Hadjifrangiskou, Maria	1665	124
Hadwell, Valerie	168	20
Haertle, Thomas	2965	208
Haffler, Tyler	1033	66
Hagedorn, Charles	3106	214
Hagedorn, Charles	3119	214
Hagen, Steve		160
Haggerty, J. Matthew	3025	211
Haghjoo, Bobak	2142	169
Hahnke, Richard	1424	110
Haidar, Nazish	1601	118
Haider, Irfan	1423	110
Hailat, Zeyad	2456	182
Haines, Ashley	630	41
Haines, Ashley	629	41
Hairi, Sumyya	1013	65
Haitjema, Charles	914	61
Hajib, Madhavan	2762	198
Hajighasemi, Mahbod	1469	112
Hajjar, Adeline	713	52
Hajjar, Adeline	2868	204
Hajkova, Dagmar	2497	184
Hakobyan, Lilit	2557	187
Haldar, Malay	1720	126
Halden, Rolf	412	31
Halden, Rolf	3160	216
Halden, Rolf	415	31
Hale, Mike	2275	174
Haley, Bradd	2187	171
Haley, Bradd	2493	184
Haley, Bradd	1038	67

Author	Poster Board	Session Number
Hall, Adam	767	54
Hall, Amelia	703	51
Hall, Devon	1596	118
Hall, Dothula	1596	118
Hall, Geraldine		218
Hall, Geraldine	2280	175
Hall, Gerri	1240	103
Hall, Gerri	1241	103
Hall, Gerri	732	53
Hall, Gerri	146	19
Hall, Jason		75
Hall, Leslie	1218	102
Hall, Leslie	1197	101
Hall, Rosine	976	64
Hall, Scott	2132	169
Hall, Steven	2949	207
Hallenbeck, Patrick	2958	208
Haller, Martin	171	20
Halliday, Elizabeth	2002	140
Halloran, Brian	864	58
Hallsworth, John		224
Halpin, Jessica	1077	69
Halpin, Jessica	742	53
Halse, Tanya	745	53
Halstead, D.	739	53
Halstead, Diane	1232	103
Ham, Hyeonheui	282	25
Hamada, Shigeyuki	1255	103
Hamaguchi, Shigeto	2874	204
Hamamura, Natsuko	1374	109
Hamamura, Natsuko	1499	113
Haman, Katie	840	57
Hamasuna, Ryoichi	865	58
Hamdan-Partida, Aida	1137	99
Hamdan-Partida, Aida	1690	125
Hamdan-Partida, Aida	2753	197
Hamel, Frédéric	2798	200
Hamer, Debra	2285	175
Hamid, Yumna	2742	197
Hamidi Oskouei, Amir M.	2529	186
Hamill, Richard	2103	143
Hamill, Richard	2682	195
Hamilton, Graham	768	54
Hamilton, Matthew	2010	140
Hamilton, Pam	1191	101
Hamilton, Pam	2292	175
Hammack, Richard	3073	213
Hammack, Thomas	381	29
Hammer, Brian		160
Hammerly, Susan	1928	136
Hammond, John		149
Hamood, Abdul	1313	106
Hampel, Ken	20	13
Hampton, Jennifer	267	24
Hamrick, Terri	72	15
Hamula, Camille	161	19
Han, Dongfei	1363	108
Han, Dukki	920	62
Han, Ho Jae	2706	196
Han, Ji-Hye	2476	183
Han, Jing	197	21
Han, Jing	1105	97
Han, Jing	1618	119
Han, Lizhong	1232	103
Han, Nam-Soo	1972	138
Han, Ping	947	63
Han, Ruyang	2582	188
Han, Ruyang	1371	109
Han, Sang-Ick	2701	195
Han, Sukkyun	1375	109
Han, Sukkyun	2473	183
Han, Tao	203	21
Han, Tao	1744	127
Han, Xiang	2785	199
Han, Xiang	1060	68
Han, Xiang	1065	68
Hanage, William		229
Hanaki, Hideaki	560	38
Hanauer, David	588	39
Hancik, Lydia	2417	180
Hancock, Stephen		146
Handelsman, Jo	1343	107
Handelsman, Jo		77
Händler, K	995	65
Händler, Kristian	1996	139
Handley, Kim	2579	188
Handley, Kim	943	63
Handley, Kim	2943	207
Hanes, Darcy	376	29
Hanincova, Klara	67	14
Hanisch, Brock	2345	177
Hanke, Mark	2894	204
Hanley, Kaitlyn	3122	214
Hanley, Kaitlyn	3109	214
Hanley, Kaitlyn	3094	214
Hanley, Kathryn	532	36
Hanna, Philip	685	50
Hannah, Ryan	2382	179
Hannan, Thomas		231
Hanning, Irene	1968	138
Hanning, Irene	57	14
Hansen, Glen	179	20
Hansen, Glen	109	17
Hansen, Immo	532	36
Hansen, Jessica	1212	102
Hansen, Lars	2157	170
Hansen, Lori	2823	202
Hansen, G.T.	109	17
Hanson, Andrea	345	28
Hanson, Blake	3123	215
Hanson, Buck	1923	136
Hanson, Jacqueline	3156	216
Hanson, Kimberly	1195	101
Hanson, Kimberly	1212	102
Hanson, Kimberly	1584	117
Hanson, Nancy	1106	97
Hanson, K.	109	17
Hanssen, Arlen	138	18
Hao, Zhao	3022	211
Haouz, Ahmed	720	52
Hara, Keisuke	1463	112
Hara, Masahiko	255	23
Harada, Ken-ichi	1297	105
Harada, Yosuke	2116	144
Harada, Yosuke	170	20
Harakeh, Steve	1628	122
Haramoto, Eiji	2023	140
Harastani, Houda	2778	199
Harbarth, Stephan	1264	104
Harchar, Terri	606	40
Harder, Jens	1424	110
Hardick, Justin	869	58
Harding, Clare	791	55
Hardy, Dwight	1203	101
Hardy, Joan	2623	189
Hardy, Jonathan		230
Harel, Josée	2388	179
Harhay, Dayna	2154	170
Hari, Kumar	390	29
Haridas, Shilpa	1656	123
Hariri, Rahman	2	12
Harkins, Tim	2101	143
Harkins, Timothy	3025	211
Harmel-Laws, Eleana	1780	129
Harmon, Amanda	3129	215
Harmon, Christopher	90	16
Harmon, Jill	2113	144
Harmsen, Dag		228
Harmsen, Dag		228
Harn, Hans I-Chen	2859	203
Harper, Jamie	2672	191
Harper, Jill	1150	99
Harrel, Brian	1716	126
Harrel, Brian	2233	173
Harrell, Laura	765	54
Harrington, Amanda	2251	173
Harrington, Amanda	2794	200
Harrington, Susan	732	53
Harris, Anthony	1651	123
Harris, Julie	2808	201
Harris, Julie		150
Harris, Nick	1207	101
Harris, Rhonda	2375	179
Harris, Simon	2088	143
Harris, Trina	1201	101
Harris-Coward, Pamela	2524	185
Harrison, Alistair	689	51
Harrison, Lisa	1688	125
Hart, Mark	1314	106
Hart, Mark	2474	183
Hartley, Catherine	1602	119
Hartley, David	451	32
Hartman, Gary	2548	186
Hartman, Gary	2547	186
Hartman, Nathan	1843	133
Hartman, Travis	2658	191
Hartmann, Isabel	1144	99
Hartnell, Britney	1408	110
Hartsock, Angela	3073	213
Hartzel, Lynn	1208	102
Haruta, Shin	1821	131
Harvey, Brian	186	21
Harvey, Jim	1617	119
Harvey, Ronald	333	27
Harvey, Samuel	60	14
Harvey, Veronica	1888	135
Harwich, Michael	301	26
Harwood, Caroline	2454	182
Harwood, Valerie	1039	67
Harwood, Valerie	1518	115
Harwood, Valerie	1533	115
Hasan, Chiler	2281	175
Hasan, Jafrul	1023	66
Hasan, Jafrul	477	33
Hasan, Masood	111	17
Hasan, Nur	1038	67
Hasan, Nur	484	34
Hasan, Nur	1542	116
Hasan, Nur	2187	171
Hasçelik, Gül?en	173	20
Hase, Claudia	66	14
Häse, Claudia	1366	108
Hasegawa, Hiroo	170	20
Hasegawa, Miyuki	1554	116
Hasegawa, Miyuki	1104	97
Hasegawa, Miyuki	1643	123
Hasegawa, Miyuki	651	49
Haseltine, Cynthia		217
Hashem, Fawzy	457	33
Hashimoto, Masahito	2488	183
Hashimoto, Yoshiteru	2966	208
Hashsham, Syed	2451	182
Hashsham, Syed	1200	101
Hashsham, Syed	772	54
Hashwa, Fuad	2778	199
Hassall Lawrence, Annie	3106	214
Hassan, Khaled	2799	200
Hassett, Daniel	2376	179
Hassett, Daniel	2726	196
Hasty, Jeff		163
Hata, Misako	2255	174
Hatch, Wayne	2351	178
Hatcher, Sarah	2619	189
Hatfull, Graham	2997	210
Hatfull, Graham	1871	134

Author	Poster Board	Session Number
Hatfull, Graham	2670	191
Hatfull, Graham		162
Hatfull, Graham	2998	210
Hatfull, Graham	588	39
Hatfull, Graham	1577	117
Hatfull, Graham	1866	134
Hatfull, Graham	1867	134
Hatfull, Graham	1869	134
Hatfull, Graham	296	26
Hatfull, Graham	2996	210
Hatosy, Stephen	486	34
Hatoum-Aslan, Asma		149
Hatzenpichler, Roland	944	63
Hatzenpichler, Roland	3082	213
Hatzinger, Paul	426	31
Hau Yama, Nidia	1019	65
Haugland, Richard	1521	115
Haugland, Richard	2013	140
Haugland, Richard	1036	66
Haurwitz, Rachel		219
Hauser, Alan	2189	171
Hauser, Loren	2096	143
Hau-Yam, Nidia	1018	65
Havell, Edward	72	15
Havill, Nancy	8	12
Hawkins, Ashley	900	60
Hay, John	3134	215
Hay, John	3135	215
Hay, Richard	3110	214
Hay, Thomas	1646	123
Hayashi, Hiroe	1301	105
Hayashi, Naoki	2815	202
Hayashi, Shirou	1710	126
Hayashi, Tetsuya	2182	171
Hayashi, Tetsuya	2663	191
Hayashi, Yasuhiro	2818	202
Hayashida, Sayaka	2420	180
Hayden, Karl	2086	143
Hayden, Mary	1709	126
Hayden, Randall		8
Hayden, Randall		8
Hayek, Saeed	377	29
Hayes, Clarmyra	1869	134
Hayete, Boris	418	31
Hayete, Boris	421	31
Hazas-Arteaga, Iris N.	437	32
Hazen, Kevin	93	16
Hazen, Kevin	92	16
Hazen, Kevin	1711	126
Hazen, Terry	3092	213
Hazen, Terry	2443	181
Hazen, Terry	2949	207
Hazen, Terry	2586	188
Hazen, Terry	1926	136
Hazen, Terry	1925	136
Hazen, Terry	490	34
Hazen, Terry	2458	182
Hazen, Terry	2948	207
Hazen, Terry	2409	180
Hazen, Terry	1438	111
Hazen, Terry	2434	181
Hazen, Terry	3091	213
Hazen, Terry	2946	207
Hazen, Terry	3089	213
Hazen, Terry	2087	143
Hazen, Tracy	2732	197
Hazra, Amrita	2433	181
He, Chuan	1109	98
He, Gui-Xin	448	32
He, Jianzhong	978	64
He, Jianzhong	977	64
He, Jianzhong	414	31
He, Lian	2432	181
He, Lili	3056	212
He, Lili	1848	133
He, Qiang	2613	189
He, Qiang		152
He, Shaomei	1914	136
He, Shaomei	337	27
He, X. H.	1012	65
He, Xiaohua	579	38
He, Xuesong	767	54
He, Yongqun	1603	119
He, Yongqun	798	55
He, Yongqun	1769	129
He, Zhili	975	64
He, Zhili	1913	136
He, Zhili	1915	136
He, Zhili	2487	183
He, Zhili	1920	136
He, Zhili	3092	213
He, Zhili	3074	213
He, Zhili	2409	180
He, Zhili	3080	213
He, Zhili	3080	213
He, Zhili	959	63
He, Zhili	1445	111
He, Zhili	957	63
He, Zhili	2482	183
He, Zhili	317	27
He, Zhili	405	30
He, Zhili	953	63
He, Zhili	2586	188
He, Zhili	1446	111
He, Zhili	2503	184
He, Zhili	324	27
He, Zhili	951	63
He, Zhili	2629	190
He, Zhili	322	27
He, Zhili	956	63
He, Zhili	348	28
He, Zhili	2458	182
He, Zhili	2584	188
He, Zhili	469	33
He, Zhili	1447	111
He, Zhili	1448	111
He, Zhili	955	63
He, Zhili	315	27
He, Zhili	958	63
He, Zhili	3081	213
Headley, J	446	32
Healer, Vicki	1183	100
Healey, Benjamin	3140	215
Healy, Olivia	312	27
Heaney, Christopher	2619	189
Heaney, Christopher	1596	118
Heath, Jason	1036	66
Heath, Kim	1167	100
Heath-Heckman, Elizabeth	1332	107
Heath-Heckman, Elizabeth		83
Heavner, Gretchen	421	31
Heavner, Gretchen	418	31
Heavner, Gretchen	410	31
Heavner, Gretchen	424	31
Hecht, Gregory	356	28
Heckler, Rachel	2556	186
Hedge, Smitha	2956	208
Hedman, Curtis	3115	214
Hedreyda, Cynthia	3068	213
Hedreyda, Cynthia	1284	105
Hedreyda, Cynthia	1482	113
Hedreyda, Cynthia	1470	112
Heemstreet, Williams	2086	143
Hefty, P	2145	169
Hefty, P.	2293	175
Hefty, P.	2135	169
Heibel, Ariel	356	28
Heidari, Manijeh	867	58
Heidelberg, John		224
Heidelberg, John	2459	182
Heidelberg, Karla	2495	184
Heidelberg, Karla	1883	134
Heilmann, Kris	2986	209
Heilmann, Kris	104	16
Heim, Cortney	2894	204
Heim, Kyle	915	62
Heimer, Susan	185	21
Heineman, William	2376	179
Heinlen, Latisha	1134	99
Heinrichs, Jon	569	38
Heithoff, Douglas	55	14
Heitman, Joshua	1380	109
Helbich, Steffen	1475	113
Helbling, Damian		220
Held, Nicole	1757	128
Heldke, Sybil	165	20
Helfer, Anne-Catherine	705	51
Helguera-Repetto, Cecilia	2654	191
Hellerstedt, Sage	424	31
Helsley, Kaitlin	313	27
Hemarajata, Peera	2844	203
Hemme, Christopher	2458	182
Hemme, Christopher		152
Hemmert, Andrew	1239	103
Hempel, Randy	35	13
Hempel, Randy	695	51
Henciak, Susan	90	16
Henderson, Carol	1994	139
Henderson, Carol	2535	186
Henderson, Christina	LB-08	233
Henderson, Gillian	1568	117
Henderson, Lory	402	30
Henderson, Michael	1122	98
Henderson, Terry	2683	195
Henderson, Thomas	2214	172
Henderson, Carol	1999	139
Hendricks, Joshua	1879	134
Hendrix, Roger	1866	134
Heng, Steven	1331	107
Hennessy, Bryan	325	27
Hennessy, Kristen	571	38
Henriquez, Marlene	598	40
Henriquez, Marlene	2471	183
Henry, Matthew	2689	195
Henry, Nelly	2392	179
Henson, Michael	2011	140
Henstra, Anne	2441	181
Hentrich, Karina	2707	196
Heo, Eunjung	2416	180
Heo, Kyeong	1971	138
Heo, Kyeong	1971	138
Hepler, Robert	830	56
Herbein, Joel	114	17
Herbein, Joel	115	17
Herbener, A	2260	174
Herbers, Joan		74
Herbst-Kralovetz, Melissa	1729	127
Herbst-Kralovetz, Melissa	1281	104
Herdt, Christian	119	18
Herlihey, Francesca	926	62
Herman, Elizabeth	1172	100
Hermann, Heipieper	464	33
Hermanowicz, Slawomir	2437	181
Hermans, Peter	1763	129
Hermans, Peter	2088	143
Hernandez, Adriana	2183	171
Hernandez, Carlos	1914	136
Hernandez, J.	1575	117
Hernandez, Jose	1311	106
Hernandez, Mark		73
Hernandez, Mirian	1914	136
Hernandez, Rina	669	49
Hernández, Alberto	1367	108
Hernández, Regina	442	32
Hernández Luna, Carlos	2523	185

Author	Poster Board	Session Number
Hernández Ochoa, León	1560	117
Hernández-Arroyo, María Miriam	1963	137
Hernandez-Campos, Francisco Javier	1949	137
Hernández-Campos, Francisco	1962	137
Hernández-Campos, Francisco	1939	137
Hernandez-Chiñas, Ulises	1001	65
Hernandez-Diaz, Wendy-Netzy	1943	137
Hernandez-Diaz, Wendy-Netzy	1962	137
Hernández-Neuta, Ginna	777	54
Hernández-Pando, Rogelio	2654	191
Hernández-Pando, Rogelio	1642	123
Hernández-Rodríguez, Patricia	1611	119
Hernandez-Shilon, Juan Antonio	2608	189
Hernandez-Valdes, Jhonatan	2895	205
Hernlem, B.	2520	185
Herrera, Aubrey	1570	117
Herrera, Emilio	3146	216
Herrick, Adam	617	41
Herring, Chris	986	64
Hervey, W.	2497	184
Herzyk, Parwel	768	54
Hess, David	667	49
Hettich, R	2498	184
Hettich, Robert		152
Hettich, Robert	3082	213
Hettich, Robert		85
Hettich, Robert	318	27
Hettich, Robert	3020	211
Hettich, Robert	966	63
Hettich, Robert	943	63
Hettich, Robert	340	27
Hettich, Robert	944	63
Hettich, Robert		224
Hettich, Robert	2943	207
Hettich, Robert	960	63
Hettich, Robert	1758	128
Hetzenecker, Stefanie	805	55
Heu, Chan	1156	99
Heu, Sunggi	1691	125
Heusdens, Christophe	LB-06	233
Heusipp, Gerhard	1726	127
Heussler, Gary		149
Hewlett, Erik	2212	172
Heyer, Wolf-Dietrich		217
Heyrend, Caroline	1239	103
Hiatt, Brian	1079	69
Hiatt, Jacob	877	59
Hicke, Brian	2352	178
Hicks, Kevin	2217	172
Hicks, Lauri	1074	69
Hicks, Randall	1517	115
Hidalgo, María	1954	137
Hidalgo Lara, Maria	1961	137
Hidalgo Lara, Maria	1472	112
Hieb, Lisa	1319	106
Hiett, Kelli	2825	202
Higa, Jeffrey	3124	215
Higashi, Dustin	2314	176
Higashi, Koichi	1548	116
Higashida, Cheryl	559	38
Higginbottom, Steven		77
Higgins, Gerard	186	21
Highlander, Sarah		157
Hightower, Logan	1134	99
Higurashi, Kyoko	932	62
Hikima, Jun-ichi	1624	119
Hikima, Jun-ichi	1290	105
Hikima, Junichi	2195	171
Hilbert, David	257	23
Hilf, Mark	3018	211
Hill, Christian	168	20
Hill, David	805	55
Hill, Eric	2410	180
Hill, Kent	1740	127
Hill, Lilian	3025	211
Hill, Martin	546	37
Hill, Russell	2491	183
Hill, Vincent	2047	141
Hill, Vincent	2046	141
Hill, Vincent	2493	184
Hillesland, Kristina		221
Hillesland, Kristina	2409	180
Hillesland, Kristina	2949	207
Hilligoss, Danielle	2281	175
Hillson, Nathan	992	64
Hillson, Nathan	3089	213
Hillyard, David	1206	101
Hilmer, Jonathan	853	57
Hilsabeck, Remy	2093	143
Hilton, Brett	522	36
Himpsl, Stephanie	2216	172
Himpsl, Stephanie		84
Hinde, George	111	17
Hindler, Janet		7
Hindler, Janet		7
Hindler, Janet	126	18
Hindler, Janet	129	18
Hindupur, Anand	1169	100
Hines, Carolyn	2982	209
Hines, David	1389	109
Hinojosa, Cecilia	2327	177
Hinojos-Faudoa, Luis	2593	188
Hinrichs, Steven	2347	178
Hinsa-Leasure, Shannon	904	61
Hinton, Deborah	2999	210
Hinton, Jay	1996	139
Hinton, Jay	995	65
Hintz, Karen	171	20
Hintze, Arend	330	27
Hinz, Angela	2711	196
Hiott, Lari	1085	97
Hiramatsu, Keiichi	665	49
Hirano, Takanori	190	21
Hirasimtschuk, Anna	1785	129
Hirata, Takahiro	932	62
Hirayama, Minami	2420	180
Hirayama, Toshiya	70	15
Hirono, Ikuo	2195	171
Hirsch, Penny	1915	136
Hirsch, Penny	951	63
Hirschhausen, Nina	2178	171
Hirshfield, Irvin	2931	207
Hirshfield, Irvin	1850	133
Hiruta, Nobuyuki	1104	97
Hise, Kelley	2536	186
Hiyoshi, Hirotaka	2231	172
Ho, Cheng-Yu	341	28
Ho, Feng-Ju	341	28
Ho, Katharina	1112	98
Ho, Paulo	1273	104
Ho, Ya-Chi	545	37
Hoang, Ngoc	3097	214
Hoang, Timothy	1493	113
Hoang, Tung	1263	104
Hoang, Tung	671	50
Hobbie, Sarah	322	27
Hobbie, Sarah	959	63
Hobbie, Sarah	3074	213
Hobbie, Sarah	956	63
Hobbs, Brandon P.	574	38
Hobbs, Letizia	1803	130
Hobbs, Theodore	2314	176
Hochberg, Abby	2836	202
Hockett, Kevin	1321	106
Hodge, Kelsey	2428	181
Hodges, Laurie	1046	67
Hodges, Robin	2842	203
Hodinka, Richard		96
Hoeft, Shelley	1373	109
Hoegh, Silje	2985	209
Hoegh, Silje	1168	100
Hoegh, Silje	2640	190
Hoehler, Tori	1392	109
Hoehler, Tori	3085	213
Hofer, Cristina	2992	209
Hoffman, Leia	2710	196
Hoffman, Michele	1937	136
Hoffman, Noah	773	54
Hoffman, Noah	2631	190
Hoffman, Robert	2747	197
Hoffmann, Christian	661	49
Hoffmann, Christian	661	49
Hoffmann, Maria	3049	212
Hoffmann, Maria	2639	190
Hoffmaster, Alex	3145	216
Höfling, Sabrina	2843	203
Hofstadler, Steven	567	38
Hogan, Cliff	1132	99
Hogan, Mary	737	53
Hogendorf, Wouter	724	52
Hogsett, David	986	64
Høiby, Niels	1631	122
Høiby, Niels	1083	97
Høiby, Niels	2157	170
Høiby, Niels	2837	202
Høiby, Niels	1262	104
Hokey, David	2673	191
Hola, Veronika	2360	178
Holben, William	3011	211
Holden, Patricia	3098	214
Holden, Patricia	3095	214
Holden, Patricia	3103	214
Holden, Patricia	3094	214
Holden, Patricia	455	33
Holden, Patricia	3096	214
Holder, Nikolai	919	62
Holland, Ricky	1492	113
Holland, Steve		85
Holland-Hall, Cynthia	2288	175
Hollands, Andrew	1269	104
Hollenbeak, Christopher	2787	199
Hollibaugh, James	1479	113
Hollister, Emily	764	54
Hollister, Emily		157
Holm, Geoff	553	37
Holman, Elizabeth		220
Holman, Hoi-Ying		220
Holman, Hoi-Ying	3022	211
Holman, Hoi-Ying	894	60
Holman, Natalie	2346	178
Holmes, David	1293	105
Holmes, Dawn	2703	195
Holmes, Dawn	2457	182
Holmes, Dawn	2592	188
Holmes, Randall	673	50
Holmes, Randall	2851	203
Holmes, Susan	2633	190
Holt, Hanne	2985	209
Holt, Jonathan	1343	107
Holt, Scott	1282	105
Holt, Scott	2368	179
Holt, Scott	2367	179
Holtzapple, Sharon	2242	173
Holzem, Ryan	2060	142
Holzman, Robert	2983	209
Homer, Karen	1116	98
Honda, Hiroyuki	2833	202
Honda, Takeshi	2231	172
Hong, Haeyeon	2339	177
Hong, James	1222	102
Hong, Minki	526	36
Hong, Minki	527	36
Hong, Minki	528	36
Hong, Sunhee	1504	114
Hong, Yeun	1985	138

Author	Poster Board	Session Number
Honma, Kiyonobu	1663	124
Honma, Kiyonobu	2883	204
Honma, Megumi	1476	113
Honsa, Erin	1138	99
Hood, Rachel	1817	131
Hood, Rachel	2217	172
Hoogewerf, Arlene	2605	189
Hook, Magnus	1750	128
Hooper, David		2
Hooper, David		121
Hoover, Karen		92
Hoover, Timothy	241	23
Hoover, Timothy	25	13
Hoover, Valerie	1211	102
Hopper, Anita	606	40
Hor, Lien-I	2859	203
Horikawa, Manabu	273	25
Horka, Marie	2360	178
Horn, Fabiana	194	21
Horn, Fabiana	635	41
Horn, Fabiana	2913	205
Horn, Greg		224
Horn, Kimberly	2782	199
Horn, Matthias	1815	131
Horne, Shelley	3046	212
Horne, Shelly	923	62
Horneck, Gerda	261	24
Horneman, Amy	1651	123
Hornsby, Michael	1746	127
Horst, Allison	455	33
Horswill, Alexander	2914	205
Horton, John	72	15
Horvat, Rebecca		223
Horvat, Rebecca		223
Horvath, Philippe	298	26
Horvath, Philippe		149
Hoshide, Matthew	1058	68
Hoshide, Matthew	1574	117
Hoshino, T.	1543	116
Hoshino, Takayuki	613	40
Hosking, Martin	688	50
Hossain, A.	2163	170
Hossain, M. Anwar	637	41
Hossain, Mohammad	2086	143
Hossain, Mohammad	1323	106
Host, Kurtis	1130	98
Hou, Jiun-Nun	1256	104
Hou, Jung-Hsin	942	63
Hou, Shaobin	1057	68
Hou, Shuyu	2171	170
Hou, Zhe	3056	212
Houck, Herb	1717	126
Houck, Herb	743	53
Hougen, Hans Petter	2157	170
Houle, Sébastien	1605	119
Houpt, Eric	1718	126
Houpt, Eric		8
House, Claire	555	37
House, John	55	14
Houseman, Jeana	1176	100
Houze, Yolanda	1576	117
Houze, Yolanda	1079	69
Høvik, Hedda	281	25
How, Kah	1140	99
Howard, Frederick	2728	197
Howard, Megan	1888	135
Howard, Stephen	1694	125
Howard, Susan	2671	191
Howe, Adina	330	27
Howell, Amy	1966	138
Howell, Amy	2527	186
Howell, P.		225
Howell, Patricia	78	15
Howell, Patricia	2713	196
Howell, Patricia	2719	196
Howie, Rebecca	2767	198
Howie, Rebecca	662	49
Howson, David	751	53
Howson, David	157	19
Hruby, Milan	1929	136
Hryckowian, Andrew	1128	98
Hsiao, William	499	34
Hsieh, Chang-Yi	3071	213
Hsieh, Meng-Lun	2999	210
Hsieh, Ping-Kun	1676	124
Hsu, FoSheng	2217	172
Hsu, Fu-Chih	2017	140
Hsu, Fu-Chih	1032	66
Hsu, Hui-Min	628	41
Hsu, Shifang	2377	179
Hsu, Shu-Chuan	476	33
Hsu, Su-Ling	1614	119
Hsu, Vincent	2395	180
Hsu, Wen-Hwei	2662	191
Hsu, Wen-Hwei	216	22
Hsueh, Hsiang-Yun	1970	138
Hu, Benjamin	559	38
Hu, Haijing	1314	106
Hu, Hui-Yu	2662	191
Hu, J		226
Hu, J	387	29
Hu, James	2632	190
Hu, James	2911	205
Hu, James		78
Hu, L	2089	143
Hu, Lan	2714	196
Hu, Lan	3065	212
Hu, Lan	389	29
Hu, Patrick	689	51
Hu, Ping	LB-02	233
Hu, Shuai	2198	171
Hu, Weili	439	32
Hu, Yigang	317	27
Hu, Yigang	324	27
Hu, Yuan	2542	186
Hu, Zonglin	1351	108
Hua, Sui Sheng	3048	212
Hua, Sui Sheng	2520	185
Hua, Trang	1223	102
Hua, Wang	1246	103
Huaman, Ana	3036	211
Huang, Bing-Shou	2662	191
Huang, Chi-Lang	1056	68
Huang, Chieh-Chen	1501	113
Huang, Chieh-Chen	341	28
Huang, Ching-Tsan	219	22
Huang, Hsuan-Cheng		78
Huang, Jau-Ling	1061	68
Huang, Jing-Rou	727	52
Huang, Junjun	LB-07	233
Huang, KC	1824	132
Huang, Kerwyn		71
Huang, Kerwyn	1834	132
Huang, Kerwyn	1936	136
Huang, Kerwyn	609	40
Huang, Kerwyn	1835	132
Huang, Kerwyn	1833	132
Huang, Kerwyn		227
Huang, Kerwyn		76
Huang, Kerwyn	1826	132
Huang, Kerwyn Casey	247	23
Huang, Kuo-Hsiang	1831	132
Huang, Lei	462	33
Huang, Li	1044	67
Huang, Sheng-He	2861	203
Huang, Shir-Ly	2448	181
Huang, Xiao-Zhe	1677	124
Huang, Xiaoxia	1236	103
Huang, Y. Y.	2722	196
Huang, Ying	1340	107
Huang, Ying-Jung	727	52
Huang, Yu-Chun	1940	137
Huang, Yue		152
Huard, Richard	1173	100
Hubbard, Mark	576	38
Hubbard, Troy	2841	203
Huber, David	2500	184
Hubschwerlen, Christian	2687	195
Hudek, Lee	2597	188
Hudgens, Edward	2001	140
Hudman, Deborah	871	59
Hudson, Andre	2930	207
Hudson, André	278	25
Huebner, Johannes	724	52
Huff, Krista	1761	129
Huffnagle, Gary	1724	126
Huffnagle, Gary	2888	204
Hufnagel, Markus	98	16
Hug, Laura	418	31
Hug, Laura	407	31
Hug, Melanie	2245	173
Hug, William	2034	141
Hugenholtz, Philip		151
Huggett, Megan	2092	143
Hughes, Chambers	54	14
Hughes, David		164
Hughes, James		82
Hughes, Lee		78
Hughes, Lee	1868	134
Hughes, Stephanie	1617	119
Hughes, Thomas	2906	205
Hui, Colleen	615	41
Huletsky, Ann	2979	209
Hullar, Meredith	776	54
Hulls, John	3099	214
Hulseberg, Christine	1723	126
Hulsebus, Holly	2689	195
Hulsebus, Holly	1099	97
Hulsebus, Holly	2752	197
Hulten, Kristina	2781	199
Hultgren, Scott	1146	99
Hultgren, Scott	2712	196
Hultgren, Scott	1741	127
Hultgren, Scott	2720	196
Hultgren, Scott		227
Hultgren, Scott	1665	124
Hultgren, Scott		231
Hultman, Jenni	490	34
Humbert, Jean-Francois	2039	141
Humeida, Ute		83
Hummel, Stephanie	2848	203
Hummels, Katherine	245	23
Humphrey, Parris	1383	109
Humphrey, Samuel	3147	216
Humphreys, Gavin	769	54
Humphreys, Hilary	2166	170
Humphries, Romney	513	35
Humphries, Romney	126	18
Humphries, Romney	129	18
Humphries, Romney	110	17
Humrighouse, Ben	2813	201
Hundley, Angel	2691	195
Hundt, Devin	1408	110
Hung, Chien-Che	1114	98
Hung, Chiung-Yu	1802	130
Hung, Chiung-Yu	2345B	177
Hung, Chiung-Yu	1800	130
Hung, Chun-Hsiung	476	33
Hung, Guo-Chiuan	1160	100
Hung, Richard	3013	211
Hunger, Sindy	334	27
Hunt, Debbie	2653	191
Hunter, Allison	2179	171
Hunter, Dawn	1177	100
Hunter, Eric		230

Author	Poster Board	Session Number
Hunter, Ryan	675	50
Huntley, Jason		231
Huntley, Jason		231
Huq, Anwar	1542	116
Huq, Anwar	2187	171
Huq, Anwar	1038	67
Huq, Anwar	2493	184
Hur, Hor-Gil	467	33
Hur, Hor-Gil	1363	108
Hur, Hor-Gil	920	62
Hur, Hor-Gil	1396	109
Hur, Sunggi	1876	134
Hurkman, W	899	60
Hurley, Bryan		231
Hurst, Aaron	1585	118
Hurt, Richard	1027	66
Hurtgen, Brady	1802	130
Hurwitz, Bonnie		224
Husain, Fasahath	2735	197
Husain, Tupur	2799	200
Huseby, Douglas	1735	127
Husian, Nuzhat	2763	198
Hussain, Haitham	1116	98
Hussain, Syed	2143	169
Hussain, Zafar	2234	173
Hussein, Khwam	1519	115
Hutchings, Matthew	2519	185
Hutchison, Ellen	703	51
Huynh, Chau	2678	195
Huynh, Kelvin	1493	113
Huynh, Kimberly	3084	213
Huynh, Steven	2750	197
Hwa-Jung, Kim	2676	191
Hwang, In-Gyun	1009	65
Hwang, Ingyu	282	25
Hwang, Ingyu	2308	176
Hwang, Ingyu	2295	176
Hwang, Jungwon	275	25
Hwang, Kyu	174	20
Hwang, Sunyoung	384	29
Hwang, Sze	2251	173
Hwang, Won	2716	196
Hybiske, Kevin	795	55
Hyduke, Daniel R.	2628	190
Hyduke, Daniel	2628	190
Hyeon, Ji-Yeon	1004	65
Hyman, Jay	1218	102
Hyman, Jay	1236	103
Hyman, Michael		220

I

Author	Poster Board	Session Number
Iavarone, Anthony	2674	191
Iavarone, Anthony	2436	181
Iba, Hitomi	2420	180
Ibarra-Montes, M.R.	646	42
Ibarra-Vargas, Leonardo	621	41
Ibekwe, Abasiofiok	1041	67
Ibelli, Tania	LB-03	233
Ibrahim, Salam	377	29
Ibrahim, Salam	1974	138
Ica, Tuba	466	33
Icenhour, Crystal	740	53
Ichijo, Tomoaki	1062	68
Ichijo, Tomoaki	395	30
Ichise, Yu-ki	1102	97
Icho, Melissa	1649	123
Iddyadinesh, Sanjana	451	32
Ifesan, Beatrice	163	19
Ifesan, Bode	163	19
Ifrah, Dan	710	51
Igarashi, Yasuo	1356	108
Igboin, Christina	1278	104
Igietseme, Joseph	2322	177
Ignatia, Laura	362	28
Ignatia, Laura	2578	187
Ignatia, Laura	3021	211
Ignatova, Tsveteslava	2965	208
Iida, Katuya	468	33
Iida, Tetsuya	2231	172
Iida, Tetsuya	1149	99
Iijima, Kazumaru	371	29
Iio, Wataru	2427	181
Ikawa Wakabayashi, Judy	1854	133
Ikeda, Fumiaki	1104	97
Ikeda, Fumiaki	1554	116
Ikeda, Fumiaki	651	49
Ikeda, Keiko	516	35
Ikeno, Christopher	2702	195
Iker, Brandon	2016	140
Iker, Brandon	2015	140
Ikheloa, Joseph	1215	102
Ikryannikova, L.	1247	103
Ilavarasi, Asokaraju	2435	181
Ilhan, Zehra	770	54
Iliev, Ilia	2965	208
Iliev, Ilia	2952	208
Ilina, E.	1247	103
Im, Jeongdae	1484	113
Imachi, Hiroyuki	950	63
Imamura, Yoshifumi	1781	129
Inaba, Hiroaki	190	21
Inagaki, Takanori	932	62
Inami, Hiroyuki	273	25
Indest, Karl	970	64
Indrawati, Lani	569	38
Infante-Ramírez, Rocio	530	36
Ingiliz, Patrick	661	49
Inglis, Fiona	1774	129
Ingmer, Hanne	1655	123
Ingmer, Hanne	710	51
Ingmer, Hanne	2419	180
Inhaquite, Patrícia	2992	209
Inoue, C.	1489	113
Inoue, Kengo	434	31
Insyxiengmay, Kim	2240	173
Inyang, Nyoho	1215	102
Inzana, Thomas	1609	119
Inzana, Thomas	714	52
Ioerger, Thomas	1570	117
Ionescu, Michael		160
Ipinza, Francisco	1118	98
Ippolito, James	479	33
Iqbal, Mir	141	19
Irie, Hiroshi	516	35
Irie, Yasuhiko	2704	196
Irizarry-Delgado, Freddie	546	37
Irmen, Kenneth	99	16
Irving, Damion	2378	179
Isely, Nikolas	1031	66
Ishida, Françoise Yoko		224
Ishida, Kasumi	789	55
Ishida, Maria	1071	69
Ishii, Junichi	2811	201
Ishii, Marina	1511	114
Ishii, Marina	2068	142
Ishii, Marina	1512	114
Ishii, Masaharu	1356	108
Ishii, Satoshi	2010	140
Ishikawa, Eiji	2318	176
Ishikawa, Shu	1548	116
Ishikawa, Takashi	2811	201
Islam, Dilara	1597	118
Islas-Romero, Laura	1964	138
Ismail, Ayman	58	14
Ismayilova, Rita	3137	215
Isogai, Emiko	1096	97
Isogai, Emiko	1645	123
Istanbullu, Ozlem	466	33
Isumi, Yuka	2420	180
Itai, Takaaki	1374	109
Italiani, Valeria	897	60
Ito, Atsushi	1731	127
Ito, Kazutomo	634	41
Ivacic, Lynn	2796	200
Ivanov, Ilia	979	64
Ivanov, Ivan	370	29
Ivanova, Iskra	2952	208
Ivanova, Iskra	2965	208
Iversen, C.	2089	143
Iversen, Carol	389	29
Iwai, Shoko	2451	182
Iwanaga, Naoki	1781	129
Iwasaki, Akiko		89
Iwatsuki, Yukio	1413	110
Iwen, Peter	2347	178
Iyer, Radha	50	14
Iyer, Radha	67	14
Izbicki, Jaclyn	450	32
Izumi, Yoko	1062	68
Izumikawa, Koichi	1781	129
Izumikawa, Koichi	2116	144
Izumikawa, Koichi	170	20

J

Author	Poster Board	Session Number
Jachlewski, Silke	3088	213
Jackson, B	1592	118
Jackson, Charlene	1085	97
Jackson, Colin	430	31
Jackson, Jessica	2082	143
Jackson, Jonathan	369	29
Jackson, Justin	3136	215
Jackson, Lindsay	236	23
Jackson, Robin	1185	100
Jackson, Scott	1067	69
Jackson, Scott	2736	197
Jackson, Scott	2733	197
Jackson, Scott	2104	143
Jackson, Scott	2102	143
Jackson, Tammye	747	53
Jackson, Tiffany	1713	126
Jackson, William		3
Jackson, William		3
Jackson, William	552	37
Jackson, S.	2005	140
Jacob, Jesse		94
Jacobs, Alice	573	38
Jacobs, Jared	2625	190
Jacobs, Jared	866	58
Jacobs, Jolanta	2799	200
Jacobs, Jonathan	23	13
Jacobs, Michael		157
Jacobs, Stephen	2905	205
Jacobs, William	2658	191
Jacobson, Beck		77
Jacobs-Sera, Deborah	2997	210
Jacobs-Sera, Deborah	588	39
Jacobs-Sera, Deborah	1866	134
Jacobs-Sera, Deborah	1871	134
Jacobs-Sera, Deborah	1869	134
Jaekel, Ulrike	1383	109
Jagoe, Charles	1895	135
Jahnke, Linda	1398	109
Jain, Amit	571	38
Jain, Amita	2801	200
Jain, Bhawana	2801	200
Jain, Prashant	1139	99
Jain, Ravi	390	29
Jain, Sanjay	2672	191
Jain, Sapna	2691	195
Jain, Sumita	2310	176
Jaing, Crystal	515	35
Jaing, Crystal		73
Jaiswal, Virendra	2763	198
Jake, Whang	2676	191
Jakubec, Martin	2969	208

Author	Poster Board	Session Number
Jambulingam, Malathi	2762	198
James, Greg	3136	215
James, Richard	1179	100
James, Tamara	2999	210
Jamil, Amer	355	28
Jamil, Nusrat	2323	177
Jamil, Nusrat	2298	176
Jan Roelof, Van der Meer	464	33
Janakiraman, Anuradha	1831	132
Janda, J.	1192	101
Janda, J.		8
Janda, William		80
Janes, Brian	685	50
Janes, Marlene	2017	140
Jang, Dan	2289	175
Jang, Ho Bin	1760	128
Jang, Ho Bin	1624	119
Jang, Ho-Bin	1290	105
Jang, Jeonghwan	920	62
Jang, Jun-Ho	1957	137
Jang, Jun-Ho	2821	202
Jang, Kyung-ku	2706	196
Jang, Min Joong	850	57
Jang, Min Joong	17	12
Jang, Sei-Heon	2422	181
Jang, Sook Jin	850	57
Jang, Yun-Ji	1736	127
Jang, Yun-Ji	1732	127
Janjic, Nebojsa	2248	173
Jannson, Janet	330	27
Janouskovec, Jan	1911	135
Janowicz, Diane	1742	127
Jansen, Marc	1270	104
Jansen, Pamela	2717	196
Janssen, Peter	1345	107
Jansson, Christer		220
Jansson, Janet		85
Jansson, Janet	490	34
Jansson, Janet	327	27
Jansson, Janet	318	27
Jansson, Janet	3067	213
January, Judy	86	16
January, Judy	750	53
Jap, Bing	2949	207
Japal, Knoxley	1023	66
Japal, Knoxley	477	33
Jardim, Armando	645	42
Jardine, Kolby		224
Jardine, Phil	2586	188
Jarecki, McKenzie	2841	203
Jarett, Jessica	493	34
Jarrar, Ameer	2904	205
Jarvis, K.	3061	212
Jarvis, K.	2089	143
Jarvis, Karen	376	29
Jarvis, Karen	22	13
Jarvis, Karen	2714	196
Jarvis, Karen	389	29
Jarvis, Karen	3054	212
Jary, Dorothee	2039	141
Jaschke, Paul	584	39
Jasrotia, Puja	2453	182
Jauregui, Catherine	190	21
Javidpour, Pouya	991	64
Jay, Jennifer	3116	214
Jay, Jennifer	3094	214
Jay, Jennifer	3098	214
Jay, Jenny	3095	214
Jay, Jenny	3122	214
Jayakumar, Amal	1902	135
Jayakumar, Amal	1420	110
Jay-Russell, Michelle	2539	186
Jean-Gilles Beaubrun, Junia	376	29
Jeannotte, Richard	1865	133
Jeansen, Stéphanie	1988	138
Jebbar, Mohamed	1877	134
Jegier, Pat	2543	186
Jellbauer, Stefan	688	50
Jellbauer, Stefan	687	50
Jelsbak, Lars	1558	116
Jenal, Urs		226
Jeng, Chian-Ren	520	35
Jenison, Rob	2352	178
Jenkins, Amy	1689	125
Jenkins, Audrey	41	13
Jenkins, Michael	2617	189
Jenkins, Michael	1534	115
Jenkins, Sarah	1770	129
Jenkins, Sarah	779	55
Jenkins, Tim	2977	209
Jenkins, Tim	15	12
Jennings, Amanda	1047	67
Jennings, Eleanor		44
Jensen, Allan	1631	122
Jensen, Bette	2555	186
Jensen, Jørgen	865	58
Jensen, Jørgen	2282	175
Jensen, Justin	2403	180
Jensen, Kirk		159
Jensen, Peter	2837	202
Jensen, Peter	1262	104
Jensen, Rune	1103	97
Jensen, Thoeger	1168	100
Jensen, Thoeger	2640	190
Jeon, Byeonghwa	384	29
Jeon, Che Ok	1980	138
Jeon, Che Ok	3072	213
Jeon, Che Ok	392	29
Jeon, Kyeongman	1063	68
Jeong, Byeong-ryool	2841	203
Jeong, Byeongho	1063	68
Jeong, Daham	983	64
Jeong, Daham	974	64
Jeong, Do-Won	1109	98
Jeong, Hee Gon	1135	99
Jeong, Jin-Woo	843	57
Jeong, Kwangjoon	699	51
Jeong, Kwangjoon	670	50
Jeong, Kwangjoon	676	50
Jeong, Sang-Min	65	14
Jeong, Seon-Ju	1971	138
Jeong, Seon-Ju	1971	138
Jeong, Yong-Kee	843	57
Jerez, Carlos	2598	188
Jernigan, Katherine	1442	111
Jerris, Robert		218
Jerris, Robert	2271	174
Jessen, Arne	661	49
Jessen, Danielle	2296	176
Jha, Jyoti	32	13
Jha, Rajneesh	828	56
Ji, Hong	1458	112
Ji, Quanjiang	1109	98
Ji, Yindou	1353	108
Ji, Yinduo	1136	99
Jia, Fen	1789	130
Jia, Jinghua	1154	99
Jia, Xi Yu	1031	66
Jia-Cih, Yang	1501	113
Jiang, Ju	1248	103
Jiang, Rongrong	462	33
Jiang, Rongrong	1947	137
Jiang, Shenghua	1396	109
Jiang, Wenyan	2192	171
Jiang, Yi-Huei	951	63
Jiang, Zewei	2354	178
Jie, Mengmeng	1806	130
Jimenez, Maribel	3052	212
Jimenez, Maribel	664	49
Jimenez Otero, Fernanda	1334	107
Jimenez-Alzate, Maria	2345B	177
Jimenez-Espinoza, Rogelio		84
Jiménez-Fierro, Mayté	1956	137
Jin, Cheng-Yun	843	57
Jin, Dazhi	105	17
Jin, Gwi Hae	2333	177
Jin, Hongfan	1471	112
Jin, Mei Ling	2333	177
Jin, Ming	738	53
Jin, Qusheng	1382	109
Jin, Shouguang	1154	99
Jin, Yong	1100	97
jin, Yujie	3088	213
Jinadasa, Rasika	2857	203
Jo, Hannah	604	40
Jo, Hannah	597	40
Jo, Youmi	2704	196
Joachimak, Marcin	2646	190
Joachimiak, Marcin	884	59
Joachimiak, Marcin	881	59
Joachimiak, Marcin	2409	180
Jobling, Michael	2851	203
Jochumsen, Nicholas	1103	97
Jogl, Gerwald	1650	123
Johan, Hofkens	464	33
Johannson, Jörgen		219
Johansen, Helle	1631	122
Johansson, Trintje	886	59
John, Michael	2234	173
Johncox, Vickie	2278	174
Johnson, Aimee	1369	108
Johnson, Alexander		88
Johnson, Alexis	1041	67
Johnson, Alexis	2641	190
Johnson, Benjamin	2605	189
Johnson, Carl	2400	180
Johnson, Casonya	1879	134
Johnson, Casonya	599	40
Johnson, Charles	156	19
Johnson, Christine	3035	211
Johnson, Crystal	2927	206
Johnson, Crystal	1038	67
Johnson, David		220
Johnson, David	1408	110
Johnson, Eric	2214	172
Johnson, Eric	2214	172
Johnson, Eugene	2832	202
Johnson, Glenn	2562	187
Johnson, J.	1166	100
Johnson, J. Kristie	815	56
Johnson, James	2777	198
Johnson, James	2975	209
Johnson, Jeff	1928	136
Johnson, Jennifer	1651	123
Johnson, Judith	1040	67
Johnson, Kimberle	2149	169
Johnson, Kristie	565	38
Johnson, Lucinda	3139	215
Johnson, M.		159
Johnson, Paul	1906	135
Johnson, Reid		146
Johnson, Scott	1212	102
Johnson, Suzanne	1791	130
Johnson, Suzanne	845	57
Johnson, Tim	2451	182
Johnson, Timothy	482	34
Johnson, William	532	36
Johnson-Thompson, Marian		47
Johnston, Brian	2975	209
Johnston, Claire	1602	119
Johnston, David		87
Johnston, Norman	623	41
Joko Nugroho, Agustinus	3021	211
Joko Nugroho, Agustinus	362	28
Jones, Anthony	1205	101

Author	Poster Board	Session Number
Jones, Bradley	1667	124
Jones, Bradley	69	15
Jones, Brian	485	34
Jones, Cerith	2229	172
Jones, Cheron	499	34
Jones, Corbin		157
Jones, Cristina	722	52
Jones, Denise	737	53
Jones, Jessica	2055	141
Jones, Jessica	2230	172
Jones, Marcus	1109	98
Jones, Marcus	1326	106
Jones, Melissa	1233	103
Jones, Melissa	682	50
Jones, Ronald	175	20
Jones, Ronald	660	49
Jones, Ronald	4	12
Jones, Ronald	2758	198
Jones, Ronald	131	18
Jones, Ronald	5	12
Jones, Ronald	140	19
Jones, Ronald	1641	123
Jones, Ronald	1210	102
Jones, Ronald	1630	122
Jones, Ronald	117	18
Jones, Stuart	1406	110
Jones, Stuart	2463	182
Jones, Tara	2212	172
Jong, Ambrose	2861	203
Jong-Hyun, Jong-Hyun	1312	106
Jong-Seok, Kim	2676	191
Jonker, Martijs	1270	104
Joo, Hwang-Soo	2222	172
Joo, Min	150	19
Joo, Min Young	850	57
Joo, Yoo-Jin	698	51
Jordan, Anita	731	53
Jordan, Jeanne	88	16
Jordan, Jeanne	1162	100
Jordan, King	2453	182
Jorgensen, Dana	708	51
Jorgensen, James	154	19
Jørgensen, Karin	1083	97
Jørgensen, Rasmus	1337	107
Jose, Nick	1369	108
Joseph, Kahaliah	2322	177
Joseph, Susan	1550	116
Joshi, Amita	830	56
Joshi, Bindu	2580	188
Joshi, Rajasi	347	28
Joshi, Rajasi	2909	205
Joshi, Suresh	2836	202
Joshi, Suresh	2971	209
Joshi-Caesar, Natasha	112	17
Joshua, Chijioke	2907	205
Jospin, Guillaume	1427	111
Jospin, Guillaume	495	34
Jospin, Guillaume	2464	182
Jothikumar, Narayanan	2047	141
Jou, Ruwen	1056	68
Joung, Cho-Kyung	2821	202
Jowiya, Waheed	1116	98
Joyan, Waleed	2799	200
Joyce, Joesph	830	56
Joyce, Kevin	2767	198
Joyner, Dominique	1926	136
Joyner, Dominique	2087	143
Jozwiak, Michael	1208	102
Ju, Feng	3087	213
Ju, Jae Eun	471	33
Ju, Kou-San	2517	185
Ju, Kou-San		157
Juan, Hsueh-Fen		78
Juarez, Jennifer	1832	132
Juárez, Oscar	2421	181
Juárez-Guzman, David	1959	137
Juárez-Guzman, David	1950	137
Juba, Tom	2948	207
Jubair, Mohammad	1040	67
Judd, Craij	507	34
Jula, Michael	2793	200
Juminaga, Darmawi	1458	112
Juminaga, Darmawi	1364	108
Jumponen, Ari	318	27
Jun, So-Young	917	62
June, Amber	2235	173
June, Amber	749	53
Jung, Byung-Kwon	1922	136
Jung, Ji Young	392	29
Jung, Kyoung Hwa	1692	125
Jung, Seong-Geun	1957	137
Jung, Seunho	365	28
Jung, Seunho	974	64
Jung, Seunho	983	64
Jung, Seunho	981	64
Jung, Sook-In	1790	130
Jung, Tae	2195	171
Jung, Tae Sung	1624	119
Jung, Tae Sung	1760	128
Jung, Tae-Sung	1290	105
Jung, Youjin	698	51
Jung, Young-Jung	1736	127
Jung, Young-Jung	1732	127
Jung, Young-Jung	2885	204
Jungkind, Donald	166	20
Junop, Murray	677	50
Jurado, Julio	1053	68
Jurczyszak, Denise	3102	214
Juretschko, Stefan	171	20
Juretschko, Stefan	2246	173
Jurss, Jonah	358	28
Justice, Nicholas		85
Justice, Nicholas	966	63
Justice, Nicholas	960	63
Justice, Sarah	1050	67
Justicia-Leon, Shandra	411	31
Jutakanoke, Rumpa	2571	187

K

Author	Poster Board	Session Number
Kaatz, Laura	810	56
Kabaru, Jacques	1875	134
Kabir, M.	1635	122
Kabiri-Badr, Leila	3113	214
Kadian, Sandeep	566	38
Kadlec, Robert	2360	178
Kadlec, Robert	2969	208
Kadota, Yosyu	730	52
Kaempfer, Raymond	2892	204
Kaempfer, Raymond	2208	172
Kaestli, Mirjam	506	34
Kaestli, Mirjam	1719	126
Kafer, Jared	2983	209
Kahl, Barbara	1267	104
Kahl, Barbara	1551	116
Kahl, Barbara	2734	197
Kahl, Barbara	2178	171
Kahler, Amy	1048	67
Kahler, Amy	2047	141
Kahler, Amy	2493	184
Kahler, Amy	2046	141
Kai, Masanori	2660	191
Kaiser, Dale	239	23
Kajfasz, Jessica	2942	207
Kajumbula, Henry	847	57
Kakeya, Hiroshi	2116	144
Kakeya, Hiroshi	170	20
Kakeya, Hiroshi	1781	129
Kalanetra, Karen	1981	138
Kalanetra, Karen	1919	136
Kalanetra, Karen	778	54
Kalanetra, Karen	2384	179
Kalath, Noemi	2271	174
Kalchayanand, Norasak	2154	170
Kaleem, Tuba	1572	117
Kaleem, Tuba	2330	177
Kalergis, Alexis	2743	197
Kalergis, Alexis	2727	197
Kalevitch, Maria	314	27
Kalia, Awdhesh	2179	171
Kalia, Vipin	438	32
Kallmann, Marcelo	2905	205
Kallstrom, George	559	38
Kalscheur, Kathryn	1425	110
Kaluoch, Okumu	1069	69
Kaluskar, Zelam	2718	196
Kam, Kai Man	2738	197
Kamagata, Yoichi	443	32
Kamal, Ireen	2799	200
Kamal, Nazia	1629	122
Kamel, Mireille	2799	200
Kamennaya, Nina		220
Kamihira, Shimeru	2116	144
Kamihira, Shimeru	170	20
Kamimura, Yosuke	613	40
Kaminski, Norbert	772	54
Kanack, Kristen	1715	126
Kanafani, Zeina	650	49
Kanai, Akira	1548	116
Kanak, Alison	2091	143
Kanaly, Robert	1499	113
Kanayama, Akiko	2980	209
Kanayama, Akiko	1643	123
Kanayama, Akiko	2989	209
Kanayama, Akiko	651	49
Kanayama, Akiko	1104	97
Kane, Andrew	1040	67
Kane, Aunica		148
Kane, Matthew		221
Kane, Staci	1591	118
Kaneko, Akihiro	1104	97
Kaneko, Akihiro	2980	209
Kaneoka, Midori	651	49
Kanetsuki, Yuka	1308	106
Kang, Beom Sik	1498	113
Kang, Bokyu	527	36
Kang, Bokyu	528	36
Kang, Bokyu	526	36
Kang, Chang Min	343	28
Kang, ChangMin	607	40
Kang, Dae Wook	412	31
Kang, Dae Wook	770	54
Kang, Ho Young	701	51
Kang, Ho Young	716	52
Kang, Jihun	3043	212
Kang, Sang-Rim	293	25
Kang, Sun	3162	216
Kang, Yun	1263	104
Kang, Yun	671	50
Kanistanon, Duangjit	2868	204
Kanj, Souha	650	49
Kansal, Rita	2880	204
Kanti, Atit	3021	211
Kanti, Atit	362	28
Kanwal, Faiza	12	12
Kanwar, AJ	2254	174
Kao, Chih-Ming	429	31
Kapala, Julius	2289	175
Kaper, James	1676	124
Kapil, Arti	2765	198
Kaping, Janice	1193	101
Kaplan, Barbara	772	54
Kaplan, Dan	1440	111
Kaplan, Heidi	2173	170
Kaplan, Heidi	1115	98
Kapoor, Amit		8

Author	Poster Board	Session Number
Karaduman, Perihan	1580	117
Karakousis, Petros	2661	191
Karakousis, Petros	2672	191
Karakousis, Petros	2657	191
Karakousis, Petros	562	38
Karakousis, Petros	2659	191
Karakousis, Petros	1570	117
Karalewitz, Andrew	2211	172
Karamsetty, Raghavendra	LB-10	233
Karaolis, David	3142	215
Karaoz, Ulas	962	63
Karaoz, Ulas	3022	211
Karaoz, Ulas	2638	190
Karaoz, Ulas		85
Karaoz, Ulas	2582	188
Karaoz, Ulas	1371	109
Karatan, Ece	2936	207
Karatan, Ece	711	51
Karatan, Ece	922	62
Karau, Melissa	1634	122
Karauzum, Hatice	809	56
Karauzum, Hatice	818	56
Karauzum, Hatice	815	56
Karchmer, Tobi	2242	173
Karchmer, Tobi	2235	173
Karchmer, Tobi	1166	100
Karchmer, Tobi	749	53
Kari, Laszlo	2113	144
Karimova, Gouzel		71
Karkhoff-Schweizer, RoxAnn	2908	205
Karlsson, Maria	662	49
Karna, S.L. Rajasekhar	1664	124
Karp, Peter	2632	190
Karp, Peter	2944	207
Karp, Peter	2627	190
Karpinets, Tatiana	1286	105
Karpinets, Tatiana	2454	182
Karpinets, Tatiana	3016	211
Karpisek, Andrew	2841	203
Karpodinis, Marie	1775	129
Karr, Jonathan	866	58
Karr, Jonathan	2625	190
Karre, Tess	119	18
Karriker, Locke	3123	215
Kartsev, Nikolai	1088	97
Kasanke, Christopher	2486	183
Kaschabek, Stefan	1467	112
Kase, Julie	2540	186
Kase, Julie	1998	139
Kash, John	808	56
Kashimoto, Takashige	1149	99
Kasifoglu, Nilgun	1225	102
Kasinath, Rajendra	311	26
Kasinathan, Vyjayanti	1231	103
Kasinathan, Vyjayanti	1236	103
Kasinathan, Vyjayanti Kasinathan	574	38
Kaspar, Charles	3062	212
Kaspar, Charles	2406	180
Kasper, Doug	144	19
Kasper, Stephen	2138	169
Kassem, Issmat	1847	133
Kastbjerg, Vicky	1991	139
Kastner, Nina	2404	180
Katanik, Mark	2280	175
Kathariou, Sophia	996	65
Katilius, Evaldas	2248	173
Kato, Tomohisa	273	25
Kato, Tomoko	1062	68
Kator, Howard	1520	115
Katz, Allan	135	18
Katz, Barry	1742	127
Katz, Chen	1349	108
Katz, Jacqueline	548	37
Katz, Laura		151
Katz, Lee	2453	182
Katze, Michael	2628	190
Kaufman, Michael	1318	106
Kaukab, Marium	12	12
Kaul, Karen	1163	100
Kaul, RajReni	2479	183
Kaur , Upninder	832	56
Kaushik, Karishma	703	51
Kavanagh, John	1948	137
Kawakami, Junko	1238	103
Kawano, Yoshihiro	434	31
Kawchuk, Lawrence	2478	183
Kay, Ian	1189	100
Kay, S	2945	207
Kayagaki, Nobuhiko		158
Kaye, Keith	127	18
Kayiba, Nadine	1202	101
Kayode-Isola, Tayo	1481	113
Kayode-Isola, Tayo	2079	142
Kazakov, A.	1862	133
Kazi, Javed	2111	144
Kazmi, Shahana	1686	125
Kazmi, Shahana	2147	169
Kazmi, Shahana	1188	100
Kazmi, Shahana	18	12
Kazmi, Shahana	2143	169
Kazmi, Shahana	2111	144
Kazmi, Shahana	531	36
Kazmi, Shahana	2123	144
Kazmi, Shahana	12	12
Kazmi, Shahana	14	12
Kc, Prabhat	1423	110
Ke, Danxia	1581	117
Ke, Xiaobo	284	25
Kearns, Daniel	912	61
Kearns, Elizabeth	1465	112
Keasling, Jay	992	64
Keasling, Jay	1368	108
Keasling, Jay	1364	108
Keasling, Jay	364	28
Keasling, Jay	2907	205
Keasling, Jay	1458	112
Keasling, Jay	989	64
Keasling, Jay	991	64
Keasling, Jay	990	64
Keasling, Jay	2946	207
Keating, David	914	61
Keck, James	2696	195
Keck, Wolfgang	2687	195
Keddis, Ramaydalis	1419	110
Keel, M	840	57
Keeler, Calvin	551	37
Keeley, Ann	3126	215
Keeling, Patrick	1911	135
Keely, Scott	2020	140
Keenan, Jacqueline	188	21
Keeshin, Susana	2117	144
Keestra, A. Marijke	725	52
Keestra, A. Marijke	2303	176
Keevil, C	2043	141
Keevil, Charles	2167	170
Kefeli, Valentine	314	27
Kegerreis, Kylie	415	31
Kehl, Sue	2240	173
Kehl-Fie, Thomas	688	50
Keightley, J. Andrew	911	61
Keiler, Kenneth	2681	195
Keim, P	2201	171
Keim, Paul	1719	126
Keim, Paul	2196	171
Keim, Paul	2093	143
Keim, Paul		192
Keim, Paul	1187	100
Keim, Paul	2098	143
Keim, Paul	2782	199
Keiser, Nicholas	2337	177
Kekeklidze, M	1148	99
Kekelidze, Merab	LB-02	233
Keleher, Lauren	787	55
Kelesidis, Theodoros	513	35
Kelesidis, Theodoros	126	18
Keller, Kimberly	454	33
Keller, Lance	722	52
Kelley, Scott	1934	136
Kelley, Scott	511	35
Kelley, Scott	2394	179
Kelley, William	2184	171
Kellogg, Christina	1399	110
Kelly, Dave	29	13
Kelly, John	1886	135
Kelly, John	2501	184
Kelly, John	1425	110
Kelly, Megan	614	40
Kelly, Peter		229
Kelly, Ruth	2255	174
Kelly, Vanessa	2297	176
Kelsey, Krista	2357	178
Kelty, Catherine	3097	214
Kelty, Catherine	2027	140
Kelty, Catherine	3098	214
Kembel, Steven	1427	111
Kemp, Kevin	78	15
Kemp, Michael	2985	209
Kemp, Michael	2640	190
Kemp, Michael	1168	100
Kempenaar, Emmy	1569	117
Kempher, Megan	881	59
Kempher, Megan	884	59
Kendall, Brian	1595	118
Kendall, Brian	1584	117
Kendra, Joseph	1912	136
Keness, Yoram	153	19
Kennard, Andrew	253	23
Kennedy, Daniel	2703	195
Kennedy, Kieron	2385	179
Kennedy, Michael	223	22
Kennedy, Tara	71	15
Kenney, James	2389	179
Kenney, P. Brett	3024	211
Kent, Angela	956	63
Kenyon, William	2401	180
Kenzaka, Takehiko	461	33
Keown, Dayle	188	21
Kepler, Jennifer	610	40
Kerdsin, Anusak	1255	103
Kerfeld, Cheryl	929	62
Kerfeld, Cheryl	1369	108
Kerfeld, Cheryl	940	62
Kerfield, Cheryl	962	63
Kerkhof, Lee	396	30
Kerley, Marilyn	3016	211
Kern, Suzanne	2445	181
Kerr, Jennifer	76	15
Kerrinnes, Tobias	204	21
Kersey, Caleb	1327	106
Kerssemakers, Jacob	876	59
Kersten, Roland		154
Keseler, Ingrid	2944	207
Kessler, Harald		92
Kestler, Harry	524	36
Kestler, Harry	523	36
Kettleson, Eric	1508	114
Key, Trent	439	32
Keyaerts, Els	561	38
Keys, Christine	2536	186
Keys, Christine	2544	186
Khairallah, Marie-Therese	2680	195
Khairnar, Krishna	1638	122
Khaleel, Sari	488	34
Khalid, Sheza	430	31
Khalifeh, Jihane	1628	122

Author	Poster Board	Session Number
Khan, Adnan	2111	144
Khan, Ashraf	2860	203
Khan, Ashraf	649	49
Khan, Ashraf	1992	139
Khan, Ashraf	1086	97
Khan, Asif	2261	174
Khan, Asif	2790	200
Khan, Asif	1601	118
Khan, Asif	2262	174
Khan, Asif	1601	118
Khan, Faisal	2298	176
Khan, Mansoor	203	21
Khan, Mansoor	1744	127
Khan, Mariya	11	12
Khan, MUNAWWAR	3077	213
Khan, Rabia	2902	205
Khan, Rabia	2206	171
Khan, Saeed	2330	177
Khan, Saeed	2262	174
Khan, Saeed	2261	174
Khan, Saeed	2790	200
Khan, Saeed	1601	118
Khan, Saeed	2111	144
Khan, Saeed	1572	117
Khan, Saeed	1744	127
Khan, Saeed	203	21
Khan, Saeed	203	21
Khan, Saeed	1744	127
Khanani, Muhammad	2790	200
Khanani, Muhammad	2262	174
Khanani, Muhammad	1601	118
Khanani, Muhammad	2261	174
Khanani, Muhammad	2330	177
Khanani, Muhammad	1572	117
Khandelwal, Megha	1856	133
Khandelwal, Megha	1857	133
Khardori, Nancy	2990	209
Khardori, Nancy	2973	209
Khare, Reeti	2340	177
KHARE, SANGEETA	2860	203
Khare, Sangeeta	197	21
Khare, Sangeeta	1618	119
Khare, Vineeta	2974	209
Khare, Vineeta	1209	102
Khare, Vineeta	1224	102
Khasa, D	446	32
Khatri, Mahesh	1847	133
Khokhar, Ambreen	2790	200
Khokhar, Ambreen	2261	174
Khoo, Lester	2086	143
Khuong, Nhi	300	26
Khurana, Jasmine	2118	144
Khurana, Sumeeta	832	56
Kibiki, Gibson	1718	126
Kich, Jalusa	3150	216
Kiehler, Brittany	2193	171
Kiel, James	1951	137
Kielian, Tammy	2894	204
Kienesberger, Sabine	2302	176
Kierbel, Arlinet	1703	125
Kiers, E.		148
Kiers, E.		148
Kieweg, Sarah	2135	169
Kik, Marja	2094	143
Kikuchi, Ken	665	49
Kil, So Yeon	1120	98
Kiljunen, Saija	1612	119
Killiny, Nabil		160
Kilmer, Brian	1910	135
Kilvington, Simon	2361	178
Kim, A-Young	2821	202
Kim, A-Young	1957	137
Kim, Anita	2303	176
Kim, BoA	1107	98
Kim, Bomy	1685	125
Kim, Bong-Soo	762	54
Kim, Byoung Sik	275	25
Kim, Choon	670	50
Kim, Dae-Wi	1492	113
Kim, Dae-Wi	1495	113
Kim, Daehee	343	28
Kim, Daehee	2576	187
Kim, Daewi	1491	113
Kim, Dockyu	403	30
Kim, Dockyu	1498	113
Kim, Dockyu	2084	143
Kim, Doman	1953	137
Kim, Dong-Hyeon	1004	65
Kim, Donghun	467	33
Kim, Duk Jin	343	28
Kim, Dukyun	1352	108
Kim, Eileen	1650	123
Kim, Elizabeth	1570	117
Kim, Eungbin	403	30
Kim, Eungbin	2084	143
Kim, Eungbin	1498	113
Kim, Eungbin	463	33
Kim, Gi-Young	843	57
Kim, Gyung Soo	352	28
Kim, Hae-Yeong	1009	65
Kim, Hae-Yeong	1985	138
Kim, Han-Suk	2716	196
Kim, Hong-Seok	1004	65
Kim, Hwa-Jung	804	55
Kim, Hwanhee	981	64
Kim, Hwanhee	365	28
Kim, Hye Soo	2333	177
Kim, Hye-Sook	1132	99
Kim, Hyo-Jung	373	29
Kim, Hyochin	1745	127
Kim, Hyun	1100	97
Kim, Hyun Ju	1944	137
Kim, Hyun-Joong	1009	65
Kim, Hyun-jung	1328	106
Kim, Hyunsook	423	31
Kim, Ik-Jung	1139	99
Kim, In Hwang	65	14
Kim, In-Hwang	706	51
Kim, Jaisoo	2379	179
Kim, JaYoung	1294	105
Kim, JaYoung	1468	112
Kim, Jeong	1357	108
Kim, Jeong Myeong	3072	213
Kim, Jeong-A	2716	196
Kim, Jeong-A	227	22
Kim, Jeong-A	2849	203
Kim, Jeong-Hwan	373	29
Kim, Jeong-Hwan	1971	138
Kim, Jeong-Hwan	1971	138
Kim, Jeong-Hwan	1972	138
Kim, Jeong-Ki	526	36
Kim, Jeong-Ki	527	36
Kim, Jeong-Ki	528	36
Kim, Jeong-Sun	471	33
Kim, Ji-Seon	1846	133
Kim, Jin	1790	130
Kim, Jinsoo	417	31
Kim, Jinsoo	423	31
Kim, Jisun	232	22
Kim, Jiyeon	2928	206
Kim, Jiyeon	683	50
Kim, Jong	762	54
Kim, Jong Bae	2760	198
Kim, Jong-Bae	2701	195
Kim, Jong-Chul	1807	130
Kim, Jong-Sang	373	29
Kim, Jong-Won	1063	68
Kim, Jongseol	2070	142
Kim, Joon	698	51
Kim, Ju-Hee	1790	130
Kim, Ju-Sim	673	50
Kim, JuHee	1468	112
Kim, JuHee	1294	105
Kim, Jung Hwa Jenny	2819	202
Kim, Jung-Ja	2211	172
Kim, Jungkon	363	28
Kim, Jungull	974	64
Kim, Jungull	983	64
Kim, Junyoung	2422	181
Kim, Kee	1807	130
Kim, Kee	207	21
Kim, Kee-Hong	1745	127
Kim, Kun-Soo	65	14
Kim, Kun-Soo	706	51
Kim, Kyoung	1002	65
Kim, Kyung-Hyo	68	15
Kim, Kyunghoon	604	40
Kim, Kyunghoon	612	40
Kim, Mi-Na	17	12
Kim, Min Ja	2882	204
Kim, Mincheol	2416	180
Kim, Minji	3104	214
Kim, Minsik	307	26
Kim, Myung Hee	432	31
Kim, Myung Hee	275	25
Kim, Myung-Il	1691	125
Kim, Sa-Hyun	2701	195
Kim, Sa-Hyun	2760	198
Kim, Sae	1984	138
Kim, Saehun	1969	138
Kim, Sang Hoon	1692	125
Kim, Sang-Dal	1922	136
Kim, Sang-Mok	887	59
Kim, Se Kye	1692	125
Kim, Se Woong	698	51
Kim, Seong-Jae	1491	113
Kim, Seong-Jae	1492	113
Kim, Seong-Jae	762	54
Kim, Seung Bum	2476	183
Kim, Seung Min	2706	196
Kim, Seungmin	2882	204
Kim, Sohyun	436	32
Kim, Soo	150	19
Kim, Soo	1100	97
Kim, Soo	676	50
Kim, Soo	699	51
Kim, Soo	670	50
Kim, Soo Hyun	850	57
Kim, Soo-Hyun	17	12
Kim, Soo-Hyun	1790	130
Kim, Su-Young	1063	68
Kim, Sujin	2648	190
Kim, Sujin	2647	190
Kim, Sun Chang	1468	112
Kim, Sun-Mi	207	21
Kim, Sung-Kun	2515	185
Kim, Suyeon	1352	108
Kim, Tae Gwan	3069	213
Kim, Tae Gwan	2063	142
Kim, Tae Gwan	3070	213
Kim, Tae Sung	1352	108
Kim, Tae Sung	62	14
Kim, Taeyoung	2576	187
Kim, Taeyoung	352	28
Kim, Wesley	1184	100
Kim, Won-Bin	275	25
Kim, Won-Bin	2704	196
Kim, Won-Bin	2889	204
Kim, Yang-Hoon	2692	195
Kim, Yang-Hoon	603	40
Kim, Yang-Hoon	474	33
Kim, Yang-Hoon	2891	204
Kim, Yesle	2173	170
Kim, Yo-Hwan	1922	136
Kim, Yong Jin	352	28

Author	Poster Board	Session Number
Kim, Yong-Dae	3151	216
Kim, Young Hun	2333	177
Kim, Young Ran	1107	98
Kim, Young-Hoon	1985	138
Kim, Young-Hun	1778	129
Kim, Young-Rok	2821	202
Kim, Young-Rok	1957	137
Kim, Younga	352	28
Kim, Yun-Gyeong	1004	65
Kimmel, Tiffany	2066	142
Kimura, Akiko	3124	215
Kimura, M	1554	116
Kimura, Nobutada	443	32
Kimura, S.	1543	116
Kinde, Hailu	2768	198
King, Amanda	1095	97
King, Caitlin	2412	180
King, D.	1378	109
King, Dawn	2615	189
King, Dawn	2050	141
King, Emily	2014	140
King, Gary	507	34
King, Gary	1479	113
King, Gary	2412	180
King, Gary	2490	183
King, Nicole		83
King, Nicole		151
King, Nicole		151
King, Nicole		91
King, Samantha	672	50
Kinoshita, Taroh	2664	191
Kinyon, Joann	3123	215
Kinyon, Joann	622	41
Kinzelman, Julie	2001	140
Kipry, Judith	1384	109
Kiraz, Nuri	1225	102
Kirby, John	245	23
Kiremitci, Abdurrahman	1	12
Kirikae, Teruo	2320	176
Kirkup, Benjamin		148
Kirkup, Benjamin		95
Kirn, Thomas	95	16
Kirpotina, Liliya	2858	203
Kirs, Marek	3111	214
Kirsch, Katie		73
Kirton, Edward	492	34
Kisalu, Neville	1740	127
Kishishita, Natsuko	1255	103
Kisiela, Dagmara	1547	116
Kissinger, April		76
Kist, Jennifer	1435	111
Kistler, James	3030	211
Kitajima, Isao	1710	126
Kitajima, Masaaki	2016	140
Kitajima, Masaaki	2015	140
Kitamura, Akio	932	62
Kitaoka, Maya	2209	172
Kitazaki, Chifumi	2366	179
Kitchel, Brandon	2098	143
Kitten, Todd	79	15
Kitts, Christopher	1933	136
Kitts, Christopher	1932	136
Kitts, Christopher	1931	136
Klann, Jane	3026	211
Klausner, Jeffery	667	49
Klein, Katherine	1194	101
Kleinstein, Sarah	1165	100
Kleinstein, Sarah	3124	215
Klena, Nikolai	248	23
Klenk, Peta-Gaye	1715	126
Klimas, Lisa	92	16
Klimis-Zacas, Dorothy	1978	138
Klimov, Denis	2509	184
Kline, Benjamin		72
Kline, Sheryl		73
Klinedinst, Eric	1049	67
Kling, David	1268	104
Klinkenberg, Lee	562	38
Klitgord, Niels	1369	108
Klitgord, Niels	962	63
Kloeckner, Wolf	1367	108
Kloepper, Joseph	1621	119
Klonoski, Joshua	2352	178
Klose, Karl	704	51
Klotz, Martin	453	33
Klümper, Uli	947	63
Knabel, S.	3038	212
Knabel, Stephen	3063	212
Knadler, Andrew	2782	199
Knadler, Andrew	2098	143
Knadler, Andrew	1187	100
Knaus, Ulla	780	55
Knecht, Deborah	2281	175
Knee, Jacqueline	2032	141
Knelman, Joseph	3010	211
Knezevic, Andreja	2687	195
Knight, John	356	28
Knight, Joseph	847	57
Knight, Rob	3033	211
Knight, Rob	321	27
Knight, Sharon	735	53
Knipe, Tiffany	2983	209
Knipling, Leslie	2999	210
Knob, Christopher	142	19
Knol, Jan	2318	176
Knoll, Laura		77
Knoll, Laura		77
Knowles, Donald	1619	119
Knowlton, Caitlin	497	34
Knox, Kristine	1408	110
Knudsen, Gitte	3047	212
Knudsen, Gitte	3047	212
Ko, Ching-Chung	296	26
Ko, GwangPyo	763	54
Kobayashi, Intetsu	2980	209
Kobayashi, Intetsu	1643	123
Kobayashi, Intetsu	1104	97
Kobayashi, Intetsu	1554	116
Kobayashi, Intetsu	651	49
Kobayashi, Intetsu	2989	209
Kobayashi, Kazuo	2182	171
Kobayashi, Kazuo	2666	191
Kobayashi, Kazuo	2664	191
Kobayashi, Masahiro	2468	183
Kobayashi, MICHIHIKO	2966	208
Kobayashi, Miwako	1234	103
Kobayashi, Miwako	1232	103
Kobayashi, Scott	1683	125
Kocagoz, Sesin	1580	117
Kocagoz, Tanil	1580	117
Kocar, Benjamin	1372	109
Koçer, Zeynep	500	34
Koçer, Zeynep	494	34
Koch, Anders	2283	175
Koch, Kim	2237	173
Kochanowski, Karl		154
Kodama, Toshio	1149	99
Kodama, Toshio	2231	172
Koehler, Gerwald	16	12
Koehler, Jane	1660	124
Koenig, David	756	54
Koenig, David	1506	114
Koenig, Sara	792	55
Koenig, Sara	801	55
Koeppel, Alexander	1427	111
Koepsell, Scott	2347	178
Koeth, Laura	132	18
Koga, P	1235	103
Koh, Andrew	43	14
Koh, Serry	2308	176
Koh, Serry	2295	176
Koh, Sung	3162	216
Koh, Sung-Cheol	1946	137
Koh, Won-Jung	1063	68
Kohl, Christopher	2687	195
Kohlerschmidt, Donna	1180	100
Kohn, Debra	2266	174
Kohno, Shigeru	2116	144
Kohno, Shigeru	170	20
Kohno, Shigeru	1781	129
Koid, Cassandra	904	61
Koide, Tie	897	60
Kokosi, Ioulia	1010	65
Kokosi, Ioulia	394	29
Kokosi, Ioulia	999	65
Kolber, Zbigniew	2509	184
Kolesar, Jill	1635	122
Kolewe, Kristopher	1654	123
Kolpin, Dana	2615	189
Kolyva, Anastasia	562	38
Komandur, Abhinav	2604	189
Kommedal, Oyvind	172	20
Kommedal, Oyvind	2259	174
Kommineni, Sushma	230	22
Komoda, Teruko	577	38
Komutanon, Vanida	2978	209
Konaklieva, Monika	2128	169
Kondo, Hidehiro	2195	171
Kong, Heidi		85
Kong, Heidi	755	54
Kong, Heidi	774	54
Kong, Jiayi	1537	116
Kong, Lilly	2348	178
Kong, Minsuk	305	26
Kong, Wei	254	23
Kong, Wei	2403	180
Kong, Xieheng	10	12
Kong, Xieheng	13	12
Konganti, Kranti	61	14
König, Wolfgang	1094	97
König, Wolfgang	2769	198
Koniges, Greg		217
Konkel, Michael	2854	203
Konkel, Michael		158
Konkol, Nick	2035	141
Konopka, Allan	321	27
Konopka, Allan	2410	180
Konstantinidis, Kostas	326	27
Kontnik, Renee		83
Koo, Jason	2713	196
Koo, Youngwon	275	25
Kopec, Anna	772	54
Kopecko, Dennis	2345	177
Kopecko, Dennis	1753	128
Kopecko, Dennis	817	56
Kopf, Sebastian	2594	188
Kora, Guruprasad	3016	211
Korachi, May	2551	186
Korajkic, Asja	1525	115
Korgenski, Kent	2238	173
Korkeala, Hannu	3040	212
Kornherr, Peter	100	16
Korobova, Olga	1088	97
Koropatkin, Nicole		84
Korsmeyer, Katy	594	39
Kortmann, Jens	1111	98
Koshinsky, Heather		73
Kosta, Artemis	791	55
Kostakioti, Maria	1665	124
Kostakioti, Maria	2720	196
Koster, Kent	1058	68
Koster, Kent	1574	117
Kostka, Joel	2453	182
Kostka, Joel	2091	143
Kostka, Joel	326	27

Author	Poster Board	Session Number
Kostrzewa, Markus	1190	101
Kostrzewa, Markus	1247	103
Kostrzewa, Markus	1714	126
Kostrzewa, Markus	627	41
Kotay, Shireen	3007	210
Kotb, Malak	2880	204
Kotera, Emiko	1254	103
Kotewicz, M	2089	143
Kotewicz, Michael	1067	69
Kotewicz, Michael	389	29
Kothari, Anamika	2627	190
Kothari, Ankita	988	64
Kothary, M	3061	212
Kothary, Mahendra	2714	196
Kothary, Mahendra	22	13
Kothary, Mahendra	389	29
Kotloski, Nicholas	2964	208
Kou, Chadel	1184	100
Koubsky, Evan	1076	69
Koubsky, Evan	1075	69
Koulougliotis, Dionysios	393	29
Koulougliotis, Dionysios	1010	65
Koulougliotis, Dionysios	394	29
Koulougliotis, Dionysios	999	65
Koushik, Amrita	LB-04	233
Koutsouri, Renee	318	27
Kowalczykowski, Stephen		217
Kowalczykowski, Stephen		217
Kowalski, Jason		78
Koyama, Augustine	516	35
Koyama, Hideaki	651	49
Koyama, Hideaki	1554	116
Koyamatsu, Terrie	172	20
Koyamatsu, Terrie	1184	100
Kozak, Kenneth	1169	100
Kozak, Natalia	1074	69
Kozak, Natalia	2609	189
Kozak, Natalia	1552	116
Kozakai, Yukiko	645	42
Kozel, Thomas	576	38
KPC Study Group	1098	97
Kracalik, Ian	3137	215
Kraft, Colleen	139	18
Kraft, Colleen		94
Kraft, Colleen		94
Kraft, Jeffrey	565	38
Kraft, Jeffrey	2247	173
Krahn, Thomas	1090	97
Krajmalnik-Brown, Rosa	770	54
Krajmalnik-Brown, Rosa	2564	187
Krajmalnik-Brown, Rosa	415	31
Krajmalnik-Brown, Rosa	412	31
Krakowka, Steven	2741	197
KRAL, TIMOTHY	271	24
Kramer, Andrew	2479	183
Krause, Lutz	2630	190
Krauss, Emily	1978	138
Krebs, Jordan	1432	111
Krebs, Jordan	272	24
Kreiswirth, Barry	2804	201
Kreiswirth, Barry	2204	171
Kreiswirth, Barry	2983	209
Krell, Tino	250	23
Kremer, Natacha	2316	176
Krepel, Candace	2834	202
Krepps, Michael	2106	143
Krepps, Michael	2450	182
Kress, Tina	1170	100
Kreuder, Amanda	617	41
Krifka, Jennifer	119	18
Krishnan, Karthik	844	57
Krishnan, Karthik	852	57
Krishnan, Karthik		79
Krishnan, Prabha	1216	102
Krishnan, Sriram	876	59
Krishnani, Narendra	2763	198
Krishnaraju, V.	1636	122
Kroeger, Anita	2280	175
Kroeger, Lynn	2287	175
Kroken, Abby	2226	172
Kroken, Abby	2219	172
Krolik, Julia	2241	173
Kroll, Eugene		217
Kronlein, Maggie	1200	101
Kronstad, Jim		79
Kropec, Andrea	724	52
Kroukamp, Otini	236	23
Krueger, Neil	571	38
Kruglov, Alexander	1088	97
Krull, Adam	620	41
Krumins, Valdis	396	30
Krummenacker, Markus	2627	190
Krummenacker, Markus	2944	207
Krykunivsky, Anna	2414	180
Kryszuk, Alexander	2130	169
Krznaric, Ivanka	661	49
Krzycki, Joseph		154
Kuan, Yi-chia	2662	191
Kubala, Kody	625	41
Kubasek, Carly	666	49
Kubasek, Carly	2754	198
Kubasek, Carly	1239	103
Kubeyev, K.	3133	215
Kubo, Takeru	789	55
Kubota, Hiroyuki	2318	176
Kuca, Colin	2241	173
Kucho, Ken-ichi	2488	183
Kucken, Amy	1852	133
Kudva, Indira	2830	202
Kuehl, Jennifer	1926	136
Kuehl, Jennifer	2443	181
Kuehn, Kevin	1422	110
Kuehn, Meta	921	62
Kuehn, Meta		231
Kuehnert, Matthew		70
Kuga, Tetsuya	461	33
Kugadas, Abirami	1619	119
Kugelman, Jeffrey	1689	125
Kuhn, Misty	1361	108
Kuhns, Lisa	1840	133
Kuipers, Annemarie	1087	97
Kulasekara, Hemantha	253	23
Kulkarni, Ritwij	2176	170
Kulkarni, Ritwij	1670	124
Kulp, Thomas	1375	109
Kulp, Thomas	1372	109
Kum, Jason	155	19
Kum, Jason	149	19
Kum, John	149	19
Kum, John	155	19
Kumagai, Yumi	1255	103
Kumar, Arvind	LB-01	233
Kumar, Ashok	2893	204
Kumar, Ashok	2580	188
Kumar, Hanesh	658	49
Kumar, Prasun	438	32
Kumar, Priti	536	36
Kumar, Rashmi	LB-01	233
Kumar, Sudhir	1508	114
Kumar, Suresh	2123	144
Kumburu, Happy	1718	126
Kumon, Yoshitaka	730	52
Kumosani, Taha	1628	122
Kundu, Arti	2022	140
Kunichika, M	789	55
Kunichika, M	2818	202
Kunz, Daniel	349	28
Kunze, Brigitte	2699	195
Kuo, Chris	1006	65
Kuo, Jennifer	2326	177
Kupka, Nancy	2277	174
Kupka, Nancy	2276	174
Kurazono, Hisao	70	15
Kurlovs, Andre	1747	127
Kuroda, Kouichi	359	28
Kuroda, Kouichi	468	33
Kuroda, Kouichi	2561	187
Kuroda, Kouichi	1463	112
Kuroda, Teruo	2160	170
Kurokawa, Ken	1548	116
Kurt, Zohre	425	31
Kurth, Isabel		217
Kurtz, Sherry	2884	204
Kurusu, Yasuro	874	59
Kurusu, Yasurou	1301	105
Kuruvilla, Jes	2162	170
Kurz, Tammie	2484	183
Kushiro, Akira	2318	176
Kuske, Cheryl	507	34
Kuske, Cheryl	961	63
Kuspa, Adam	1767	129
Kussell, Edo	2644	190
Kusterbeck, Anne	2497	184
Kusters, Martina	319	27
Kutch, Victoria	985	64
Kutsch, Olaf	1561	117
Kvitko, Brian	2908	205
Kvitko, Brian	2896	205
Kwak, Inhae		160
Kwak, Yoon	653	49
Kwak, Yoon	2988	209
Kwan, Hoi Shan	2738	197
Kwan, K	1024	66
Kwan, Patrick	2767	198
Kwangwook, Kim	2676	191
Kweon, Ohgew	1495	113
Kweon, Ohgew	3151	216
Kweon, Ohgew	1491	113
Kweon, Ohgew	1492	113
Kwon, Chanho	974	64
Kwon, Chanho	983	64
Kwon, Dong	1657	123
Kwon, Hyo-Ju	1807	130
Kwon, Kukyoung	467	33
Kwon-Chung, Kyung	855	57
Kwong, Brian	2876	204
Kyme, Pierre	2869	204
Kypriotakis, Georgios	2972	209

L

Author	Poster Board	Session Number
La Duc, M	1024	66
La Duc, Myron	1426	111
La Duc, Myron	3079	213
La Duc, Myron	261	24
Laasri, Anna	1998	139
Labar, Amy	2761	198
LaBarre, Brenna	1331	107
Labbe, Jesse	3016	211
Labbe, Ronald	1006	65
Labeeuw, Leen		151
Laboratory in Microbiology and Molecular Biology	2742	197
Laboratory Information Systems	174	20
Labuza, Theodore	3056	212
Labuza, Theodore	1848	133
Lacal, Jesús	250	23
Lacher, David	1067	69
Lacher, David	1975	138
Lacher, David	2641	190
Lacombe, Alison	1978	138
Lacroix, Christophe	6	12
Ladant, Daniel		71
Ladau, Joshua	1427	111
Laddy, Dominic	2673	191
Ladman, Brian	551	37

Author	Poster Board	Session Number
LaDow, Jade	2151	169
Laffontaine, José	2480	183
Lafon, Patricia	1077	69
Lafond-Lambert, Cynthia	1336	107
LaFrentz, Stacey	1906	135
Lai, Hong-Thih	942	63
Lai, Mei-Chin	893	60
Lai, Mei-Chin	898	60
Lai, Shu-Jung	893	60
Lai, YuShuan (Cindy)	2835	202
Laimins, Laimonis		158
Laimins, Lou		158
Lakhani, Midhat	2147	169
Laksanalamai, Pongpan	3058	212
Laksanalamai, Pongpan	3059	212
Lakshmi, Vemu	2809	201
Lakshmyya, Kesavalu	2311	176
Lal, Renu	548	37
Lal, Sunil	548	37
Lalonde Séguin, David	2172	170
Lam, Anthony	2361	178
Lam, Bonita	2949	207
Lam, Bonita	2948	207
Lam, Christine	166	20
Lam, Claudia	3148	216
Lam, Howard	274	25
Lam, Yuen	978	64
Lamb, Henry	2572	187
Lamb, Morgan	633	41
Lambrecht, Jennifer	1853	133
Lambros, Mandy	2059	142
Lamed, Raphael		152
Lamendella, Regina	490	34
Lamendella, Regina		85
Lamendella, Regina	1926	136
Lamers, Ryan	2984	209
Lamers, Ryan	1784	129
Lamichhane, Gyanu	2661	191
Lammers, Karen	1257	104
Lamont, Elise	2675	191
Lamont, Richard	190	21
Lamont (MDP), Martha	376	29
LaMontagne, Michael	2074	142
Lamosa, Pedro	279	25
Lampe, David	3128	215
Lampe, David	3129	215
Lampe, J.	776	54
Lan, Xiuwan	925	62
Land, Gayle	2993	209
Land, Geoffrey		70
Land, Kirkwood	640	42
Land, Kirkwood	639	42
Land, Kirkwood	594	39
Land, Miriam	2454	182
Land, Miriam	2096	143
Landick, Robert		81
Landick, Robert		81
Landry, Zachary	2092	143
Landry, Zachary	1870	134
Lane, Jason	2267	174
Lane, Kristin	1878	134
Lane, Kristin	301	26
Lane, Thomas	688	50
Lang, Emma	425	31
Lange, Roland	2687	195
Langereis, Jeroen	1763	129
Langille, Morgan	2464	182
Langousis, Gerasimos	1740	127
Lanis, Jordi	1134	99
Lankau, Emily	1547	116
Lankford, Patricia	2454	182
Lannigan, Robert	2234	173
Lanoil, Brian	1375	109
Lanoil, Brian	2473	183
Lanza, Colleen	2162	170
Lanzas, Fedora	1570	117
Lapidus, Alla	2096	143
Lapierre, Pascal	891	60
Lapointe, Sophie	137	18
Laport, Marinella	1887	135
Laport, Marinella	1415	110
Laptewicz, M	2945	207
Lara, David	2941	207
Lara-Arellano, Javier A.	437	32
Larabee, Jason		159
Lara-Gil, Javier	444	32
Larimer, Frank	2096	143
Larney, Francis	2478	183
LAROCCA, TIMOTHY		231
LaRocco, Mark		193
Larocque, Michael	158	19
Larry, Anais	558	38
Larsen, Andrea	1924	136
Larsen, David	495	34
Larsen, Martha	1127	98
Larsen, Martha	686	50
Larsen, Tanja	1695	125
Larson, Eric	2227	172
Larson, Thomas	715	52
Larson, Thomas	825	56
Larson, Troy	2430	181
Lartey, Robert	2069	142
LaSala, P	2250	173
LaSala, Paul	2785	199
Last, Lisa	840	57
Latendresse, Mario	2627	190
Latge, Jean-Paul	853	57
Lathem, Wyndham	2294	176
Lathem, Wyndham	2867	203
Lathem, Wyndham	2708	196
Latif, Haythem	1557	116
Latimer, Joe	2688	195
Latinwo, L	1892	135
Latos, Andrew	456	33
Lau, Anna	LB-08	233
Lau, Anna	2981	209
Lau, Calvin	1090	97
Lau, Calvin	1084	97
Lau, David	2548	186
Lau, David	2547	186
Lau, Evan	1436	111
Lau, Gee	2150	169
Lau, M	340	27
Lau, Maggie	944	63
Lau, Pui Sai	677	50
Lauber, Christian	321	27
Lauf, Robert	979	64
Laughlin, Richard	2863	203
Lauhon, Charles	693	51
Launen, Loren	1474	113
Laureano-Córdova, Diana	1889	135
Lauzon, Carol	2548	186
Lauzon, Carol	2547	186
Lauzon, Carol	2540	186
Lavender, Jennifer	2013	140
Laverde, Diana	724	52
Lavezzo, Ligia	1400	110
Lavezzo, Lígia	1416	110
Lavoie, Joseph	790	55
Law, G.	2628	190
Law, Tik Wan	2738	197
Lawrence, Annie	3119	214
Lawrence, Jessica	1737	127
Lawrence, Mark	1608	119
Laws, Edward	2927	206
Lawson, Andrew	2095	143
Lawson, Thomas	1589	118
Layman, Lori	3123	215
Layton, Alice	340	27
Layton, Alice	332	27
Layton, Alice	2543	186
Layton, Alice	944	63
Layton, Blythe	3095	214
Layton, Blythe	3097	214
Lazarus, Nicole	2115	144
Lazo-Zamalloa, Oxana	1964	138
Le, Phuoc	3004	210
Le, Rosalin	2394	179
Le, Rosalin	511	35
Le Bolloch, Alexandre	57	14
Le Trong, Isolde	2227	172
Leader, Brandon	1576	117
Leader, Brandon	1079	69
Leal, Maria	2025	140
Leang, Ching	1394	109
Leao, Raiane	2380	179
Leatham-Jensen, Mary	678	50
Leavis, Helen	2717	196
Leavitt, Janet	1394	109
LeBar, William	1178	100
LeBar, William	1176	100
LeBar, William	2244	173
Lebedev, Nikolai	2497	184
Leber, Amy	1708	126
Leber, Amy	2288	175
Leber, Amy		48
Lebrilla, Carlito	778	54
Lebrilla, Carlito	1981	138
Lecci, Laetitia	108	17
Leclipteux, Thierry	2249	173
Lecorchick, Gillian	895	60
Lecuit, Marc		230
Leddy, Menu	2033	141
Ledeboer, Nathan	165	20
Ledeboer, Nathan	1190	101
Ledeboer, Nathan	144	19
Ledeboer, Nathan	1172	100
Ledeboer, Nathan	2240	173
Ledeboer, Nathan	2787	199
Ledeboer, Nathan	1242	103
Ledeboer, Nathan		96
Ledeboer, Nathan	134	18
Ledeboer, Nathan	1171	100
Ledeker, Brett	2040	141
Lee, Angelica	1987	138
Lee, Benhur	541	37
Lee, Bheong-Uk	1846	133
Lee, Bora	2070	142
Lee, Byoung-Moo	2295	176
Lee, Byung Cheol	2889	204
Lee, Carlin	680	50
Lee, Chang Soo	2622	189
Lee, Chang Soo	3112	214
Lee, ChangWoo	2422	181
Lee, Cheonghoon	2621	189
Lee, Chia-Ni	1874	134
Lee, Christopher		88
Lee, Clarence	2101	143
Lee, Clarence	3025	211
Lee, Da	683	50
Lee, Dae-Hee	1557	116
Lee, Do Gyun	426	31
Lee, Do Gyun	2061	142
Lee, Dong-Woo	1944	137
Lee, Dong-Woo	1986	138
Lee, Duu-Jong	435	32
Lee, Gloria	2297	176
Lee, Gyusang	2760	198
Lee, Gyusang	2701	195
Lee, Hye Soo	17	12
Lee, Hyuk	754	54
Lee, Hyun	474	33
Lee, Hyun-Sung	62	14
Lee, Hyung Tae	1692	125
Lee, Hyunwoo	1326	106

Author	Poster Board	Session Number
Lee, In	1984	138
Lee, In	3155	216
Lee, Jae-Dong	843	57
Lee, Jamie	1305	106
Lee, Jangho	2567	187
Lee, Jeesoo	255	23
Lee, Jessica	1899	135
Lee, Ji-Youl	1328	106
Lee, Ji-Youl	293	25
Lee, Jin	1984	138
Lee, Jin	1562	117
Lee, Jin	1563	117
Lee, Jin	1969	138
Lee, Jing	1228	102
Lee, Jinha	423	31
Lee, Jinwoo	2698	195
Lee, Jisun	3084	213
Lee, Jiyoung	2622	189
Lee, Jiyoung	3112	214
Lee, Jiyoung	3095	214
Lee, Jiyoung	2621	189
Lee, Jong-Eun	2648	190
Lee, Jong-Eun	2647	190
Lee, Jong-Ik	1004	65
Lee, Ju-Youn	2311	176
Lee, Judy	1020	65
Lee, Jun-Young	1736	127
Lee, Jun-Young	2885	204
Lee, Jun-Young	1732	127
Lee, Jung Eun	763	54
Lee, Kang Seon	2476	183
Lee, Kang-Wook	1972	138
Lee, Kangseok	917	62
Lee, Kangseok	1851	133
Lee, Karen	164	20
Lee, Kui-Jae	471	33
Lee, Kyu-Ho	2716	196
Lee, Kyu-Ho	2849	203
Lee, Kyu-Ho	227	22
Lee, Kyu-Ho	45	14
Lee, Kyung-Jo	2716	196
Lee, Kyung-Jo	227	22
Lee, Kyung-Jo	45	14
Lee, Kyungwon	17	12
Lee, Kyungwon	150	19
Lee, Lee	2142	169
Lee, Lou	1174	100
Lee, Mary	1166	100
Lee, Mi-Ae	2849	203
Lee, Mi-Ae	227	22
Lee, Mi-Kyung	17	12
Lee, Ming-Chou	2348	178
Lee, Minho	917	62
Lee, P	2221	172
Lee, Patrick	1411	110
Lee, Patrick	483	34
Lee, Pei-Chung	1693	125
Lee, Richard	1250	103
Lee, Ryan	663	49
Lee, Ryan	1095	97
Lee, Sae Bom	436	32
Lee, Samantha	3013	211
Lee, Sang Jun	1944	137
Lee, Sang Jun	1986	138
Lee, Sang-Hee	2891	204
Lee, Sang-Jae	1986	138
Lee, Sang-Joon	1778	129
Lee, Sang-Joon	2333	177
Lee, Sang-Seob	417	31
Lee, Sang-Seob	293	25
Lee, Sang-Seob	1328	106
Lee, Sang-seob	423	31
Lee, Sangwon	3089	213
Lee, Seung	150	19
Lee, Seung Yeob	850	57
Lee, Seung-Joo		146
Lee, Seung-Ju	293	25
Lee, Seung-Ju	1328	106
Lee, Seung-Tae	1063	68
Lee, Shaun	1698	125
Lee, Shee	699	51
Lee, Shee	670	50
Lee, Shee	676	50
Lee, Shee Eun	1107	98
Lee, Sonya	1207	101
Lee, Soo-Kyung	1004	65
Lee, Soon-Ho	1009	65
Lee, Su-Heon	887	59
Lee, Sun	1953	137
Lee, Tae Kwon	2075	142
Lee, Tae Kwon		220
Lee, Tae Kwon	754	54
Lee, Taek	989	64
Lee, Taek Soon	992	64
Lee, Timothy	1834	132
Lee, Timothy	1835	132
Lee, Wee Gyo	17	12
Lee, Yong Chan	754	54
Lee, Yong Jin	1448	111
Lee, Yong-Jik	1986	138
Lee, Yong-Jin		152
Leech, Dina	3075	213
Leehacharoenkul, Ruth	71	15
Leewis, Mary	2486	183
Leff, Laura	2377	179
Lefferts, Claudine	2278	174
Lefticariu, Lilliana	1391	109
Legasse, Alfred	2314	176
Legatzki, Antje	967	63
Legatzki, Antje	969	63
Legg, Teresa	1387	109
Legner, Milos	2702	195
LeGrand, Karen		72
Legrand, Karen	1304	106
Lehman, Alisa	1338	107
Lehman, Gigi	1223	102
Lehman, Stephanie	2382	179
Lehmann, Katja	2077	142
Lehmann, Katja	3078	213
Lehner, Angelika	53	14
Lehouillier, Carole	2252	173
Lehouillier, Carole	2253	173
Lei, Benfang	2858	203
Lei, Benfang	1697	125
Lei, Jason	2348	178
Lei, Ting	1353	108
Leibowitz, Michael	644	42
Leidinger, Karen	1208	102
Leigh, Mary	2486	183
Leigh, Mary Beth	955	63
Leigh, Spencer	863	58
Leighton, Tiffany	1702	125
Leighton, Tiffany	2220	172
Leire, Emma	1269	104
Leisner, Jørgen	1695	125
Leite, Daniela	LB-03	233
Leker, Hannah	2031	141
Lekpor, Cecilia	1590	118
Lemaitre, Nadine	1633	122
Lemjabbar-Alaoui, Hassan	2819	202
Lemmer, Kimberly		152
Lemmon, Jean	16	12
Lemon, Katherine		77
Lemos, José	73	15
Lemos, José	2942	207
Lems, Y.	1715	126
Lenaburg, Dirk	2926	206
Lenczewski, Melissa	2025	140
Lenski, Richard		221
Lenski, Richard	3037	211
Leobons, Maria	2992	209
León, Josefina	3003	210
León-Felix, Josefina	3052	212
León-Felix, Josefina	3055	212
León-Felix, Josefina	3001	210
León-Felix, Josefina	2607	189
León-Felix, Josefina	388	29
León-Félix, Josefina	2062	142
Leong, Jo-Ann	2334	177
Leong, John	2835	202
Leong, John	2850	203
Lephart, Paul	127	18
Lephart, Paul	1239	103
Lépine, François	1605	119
Leppla, Stephen	1300	105
Lerman, Joshua	1557	116
Lertseththakarn, Paphavee	259	23
Lesho, Emil	654	49
Lesho, Emil	2988	209
Lesho, Emil	653	49
Leskinen, Stephaney	1465	112
Leslie, Kevin	2186	171
Leslin, Chesley	573	38
Lesser, Michael	493	34
Lester, Talia	541	37
Letant, Sonia	1591	118
Letourneau, Jeffrey	257	23
Lettenberger, Kristen	2057	141
Leu, Tzeng-Horng	2859	203
Levar, Caleb	941	62
Levario-Gómez, Anahi	1017	65
Levashova, Zoia		230
Levchenko, Igor	1863	133
Leveau, Johan	243	23
Leveau, Johan	3028	211
Leverstein-van Hall, Maurine	1093	97
Leverstein-van Hall, Maurine	2756	198
Levesque, Celine	292	25
Levi, Michael	2279	175
Levi, Michael	2804	201
Levicán, Gloria	1293	105
Levicky, Rastislav	2378	179
Levin, Andrew	571	38
Levine, Deborah	2987	209
Levine, Jay	2618	189
Levine, Myron		90
Levine, Uri	1930	136
Levine, Uri	3143	216
Levine, Uri	3150	216
Levy, Dan	1975	138
Levy, Revital	2208	172
Levy, Revital	2892	204
Levy, Stuart		168
Lewinski, Michael	110	17
Lewinski, Michael	129	18
Lewis, Cecil		47
Lewis, Christopher	2255	174
Lewis, Dale	3004	210
Lewis, Dale	3005	210
Lewis, Greg	1532	115
Lewis, Jada	2641	190
Lewis, Kevin	1123	98
Lewis, Michael	919	62
Lewis, Michael	2410	180
Lewis, Zachery	1919	136
Ley, David	859	58
Ley, Ruth		153
Ley, Ruth		153
Leys, Eugene	1278	104
Leyssene, David	136	18
L'Her, Guillaume		76
Li, Baoguang	2550	186
LI, Bing	2078	142
Li, Bingjie	1160	100
Li, C.	3038	212

Author	Poster Board	Session Number
Li, Chaoying	2233	173
Li, Chenyao	1297	105
Li, Chunling	1109	98
Li, Cong	2639	190
Li, Cong	3049	212
Li, Congran	2134	169
Li, Dong	1345	107
Li, F	776	54
Li, Gang	1827	132
Li, Haijing	1228	102
Li, Haijing	105	17
Li, Haiying	1709	126
Li, Han	2107	144
Li, Howard	2525	185
Li, Huai	484	34
Li, Huiying	1869	134
Li, Huiying	2203	171
Li, Jinquan	1697	125
Li, Jinze	1747	127
Li, Jiping	2049	141
Li, Jun	771	54
Li, K.	2722	196
Li, Kevin	499	34
Li, Lei	2738	197
Li, Meng	947	63
Li, Mo	2227	172
Li, Ping	2518	185
Li, Ping	600	40
Li, Qi	2482	183
Li, Robert	1978	138
Li, Robert	2497	184
Li, Shu	2076	142
Li, Wei	1771	129
Li, Wei	1064	68
Li, Weizhong	2637	190
Li, Xiangzhen	324	27
Li, Xiangzhen	317	27
Li, Xiaojiang	2357	178
Li, Xiaojiang	2350	178
Li, Xiaojing		153
Li, Xiaoqing	1360	108
Li, Xinhui	1993	139
Li, Xinming	563	38
Li, Xinna	798	55
Li, Xinyu	2482	183
Li, Xu	1046	67
Li, Xunde	1073	69
Li, Y.-L.	979	64
Li, Yi	1898	135
Li, Yingli		153
Li, Yongchao	2903	205
Li, Zhen	647	42
Li, Zhou	3020	211
Li, Zhou		85
Liang, Anita	3057	212
Liang, B	622	41
Liang, Li	793	55
Liang, X	2945	207
Liang, Xudong	1136	99
Liang, Yuting	1915	136
Liang, ZHANBEI	3126	215
Liao, Chii	1044	67
Liao, Min-Ken	1532	115
Liao, Reiling	2655	191
Liao, Robert	750	53
Liao, Robert	86	16
Libby, Stephen		84
Lidbrink, Peter	2282	175
Lidgard, Janice	3124	215
Lidstrom, Mary		6
Lidstrom, Mary		6
Liebana, Carmen	98	16
Liebana, Carmen	83	16
Lieberman, Joshua	718	52
Liebowitz, Jeffrey	868	58
Liesegang, Heiko	2438	181
Lievens, Bart	LB-06	233
Liew, Mathew	2444	181
LIght, Yooli	1756	128
Light, Yooli	502	34
Light, Yooli	3091	213
Lijek, Rebeccah	1275	104
Lilburn, Michael	501	34
Liles, Mark	1621	119
Liles, Mark	2086	143
Lilles, Milena	475	33
Lilly, Austyn	523	36
Lim, Bentley	235	22
Lim, Boram	1851	133
Lim, Chang	612	40
Lim, Chang	608	40
Lim, Chang	604	40
Lim, Chang	597	40
Lim, Daniel	2534	186
Lim, Daniel	1177	100
Lim, Daniel	1465	112
Lim, Dongyeol	275	25
Lim, George	668	49
Lim, Hsiao Chien	1926	136
Lim, Hsiao Chien	1371	109
Lim, HsiaoChien	2582	188
Lim, Ji	905	61
Lim, Ji Youn	2170	170
Lim, Jong Gyu	1120	98
Lim, Jong-Hui	1922	136
Lim, Kwang Sei	1969	138
Lim, Seongyop	363	28
Lim, Seungmo	2308	176
Lim, Seungmo	887	59
Lim, Timothy	75	15
Lim, Yun-Ji	804	55
Lima, Dinair	2270	174
Lima, Monique	2270	174
Lima, Raquel	2852	203
Lima, Santiago		81
Limardo, Alexander	2509	184
Limaye, Ajit	2777	198
Limbago, Brandi	2098	143
Lim-Fong, Grace		83
Limoli, Dominique	1130	98
Lin, Abel	2637	190
Lin, Andrew	2547	186
Lin, Andrew	1998	139
Lin, Andrew	2540	186
Lin, Andrew	2548	186
Lin, Chenghui	9	12
Lin, Chenghui	13	12
Lin, Chenghui	10	12
Lin, Chun-Ming	520	35
Lin, Grace	1578	117
Lin, Juey-Wen	1874	134
Lin, Jun	31	13
Lin, Jun	48	14
Lin, Jun	1625	119
Lin, Jun	21	13
Lin, Ming-Ching	2693	195
Lin, Mingqun	785	55
Lin, Mingqun	783	55
Lin, Qiaoyan	317	27
Lin, Qiaoyan	324	27
Lin, S-Y.	1193	101
Lin, S-Y. Grace	1192	101
Lin, Wei	1429	111
Lin, Wei-Chih	429	31
Lin, Wei-Jen	2082	143
Lin, Wei-Jen	1298	105
Lin, Wei-Jiun	2536	186
Lin, Wen	2533	186
Lin, Wen	2553	186
Lin, Xueju	326	27
Lin, Xueju	321	27
Lin, Ying-Chi	1151	99
Lin, Yishan	2590	188
Lin, Yu-Ju	219	22
Lin, Yung-An	898	60
Lin, Zhi-Song	476	33
Linardopoulu, Elena	2636	190
Linares, Leonor	2356	178
Lindao, Daniel	93	16
Lindao, Daniel	92	16
Lindeblad, Matt	1629	122
Lindell, Debbie		229
Linden, Karl	1524	115
Lindner, J.	2216	172
Lindow, Steve	318	27
Lindow, Steven	2950	207
Lindow, Steven	256	23
Lindow, Steven		160
Lindow, Steven	2475	183
Lindow, Steven	1321	106
Lindpaintner, Klaus	2547	186
Lindquist, Erika	3085	213
Lindsay, Allia	2319	176
Lindsay, Sharon	2156	170
Lindsey, Amelia	1439	111
Lindsey, Lauren	3065	212
Lindsey, Michelle	3110	214
Lindstrom, Stephen	3139	215
Line, J.E.	2506	184
Line, John	2825	202
Lineback, Patricia	2290	175
Ling, Alicia	2180	171
Ling, Julia	2738	197
Lingenfelter, Beth	2267	174
Lingenfelter, Beth	1248	103
Lingenfelter, Beth	1715	126
Linington, Roger	1639	122
Linke, Caroline	672	50
Linke, Michael	1787	130
Lioliou, Efthimia	705	51
Liopeta, Kassiani	202	21
Liphardt, Jan		76
Lipkin, Ian		90
Lipp, Erin	2617	189
Lipsky, Mike	1145	99
Lipton, Mary	2943	207
LiPuma, John	3029	211
LiPuma, John	771	54
Lira-Chay, Javier	2957	208
Lisa, Jessica	1389	109
Liss, Michael	145	19
Lister, Philip	1106	97
Little, Brenda	2562	187
Little, Jennifer	1705	126
Liu, B.	1012	65
Liu, B.	1011	65
Liu, Chaojun	1230	102
Liu, Cun	2451	182
Liu, Dan	2463	182
Liu, Donald	3086	213
Liu, Eileen	1069	69
Liu, Fanghua	1822	131
Liu, Fanghua	1814	131
Liu, Feifei	1913	136
Liu, Feifei	958	63
Liu, Feifei	315	27
Liu, Feifei	959	63
Liu, Fenyong	1306	106
Liu, George	2869	204
Liu, Haichuan	2948	207
Liu, Haichuan	2949	207
Liu, Hongyan	785	55
Liu, Huanli	2474	183
Liu, Jane	233	22
Liu, Jane	217	22

Author	Poster Board	Session Number
Liu, Janet	688	50
Liu, Janet	680	50
Liu, Je-Ruei	1970	138
Liu, Je-Ruei	2232	172
Liu, Jie	1718	126
Liu, Jifei	972	64
Liu, Jong-Kang	429	31
Liu, Jong-Kang	3071	213
Liu, Jue	1610	119
Liu, Jun	1320	106
Liu, Jun	2665	191
Liu, Lihong	435	32
Liu, Mengyao	2858	203
Liu, Mengyao	1697	125
Liu, Minghsun	2202	171
Liu, Mingli	1637	122
Liu, Mingli	2108	144
Liu, Nancy	2948	207
Liu, Peng	502	34
Liu, Peng	3091	213
Liu, Pigang	348	28
Liu, Rui	3043	212
Liu, Sanchao	1951	137
Liu, Siqing	2512	185
Liu, Vincent	2202	171
Liu, W. B.	1011	65
Liu, Wanxue	2487	183
Liu, Wenbin	975	64
Liu, X	340	27
Liu, Xiaoxin	944	63
Liu, Xinxing	975	64
Liu, Xueduan	2584	188
Liu, Xueduan	975	64
Liu, Yan	1355	108
Liu, Yang	2341	177
Liu, Yatao	2378	179
Liu, Yehao	1112	98
Liu, Z. Lewis	1955	137
Liu, Zhenqiu	499	34
Liu, Zhi	54	14
Liu, Zhi-Mei	1743	127
Liu, Zhiyi	1767	129
Liveris, Dionysios	67	14
Livermore, David	153	19
Lizama, Gabriel	890	59
Lizama-Uc, Gabriel	2957	208
Lizcano, Anel	80	15
Lloyd, Christine	1551	116
Lloyd, Dina	2128	169
Lo, Hao-Yu	2024	140
Lo, Michael		158
Lo, Pauline	1213	102
Lo, Reggie	1613	119
Lo, Shyh-Ching	1160	100
Lobo, Leandro	41	13
Loc-Carrillo, Catherine	3009	210
Locher, Hans	2687	195
Lochhead, G.	512	35
Lochhead, Stephanie	512	35
Locke, Randy	945	63
Lockhart, James	878	59
Lockhart, Scott	2490	183
Lockhart, Shawn	2093	143
Lodato, Patricia	1676	124
Lodge, Jennifer		227
Lodge, Jennifer		227
Loeffelholz, Michael		223
Loeffler, Frank	2968	208
Loeffler, Frank	409	31
Loeffler, Frank	1484	113
Loes, A.	36	13
Loessner, Martin		71
Löffler, Frank	1917	136
Löffler, Frank	411	31
Loganathan, Usha	899	60
Logemann, Joern	2495	184
Logue, Catherine	2000	139
Logue, Catherine	1989	139
Lok, Si	1452	111
Lokken, Kristen	1277	104
Lolans, Karen	1709	126
Lollar, Ron	2255	174
Lollar, Ron	2275	174
Lollett, Ivonne	2213	172
Lombardi, Gianluigi	148	19
Loncaric, Anya	1869	134
Long, Andrew	1380	109
Long, Phil	943	63
Long, Phillip	2943	207
Long, Richard	2466	183
Long, Richard	2919	206
Long, Sharon	3115	214
Long, Sharon	1338	107
Long, Sharon	2937	207
Longmire, Attikson	1542	116
Longmire, Attikson	484	34
Longtin, Jean	2979	209
Longtin, Yves	2979	209
Loo, Joseph	2441	181
Loo, Rachel	2441	181
Looft, Torey	3150	216
Looft, Torey	1930	136
Looft, Torey	3143	216
Loonen, Anne	1706	126
Lope ayora, Jorge	1019	65
Lopez, Christopher	2299	176
Lopez, Christopher	240	23
Lopez, G	1599	118
Lopez, Gerardo	1503	114
Lopez, J	1599	118
Lopez, M.	192	21
López, Osvaldo	3003	210
Lopez Guzman, Alexandra	1896	135
López Treviño, Sandra	2523	185
López-Cruz, M.B.	646	42
López-López, Víctor	1952	137
Lopez-Malo Vigil, Aurelio	1017	65
Lopez-Medina, Eduardo	43	14
López-Meza, Joel	183	21
López-Meza, Joel	181	21
Lopez-Ribot, Jose	1640	122
Lopez-Rivera, Carlos	546	37
Lorenz, Laura	1872	134
Lorenz, Sandra	1998	139
Lorenzete, Katia	147	19
Lorenzo, Eric	546	37
Lorey, Thomas	2239	173
Lory, Stephen	309	26
Loser, Karin	2846	203
Lossouarn, Julien	1877	134
Lostroh, Candace	1754	128
Lotlikar, Shalaka	2954	208
Louch, Heather	2596	188
Louie, Aaron	1779	129
Louie, Jacqueline	1997	139
Louie, Katherine	928	62
Louie, Lisa	668	49
Louie, Marie	753	54
Loukitcheva, Anastasia	1126	98
Lourencini, Larissa	1511	114
Lourencini, Larissa	1512	114
Lourenço-de-Oliveira, Ricardo	2788	200
Lovari, Randell	1228	102
Lovatt, Pauline A	2529	186
Love, David	3160	216
Love, Lonnie	979	64
Love, Nancy	2177	170
Lovering, Ruth		78
Lovley, Derek	1385	109
Lovley, Derek	1394	109
Lovley, Derek	2592	188
Lovley, Derek	1814	131
Lovley, Derek	2457	182
Lovley, Derek	450	32
Lovley, Derek	1822	131
Lovley, Derek	1395	109
Lovley, Derek	2489	183
Lovley, Derek	1487	113
Lovley, Derek	2091	143
Low, Donald		227
Low, Donald	158	19
Lowe, Chinn-Woan	1510	114
Lowe, Chinn-Woan	1721	126
Lowe, David	2315	176
Lowe, David	2862	203
Lowery, T.	1459	112
Lowrance, Richard	2617	189
Lozach, Solen	3094	214
Lozano, Lucia	2585	188
Loza-Valerdi, Elizabeth	1964	138
Lu, Caiyan	2482	183
Lu, Chung-Dar	2134	169
Lu, Chung-Dar	2694	195
Lu, Jingrang	1437	111
Lu, Long		79
Lu, Sangwei	1700	125
Lu, Sangwei	1112	98
Lu, Sangwei	1306	106
Lu, Sangwei	2674	191
Lu, Syuan-Shao	913	61
Lu, Tse-Yuan	2454	182
Lu, Xi	2336	177
Lu, Xiao	1411	110
Lu, Xiaofei	2487	183
Lu, Xiaofei	315	27
Lu, Xiaofei	3080	213
Lu, Xiaofei	3080	213
Lu, Xingcheng	2444	181
Lu, Xinxin	2470	183
Lu, Zhenmei	951	63
Lubos, Marie-Luise	1152	99
Lucas, Alexandra	2311	176
Lucas, Brian	1197	101
Lucas, Claressa	1074	69
Lucas, Claressa	2609	189
Lucas, Claressa	1552	116
Lucas, S.	2096	143
Lucero, Mary	3019	211
Luchansky, John	388	29
Luchowski, Arthur	166	20
Lucignano, Barbara	1579	117
Luckhart, Shirley	1764	129
Luckhart, Shirley	1277	104
Luckhart, Shirley	1737	127
Luecke, Hartmut	2429	181
Luedeke, Catharina	2055	141
Luedeke, Catharina	2230	172
Luef, Birgit	2943	207
Luengen, Allison	2599	188
Lugo-Melchor, Yadira	2607	189
Luiz, Wilson	1454	112
Luiz, Wilson	829	56
Lukacs, Nicholas	3035	211
Luke Burow, Luke	1392	109
Lulitanond, Viraphong	224	22
Lum, Pek	1041	67
Lum, Pek	2641	190
Luna, Ruth Ann	764	54
Luna, Vicki	1713	126
Lund, Steven	2950	207
Lundblad, Vicki		217
Lunetta, Jennine	838	57
Luning, Eric	962	63
Luning, Eric	1862	133
Lünsmann, Vanessa	2469	183

Author	Poster Board	Session Number
Luo, Bing-Hao	1897	135
Luo, Feng	3081	213
Luo, Pengju	2371	179
Luo, Tian	784	55
Luo, Xiaoxia	231	22
Luo, Yan	2639	190
Luo, Yan	3049	212
Luo, Yiqi	2503	184
Luo, Yiqi	1446	111
Luo, Yiqi	1447	111
Luo, Yiqi	955	63
Luo, Yun	105	17
luo, Z	2545	186
Lupey, Lena	244	23
Lupwayi, Newton	2478	183
Luque, Christian	3090	213
Luque, Odemaris	1053	68
Luque, Santiago	1275	104
Lusetti, Shelley	1857	133
Lusetti, Shelley	1856	133
Lutovsky, April	1496	113
Luttge, Andreas	2173	170
Lux, Renate	767	54
Luxton, Jared	2592	188
Luzan, Tatiana	2053	141
Luzinski, Mary	2993	209
Ly, Dan	279	25
Lydecker, Alison	815	56
Lyden, E	120	18
Lymperopoulou, Despoina	1892	135
Lynch, Erin	897	60
Lynch, Kelley	1787	130
Lynch, Susan	766	54
Lynch, Susan	1727	127
Lynch, Susan	759	54
Lynch, Susan	3035	211
Lynch, Susan	2638	190
Lynd, Lee	986	64
Lynne, Aaron	1105	97
Lynne, Aaron	2749	197
Lynnes, Ty	3046	212
Lyons, Daniel	1806	130
Lysenko, Elena	304	26
Lyubimov, Alexander	1629	122

M

Author	Poster Board	Session Number
Ma, Bing	801	55
Ma, Daniel	2338	177
Ma, Daniel	2337	177
Ma, Emily	2313	176
Ma, Fang	435	32
Ma, Jincai	1913	136
Ma, Jincai	1041	67
Ma, Liang	865	58
Ma, Maria	1156	99
Ma, Peijun	2400	180
Ma, Qun	2396	180
Ma, Suzanne	991	64
Ma, Yingfei		85
Ma, Zuchao	77	15
MacCannell, Duncan	2098	143
MacDonald, Andy	951	63
MacDonald, Heather	2271	174
MacDonald, William	2800	200
Machado, Antonia	147	19
Machado, Fernanda	1415	110
Machcinski, Karen	116	17
Macherla, Chitralekha	2355	178
Machner, Matthias		72
Machner, Matthias		72
Maciejewski, Richard	171	20
Maciel, Jr., Milton	2341	177
Mack, Brian	600	40
Mack, E	411	31
MacKenzie, Keith	2710	196
Mackey, Tami-Lea	1242	103
Mackey, Tami-Lea	2240	173
Mackie, Roderick	945	63
Mackie, Roderick	1547	116
Macklin, Derek	2625	190
Macklin, Derek	866	58
MacRitchie, Cindy	2289	175
Macvanin, Mirjana	1288	105
Madanahally Divakar, Kiran	2348	178
Madden, Andrew	979	64
Madden, Judy	2058	141
Maddux, Jacob	81	15
Maddux, Jacob	2329	177
Madhani, Hiten	1795	130
Madl, Adam	1311	106
Madrid, R	1599	118
Madrid, Vanessa	2053	141
Madsen, Eugene	1923	136
Madsen, Eugene	392	29
Madu, Bruce	1910	135
Maduka-Ezeh, Awele	2165	170
Madupu, Ramana	592	39
Madupu, Ramana		85
Maeda, Mizuo	255	23
Maeda, Shinji	2663	191
Maeda, Shinji	1054	68
Maeda, Shinji	2660	191
Maeda, Shinji	2666	191
Maeda, Yusuke	2664	191
Maes, Nyree	536	36
Maeshima, Nina	713	52
Maetani, Miki	2420	180
Maeyama, Junichi	2666	191
Magalhaes, Paula	2380	179
Magalhães, Paula	2776	198
Magana, Sonia	2534	186
Magee, John	1571	117
Magill, Nancy	663	49
Maguffin, Scott	1382	109
Maguire, Kathleen	251	23
Mahadevan, R	2588	188
Mahaman, Lalla	3140	215
Mahan, Kristina	428	31
Mahan, Michael	55	14
Mahanama, Raja	1948	137
Mahavihakanont, Aekkapol	2726	196
Mahawar, Manish	1840	133
Mahawar, Manish	1843	133
Mahdally, Norhan	831	56
Mahelova, Martina	2360	178
Mahendra, Shaily	1485	113
Mahillon, Jacques	308	26
Mahillon, Jacques	3045	212
Mahlen, Steven	1723	126
Mahlen, Steven	2812	201
Mahlen, Steven	2807	201
Mahlen, Steven	1205	101
Mahmoudieh, Mahta	818	56
Mahmoudieh, Mahta	809	56
Mahmud, Showkat	637	41
Mahmudi, Mentar	2905	205
Mahoney, Laura		220
Mahony, James	2795	200
Mahony, James	2220	172
Mahony, James	1702	125
Mai, Ken	2258	174
Maier, Raina	1937	136
Maier, Raina	1918	136
Maier, Raina	472	33
Maier, Raina M.	967	63
Maier, Raina M.	969	63
Maier, Robert	1843	133
Maier, Robert	1840	133
Mainelis, Gediminas	396	30
Mainil, Jacques	1615	119
Mair, Eric	2808	201
Mair, Richard	2702	195
Maisnier-Patin, Sophie	875	59
Maity, Chaitali	565	38
Majors, Michael	1221	102
Majumdar, Manasi	2118	144
Majumdar, Swasti	2852	203
Majumder, Sanujukta	861	58
Majury, Anna	2241	173
Mak, Ke Xin	1573	117
Makariadou, Eudoxia	393	29
Makariadou, Eudoxia	999	65
Makariadou, Eudoxia	1010	65
Makemson, John	289	25
Maki, Elin	440	32
Maki, James	2559	187
Maki, James	2408	180
Maki, Steven	1471	112
Makino, Hiroshi	2318	176
Makobongo, Morris	2139	169
Makowski, Jacqueline	524	36
Malachowa, Natalia	1683	125
Malakar, Pushkar	2956	208
Malakhova, M.	1247	103
Malanoski, Anthony	2563	187
Malcom, Shirley		74
Maldonado, Hector	529	36
Malfatti, Stephanie	1911	135
Malfatti, Stephanie	1914	136
Malfatti, Stephanie	337	27
Malfatti, Stephanie		151
Malia, S.A.	518	35
Malik, Meenakshi	2847	203
Malik, Meenakshi	2853	203
Malkin, Gene	2538	186
Malkin, Gene	1473	112
Malkin, Gene	1066	69
Mallegol, Julia		227
Mallin, Michael	3120	214
Mallozzi, Michael	1123	98
Malone, Alyson	2604	189
Malone, Louis	1657	123
Malouin, François	1604	119
Malouin, François	2172	170
Maloy, Stanley		90
Maltepe, Emin	1748	127
Mammel, Mark	1976	138
Mammel, Mark	1068	69
Mammel, Mark	2104	143
Mammel, Mark	2641	190
Mammel, Mark	2102	143
Manafa, Patrick	2363	178
Manal, Rabiya	2262	174
Manço, Luísa	1045	67
Mancuso, Miriam	865	58
Mandadjieva, Tanya	2965	208
Mandrekar, Jayawant	1244	103
Mandrekar, Jayawant	1634	122
Mandrell, Robert	2750	197
Mandrell, Robert	2062	142
Mandrell, Robert	1997	139
Mandrell, Robert	2539	186
Mandrell, Robert	1462	112
Mandrell, Robert	2064	142
Mangal, Chris	3141	215
Mangal, Chris	3138	215
Mangano, Mary	166	20
Mangyu, Choe	1347	108
Maniscalco, Michael	895	60
Manley, Coreen	1868	134
Manley, Wanda	2767	198
Mann, Alexander	1424	110
Mann, Barbara	205	21
Mann, Elizabeth	1780	129
Mann, Holly	2856	203

Author	Poster Board	Session Number
Manning, Shannon	2975	209
Manning, Shannon	2723	196
Manning, Shannon	1442	111
Mannocci, Francesco	3031	211
Manoranjan, Joanna	2673	191
Mansfeldt, Cresten	418	31
Mansfeldt, Cresten	421	31
Mansfeldt, Cresten	410	31
Mansfeldt, Cresten	424	31
Mantell, Judith	780	55
Mantis, Nicholas	2870	204
Mantis, Nicholas	2827	202
Mantis, Nicholas	1704	125
Mantovani, Hilario	378	29
Mantovani, Hilario	1265	104
Mantovani, Hilario	459	33
Mantovani, Hilario	2136	169
Mao, Chunhong	2729	197
Mao, Chunhong	2730	197
Mao, Chunhong	2731	197
Mao, Quanxin	1513	114
Mao, Xinwei	416	31
Mao, Xinwei	413	31
Mao, Yanping	445	32
Maple, Aimee	1113	98
Mapp, Latisha	2612	189
Mar, Jordan	759	54
Marceau, Aimee	2696	195
March, Jordon	1510	114
March, Jordon	1721	126
Marco, Maria	1973	138
Marco, Maria	1451	111
Marcobal Barranco, Angela Maria		83
Marcon, Mario	1708	126
Marcon, Mario	1712	126
Marcus, Elizabeth	2947	207
Marcus, Sarah	2179	171
Marcus, Sarah	2652	191
Marcus, Ulrich	661	49
Maresso, Anthony	1666	124
Maresso, Anthony	1138	99
Margolin, William	1832	132
Margolin, William		5
Margolin, William		5
Marhaver, Kristen	1905	135
Mariano, Andrew	200	21
Marigney, Kelly	2280	175
Marin, Michel	2101	143
Marinelli, Laura	1869	134
Marino Cardenas, Yobana	1342	107
Marion, Carolyn	672	50
Marion, Donald	2967	208
Marion, Jason	2621	189
Marium, Wajeeha	12	12
Marjanovic, Olivera	1091	97
Mark, Olivia	1207	101
Marko, Melissa	2953	208
Marko, Melissa	2959	208
Marks, Dorothy	2242	173
Marks, Richard	2834	202
Marlow, Jeffery	944	63
Marlow, Jeffrey		152
Marlowe, Elizabeth		48
Marmont, Lindsey		225
Maroo, Ankit		157
Marquardt, Nicholas	1408	110
Marquart, Mary	813	56
Marques, João	279	25
Márquez-Meléndez, Rubén	2577	187
Marquis, Hélène	189	21
Marr, Kieren	2349	178
Marr, Kieren	563	38
Marraffini, Luciano		149
Marraffini, Luciano		161
Marraffini, Luciano		149
Marrazzo, Jeanne	773	54
Marrazzo, Jeanne	2317	176
Marrs, Carl	2122	144
Marsh, Terence	2586	188
Marsh, Terence	3092	213
Marshall, Ian	3085	213
Marshall, Pamela	610	40
Marteau, Philippe	1988	138
Martin, Bertha	2338	177
Martin, David	865	58
Martin, David	1281	104
Martin, Greg	574	38
Martin, Isabella	2278	174
Martin, Julio	306	26
Martin, Mark		232
Martin, Mark	265	24
Martin, Miriam	1746	127
Martin, Monte	570	38
Martin, Monte	LB-03	233
Martin, Nicholas	2742	197
Martin, Rocio	2318	176
Martin, Stacey	570	38
Martinaitis, Christine	2281	175
Martinez, M.	856	58
Martinez, Celida	388	29
Martinez, Celida	2607	189
Martinez, Jose		168
Martinez, Keith	1839	133
Martinez, Keith	918	62
Martinez, Luis	1794	130
Martinez, Luis	2355	178
Martinez, Marina	1273	104
Martinez, Raquel	2781	199
Martinez, Sarah	2193	171
Martinez, Sarah	221	22
Martínez, Araci	690	51
Martínez, Celida	2062	142
Martínez, Célida	3003	210
Martínez, Haydee	1681	125
Martínez, Leticia	3161	216
Martínez, Luary	1679	124
Martinez Garcia, Manuel	1896	135
Martinez Guevara, Jose	1019	65
Martínez Urtaza, Jaime	664	49
Martinez-Antonio, Agustino	2895	205
Martinez-de la Cruz, Liliana	2608	189
Martínez-Moliner, Verònica	1612	119
Martinez-Morales, Fernando	1945	137
Martínez-Olivas, Martha	2577	187
Martinez-Rodriguez, Celida	3052	212
Martinez-Rodriguez, Herminia	2183	171
Martínez-Romero, Esperanza	503	34
Martínez-Romero, Esperanza	504	34
Martinez-Urtaza, Jaime	1078	69
Martino, Marinês	1235	103
Martins, Natacha	2755	198
Martins, Vinicius	1045	67
Martiny, Adam	2455	182
Martiny, Adam	486	34
Martiny, Jennifer	2455	182
Maruyama, Fumito	2083	143
Marvig, Rasmus	1103	97
Marx, Christopher		220
Masarweh, Chad	2384	179
Maseda, Hideaki	1102	97
Mashburn-Warren, Lauren	2902	205
Mason, Carl	1597	118
Mason, Carl	517	35
Mason, Carl	2759	198
Mason, Eliza	1122	98
Mason, Katie	1271	104
Mason, Mary Ann		74
Mason, Olivia	1926	136
Mason, Olivia	490	34
Masood, Naqash	1556	116
Masouka, Nicole	2939	207
Massey, Laura	2531	186
Massire, Christian	1228	102
Master, Ronald	1199	101
Masuzawa, Mamiko	2674	191
Matar, Ghassan	650	49
Matar, Ghassan	2680	195
Mataseje, Laura	158	19
Materon, L.	856	58
Mathai, Prince	2408	180
Mathee, Kalai	2199	171
Mathee, Kalai	2213	172
Mathema, Barun	2983	209
Mathema, Barun	2204	171
Mathew, Gincy	1501	113
Mathieu, Jacques	1751	128
Mathieu, Jacques	2343	177
Matic, Ivan	870	59
Matlashewski, Greg	605	40
Matsen, Frederick	773	54
Matsen, Frederick	2631	190
Matson, Jyl	1117	98
Matsuda, Junichi	170	20
Matsuda, Mari	665	49
Matsuda, Shigeaki	2231	172
Matsui, Hidehito	560	38
Matsumoto, Hiroyuki		72
Matsumoto, Megumi	2284	175
Matsumoto, Sohkichi	2182	171
Matsumura, Takayuki	2664	191
Matsunaga, Tadashi	1308	106
Matsunaga, Tadashi		71
Matsunaga, Tadashi	2575	187
Matsuno, Hiroshi		78
Matsuo, Junji	2284	175
Matsuo, Junji	1731	127
Matsuo, Junji	2818	202
Matsuo, Junji	789	55
Matsushima, Yoshiko	1254	103
Matsuura, Katsumi	1821	131
Matsuyama, Yumiko	1254	103
Matsuzaki, Kaoru	651	49
Matte, Maria	2188	171
Matte, Maria	697	51
Matte, Sonia	1175	100
Matté, Glavur	2188	171
Matté, Glavur	697	51
Matter, Letícia	635	41
Matter, Letícia	2913	205
Matthews, T. David	2467	183
Matthews-Greer, Janice	176	20
Matthias, Kathryn	47	14
Matthias, Kathryn	102	16
Mattila, Mirjami	3040	212
Mattioli, Mia Catharine	1502	114
Mattison, Kirsten	2800	200
Matushek, Scott	1251	103
Maue, Alexander	77	15
Maughan, Michele	551	37
Maul, Diana	2248	173
Maurer, Kirk	189	21
Mauro, Steven	1423	110
Mauti, Alessandro	177	20
Mavromatis, Konstantinos	318	27
Mawatari, Kazuaki	2602	189
Mawatari, Kazuaki	2420	180
Maxwell, K	309	26
May, Amanda	1484	113
May, Larissa	88	16
May, Larissa	1162	100
May, Megan	3075	213
May, Meghan	859	58
May, Meghan	858	58
May, Meghan	868	58
May, Thithiwat	903	61

Author	Poster Board	Session Number
May, Thithiwat	901	61
Mayali, Xavier	946	63
Mayer, Marcia	2169	170
Mayhew, John	1208	102
Mayne, Donna	1182	100
Mayne, Donna	1171	100
Mayne, Donna	1169	100
Mayo, Mark	1719	126
Mayo, Mark	506	34
Mays Hoopes, Laura		78
Mays Hoopes, Laura		78
Maza, Felipe	2471	183
Mazel, Didier		146
Mazibrada, Biljana	1408	110
Mazmanian, Sarkis		89
Mazmanian, Sarkis		89
Mazurek, Joy	2505	184
Mazurie, Aurelien	849	57
Mazzulli, Tony	736	53
Mbong, Ekaette	508	35
Mc Gann, Patrick	654	49
Mc Gann, Patrick	653	49
McAllister, Tim	3154	216
McAllister, Timothy	1443	111
McAlpine, Mark	311	26
McAuley, Catherine	1007	65
McBain, Andrew	2156	170
McBain, Andrew	2133	169
McBain, Andrew	2688	195
McBain, Andrew	769	54
McBride, Jere	784	55
McBride, Ronnita	2806	201
McBride, Ronnita	2805	201
McCaffrey, Alia	1174	100
McCall, Laura-Isobel	605	40
McCallister, Eric	523	36
McCann, Chase	88	16
McCann, Chase	1162	100
McCardell, B	3061	212
McCardell, Barbara	2714	196
McCarter, Linda	1319	106
McCarthy, Fiona		78
McCarthy, James	1376	109
McCarthy, Mary	731	53
McCaslin-Taylor, Hope	3109	214
McCauley, Steve	1532	115
McChesney, John	860	58
McClain, Grace	2072	142
McClelland, Erin	1803	130
McClelland, Michael	2099	143
McClelland, Michael	2747	197
McClelland, Michael	1661	124
McClelland, Michael	2921	206
McClelland, Michael	2740	197
McClelland, Michael	2751	197
McCloskey, Cindy		94
McClure, JoAnn	1264	104
McClure, P	995	65
McCormick, Beth		231
McCormick, Beth		231
McCormick, R		226
McCormick, R	387	29
McCormick, William	2389	179
McCorry, Jeanette	249	23
McCoy, Adam	2036	141
McCoy, Morgan	107	17
McCoy, Morgan	2805	201
McCrate, Oscar	905	61
McCray, Paul	2337	177
McCray, Paul	2338	177
McDaniel, James	1753	128
McDaniel, Larry	68	15
McDaniel, Larry	722	52
McDermott, Andrew	2888	204
McDermott, Jason	2628	190
McDermott, Pat	3049	212
McDermott, Patrick	386	29
McDermott, Patrick	659	49
McDermott, Patrick	1072	69
McDermott, Patrick	1994	139
McDermott, Patrick	2535	186
McDermott, Patrick	1999	139
McDonald, Kent	929	62
McDonald, Ryan	3023	211
McDonough , Virginia	297	26
McDougald, Diane	3027	211
McDowell, William	3102	214
McEgan, Rachel	385	29
McElvania TeKippe, Erin	1249	103
McFall-Ngai, Margaret		2
McFall-Ngai, Margaret		91
McFall-Ngai, Margaret		83
McFall-Ngai, Margaret	2316	176
McFall-Ngai, Margaret	1332	107
McGann, Patrick	2988	209
McGarey, Donald	1133	99
McGarrell, Donna	2507	184
McGarrell, Donna	2626	190
McGarvey, Jeffery	1626	119
McGaughey, K	1933	136
McGechie, David	1189	100
McGee, Charles	3094	214
McGeer, Allison	753	54
McGeer, Allison	158	19
McGilligan, Victoria	2842	203
McGillivray, Shauna	1110	98
McGillivray, Shauna	1749	127
McGlynn, Shawn	944	63
McGlynn, Shawn	2498	184
McGowan, Karin	1204	101
McGowin, Chris	865	58
McGowin, Chris	1281	104
McGrath, Steve	951	63
Mcgrath, Steve	1915	136
McGrath (FERN), Tim	376	29
McGregor, Alistair	3136	215
McGregor, Erin	632	41
McGuinness, Erin	1629	122
McHenry, Amy	827	56
McInerney, Michael	459	33
McInerney, Michael	2441	181
McInnerney, Kathleen	939	62
McIntosh, Brenley		78
McIntosh, Mark	867	58
McIver, Lauren	2643	190
McKay, Rusty	1038	67
McKay, Susannah	1141	99
McKay, Susy		72
McKean, Michelle	766	54
McKee, Robert		226
McKerrow, J	1638	122
McKillip, John	2556	186
McKinley, James	321	27
McKinley, Kathleen	178	20
McKinnon, John	1443	111
McKnight, Diane	1387	109
McLain, Colin		156
McLain, Jean	2072	142
McLaughlin, Sarah	752	53
McLean, Jeffrey	767	54
Mclean, Joan	419	31
Mclean, Trevor	310	26
McLoughlin, Kevin	515	35
McMahan, Lanakila	2032	141
McMahan, Lanakila “Ku”	2031	141
McMahon, Stephanie	579	38
McMinn, Brian	1030	66
McMinn, Brian	1525	115
McMurdie, Paul	2633	190
McMurdie, Paul	407	31
McNally, Paul	186	21
McNamara, Bill	1464	112
McNamara, Michael	803	55
McNeal, Sa’Rah	2573	187
McNeely, Tessie	830	56
McNew, Lauren	2450	182
McNulty, Reginald	2429	181
McNulty, Steven	2671	191
McPhee, Joseph		84
McPherson, Nikolas	347	28
McPhie, Peter	645	42
McQuade, Kristi	2430	181
McQuade, Thomas	686	50
McQueen, Nancy	555	37
McRose, Darcy	1911	135
McVay, Jill	1182	100
Meade, Bruce	1274	104
Meagher, Robert	502	34
Meagher, Robert	1756	128
Meagher, Robert	889	59
Meagher, Robert	3091	213
Means, W		226
Means, W	387	29
Means, Warrie	1014	65
Medeiros, Julliane	489	34
Medeiros, Marta	2774	198
Medenica, Irena	1547	116
Medhekar, Bob	74	15
Medina, Audrie	862	58
Medina, Hugo	1304	106
Medina, Luis	2570	187
Medina, Monica	2939	207
Medina, Mónica	1905	135
Medina, Mónica	1816	131
Medina-Rivera, Mariely	1819	131
Medina-Soltero, Martha	530	36
Meece, Jennifer	2796	200
Meece, Jennifer	627	41
Meece, Jennifer	1714	126
Meens, Jochen	42	13
Meerdink, Gerrit	2529	186
Meganathan, Rangaswamy	2960	208
Mehler, Phil	2977	209
Mehrotra, Bandana	2974	209
Mehrotra, Sanjay	2974	209
Mehta, Akshita	1688	125
Mei, Wang	1219	102
Meier, Jesse	523	36
Meijer, Wim	3095	214
Meile, Leo	6	12
Meiss, Sarah	964	63
Meißner, Thorsten	42	13
Meister, Daniel	1806	130
Mejía, G	1575	117
Mejía, S	1575	117
Mekalanos, John		121
Melby, Joel	2365	179
Meldrum, Deirdre	344	28
Melillo, Amanda	2875	204
Melka, David	2544	186
Mellata, Melha	2329	177
Mellata, Melha	81	15
Mellin, J.R.		219
Mellmann, Alexander	1267	104
Mellon, Scott	2922	206
Melnicki, Matthew	2410	180
Melnyk, Ryan	2436	181
Melnyk, Ryan	2437	181
Melnyk, Ryan	400	30
Melnyk, Ryan	1559	116
Melton, Desirae	625	41
Melton, Sarah	3015	211
Melton-Celsa, Angela	1145	99
Melton-Celsa, Angela	1743	127
Melton-Witt, Jody	1141	99

Author	Poster Board	Session Number
Meltzer, Michelle	93	16
Meltzer, Robert	2538	186
Meltzer, Robert	1473	112
Members of the CDC TB Laboratory Project Workgroup	1198	101
Memon, Akhtar	1686	125
Memon, Akhtar	19	12
Men, Yujie	413	31
Mena, Kristina	1008	65
Mendell, Nicole	LB-07	233
Mendenhall, Michelle	1585	118
Mendes, Edilberto	2380	179
Mendes, Edilberto	2776	198
Mendes, Rodrigo	1641	123
Mendes, Rodrigo	2758	198
Mendez, Monica	323	27
Méndez, Michelle	442	32
Mendez-Melendez, Marbella	1943	137
Mendez-Melendez, Marbella	1939	137
Mendez-Melendez, Marbella	1949	137
Mendez-Morales, Emanuel	1344	107
Mendonca, Aubrey	3039	212
Mendoza, Jose	2007	140
Meneely, Philip	2742	197
Menefee, Whitney	1303	106
Menegus, Marilyn	2275	174
Menes, Rodolfo	2587	188
Meng, Jianghong	3042	212
Meng, Jun	2940	207
Meng, Shufang	1228	102
Meng, Xianjun	2526	185
Mengistab, Aklilu	2819	202
Menichella, Donato	1579	117
Menikpurage, Inoka	1857	133
Menon, Balaraj	182	21
Merkel, Tod	2212	172
Merkel, Tod	2297	176
Merkel, Tod	2887	204
Merkel, Tod	816	56
Merkey, Brian	902	61
Merrell, D.	2139	169
Merrell, D. Scott	33	13
Merriman, Joseph	1151	99
Mershon, J.	918	62
Merten, Kevyn	1634	122
Mertens, Pascal	2249	173
Mesa, Michael	1208	102
Mesak, Lili	1864	133
Meschke, John	1513	114
Meschke, John	1881	134
Meschke, John	2623	189
Meschke, John	1882	134
Mesler, Arlee	896	60
Messenger, Sharon	525	36
Messer, Shawn	1210	102
Messick, Joanne	857	58
Metcalf, William	2517	185
Metcalf, William		157
Metcalf, William	2431	181
Metcalf, William	2963	208
Metternich, Amanda	3075	213
Metz, Thomas	2628	190
Metz, Zachary	1848	133
Metzger, Ross	2865	203
Metzger, Steven	157	19
Metzger, Steven	751	53
Metzker, Michael		228
Meurer, Beatriz	2755	198
Mevarech, Moshe	891	60
Meya, David	847	57
Meyer, Birte	2443	181
Meyer, Folker	3067	213
Meyer, Jennifer	755	54
Meyers, Myriam	LB-06	233
Meza, Constanza	2073	142
Mezal, Ezat	1992	139
Michael, Norris	1263	104
Michalec, Susan	2976	209
Michalec, Susan	171	20
Michelangeli, Fabian	3146	216
Microbial Pathogenesis and Host Defense Program	1660	124
Middleton, June	2057	141
Mielke, Randy	455	33
Mieszkin, Sophie	3098	214
Miezeiewski, Matthew	569	38
Migiyama, Yohei	170	20
Migiyama, Yohei	2116	144
Migl, David		78
Mihaltcheva, Sirma	2599	188
Mihreteab, Merhawi	297	26
Mijatovic-Rustempasic, Slavica	2264	174
Mikawa, Takashi	1554	116
Mikeladze, E	1148	99
Milan, Rachel	968	63
Milburn, Bruce	289	25
Milburn, Susan	2234	173
Miles, Arianna	2122	144
Miles, Arianna	757	54
Milián Sauzo, Feliciano	1055	68
Milillo, Micheal	2988	209
Millan-Saucedo, Cassandra	2183	171
Millen, Anne		149
Millen, Anne	298	26
Miller, Al	2312	176
Miller, Aaron	2881	204
Miller, Aaron	862	58
Miller, Becky	2786	199
Miller, Chris	2943	207
Miller, Christopher	943	63
Miller, Christopher		224
Miller, Christopher	775	54
Miller, Christopher	2495	184
Miller, Christopher	966	63
Miller, Corwin	1537	116
Miller, J	2236	173
Miller, James	73	15
Miller, James	2137	169
Miller, Jarett	1474	113
Miller, Jeff	1668	124
Miller, Jeff	74	15
Miller, Jeff	1869	134
Miller, Jeff	2202	171
Miller, Jeffrey	1586	118
Miller, Katherine	25	13
Miller, Ken	2014	140
Miller, L.	2129	169
Miller, Laura	287	25
Miller, Laurence	1375	109
Miller, Laurence	1372	109
Miller, Laurence	1373	109
Miller, Lisa	2281	175
Miller, Melissa	97	16
Miller, Melissa	1233	103
Miller, Michael	2691	195
Miller, Michael	1987	138
Miller, Michael	1979	138
Miller, Quentin	174	20
Miller, Robert	16	12
Miller, Sam		75
Miller, Sam	253	23
Miller, Samantha		75
Miller, Samuel		89
Miller, Scott	2452	182
Miller, Stephen	279	25
Miller, Steve	2258	174
Miller, Steve	2264	174
Miller, T.	2260	174
Miller, Teresa	257	23
Miller, Virginia	1734	127
Miller, William	2095	143
Miller, William	1292	105
Miller, William	2094	143
Miller, William	2744	197
Millerick, Kayleigh	427	31
Mills, David		84
Mills, David	1919	136
Mills, David	778	54
Mills, David	1981	138
Mills, David	2384	179
Milsted, Amy	2137	169
Milsted, Amy	2148	169
Min, Byungnam	436	32
Min, Ga-Young	706	51
Min, Jiho	2891	204
Min, Jiho	2692	195
Min, Jiho	474	33
Min, Jiho	603	40
Min, Park	2701	195
Min, Yi	2818	202
Min, Zhu	1219	102
Min, Zhu	1246	103
Minagawa, Shu	273	25
Minagawa, Shu	2815	202
Minami, Hiroshi	1710	126
Minami, K	2284	175
Minard-Smith, A.	484	34
Minato, Yusuke	1366	108
Minato, Yusuke	66	14
Minbiole, Kevin	2151	169
Mincer, Tracy		148
Mingardon, Florence	993	64
Mingarro, Ismael	723	52
Mingle, Lisa	1180	100
Minnigh, Harvey	2618	189
Minogue, Tim	2106	143
Minor, Amie	997	65
Minsky, Abraham		146
Mintus, Margaret	794	55
Mintz, E	1592	118
Miranda, Claudio	3159	216
Miranda, Jaime	1053	68
Miranda, Pilar	1773	129
Miranda, Rosa	2581	188
Mirrett, Stanley	95	16
Mirrett, Stanley	739	53
Mirza, Shaper	2820	202
Mishra, B	2254	174
Mishra, Nagendra	1653	123
Misra, Dawn	2122	144
Mistretta, Toni-Ann	764	54
Mistry, Ronak	217	22
Mitarai, Satoshi	1565	117
Mitchell, Andreas	614	40
Mitchell, Douglas	2365	179
Mitchell, Gabriel	2172	170
Mitchell, Jennifer	2829	202
Mitchell, Kaitlin	2652	191
Mitchell, Kaitlin	296	26
Mitchell, Ralph	2035	141
Mitchell, Ralph	2505	184
Mitchell, Robert	127	18
Mitchell, Stephanie	58	14
Mitchell, Sue	218	22
Mitchell, Thomas	849	57
Mitchell, Tim	768	54
Mitra, Debjani	1100	97
Mitsevich, Evgenii	648	49
Mitsevich, Irina	648	49
Mittl, Peer	2179	171
Mixson-Hayden, Tonya		156
Miyagi, Chihiro	1238	103
Miyairi, Shinichi	273	25
Miyaji, Eliane	1273	104
Miyake, Hideo	359	28

Author	Poster Board	Session Number
Miyashiro, Tim		4
Miyata, Sarah	2209	172
Miyata, Toshiko	2674	191
Miyazaki, Taiga	1781	129
Miyoshi-Akiyama, Tohru	2320	176
Mizelle, N.	3119	214
Mladenov, Natalie	1387	109
Mo, Yiming	1625	119
Mo, Yiming	31	13
Mobeen, Ain	362	28
Moberly, James	1027	66
Moberly, James	2434	181
Mobley, Harry	2728	197
Mobley, Harry	52	14
Mobley, Harry	824	56
Mobley, Harry		84
Mobley, Harry	686	50
Mobley, Harry	1687	125
Mobley, Harry	27	13
Mobley, Harry		225
Mobley, Harry	2181	171
Mocca, Brian	1739	127
Mocca, Christopher	1274	104
Modi, Jignesh	2973	209
Modlin, Robert	1869	134
Moe, William	439	32
Moe, William	422	31
Moen, Ann	3139	215
Moerschel, Barbara	1208	102
Moet, Gary	4	12
Moet, Gary	1630	122
Moet, Gary	5	12
Mogk, A	3061	212
Moguel, Fernando	2383	179
Mohamed, Muhanad	2814	201
Mohamed, Nizar	2255	174
Mohamed, Walid	821	56
Mohammadi, Sanaz	1322	106
Mohammadi, Sanaz	229	22
Mohammadi, Shahrzad	LB-05	233
Mohanty, Sujit	2120	144
Mohawk, Krystle	2745	197
Mohr, Jordan	1049	67
Mohseni, Mojtaba	1346	107
Mohsin, Sehrish	2261	174
Mohsin, Sehrish	2790	200
Mohsin, Sehrish	2262	174
Mohsin, Sehrish	1601	118
Moissl-Eichinger, Christine	894	60
Mojica, Ismael	2008	140
Mok, Mac	677	50
Mokkapati, Anupama	1174	100
Mokszycki, Matthew	678	50
Moldovan, Ioana	2800	200
Molin, Søren	1558	116
Molin, Søren	1083	97
Molin, Søren	1103	97
Molina, Gabriela	453	33
Molina, Margarita	2028	140
Molina, Marirosa	1048	67
Molina, Marirosa	3118	214
Molina, Vanessa	2927	206
Molina-Salinas, Gloria	1642	123
Molina-Torres, Carmen	2183	171
Moll, Karen	2569	187
Molloy, Stephanie	2599	188
Moloney, Clodagh	1167	100
Moloney, Clodagh	1172	100
Monack, Denise	1765	129
Monack, Denise		158
Moncayo, Abelardo	LB-07	233
Monds, Russell	1826	132
Monds, Russell	1835	132
Monds, Russell	1834	132
Moneypenny, Craig	868	58
Mongkolrattanothai, Kanokporn	7	12
Mongkolrattanothai, Kanokporn	122	18
Mongkolsuk, Skorn	2726	196
Mongkolsuk, Skorn	2595	188
Monsalva, Debbie	1118	98
Monson, Timothy	1594	118
Montaraz-Crespo, Juan	2307	176
Monte, Aaron	1635	122
Monteiro, Claudia	2707	196
Monteiro, Jussimara	666	49
Monteiro, Mario	77	15
Montenegro-Garcia, Natalia	2500	184
Montgomery, Andrew	1872	134
Montgomery, Steven	1589	118
Montgomery-Andersen, Ruth	2283	175
Montigon, Franck	91	16
Montoya-Lopez, Ruben	2895	205
Montoya-Romero, Irma	1064	68
Moody, Erik	1527	115
Moody, Krishna	1689	125
Mooi, Frits	2088	143
Moolman, Charl	876	59
Moon, Daniel	2151	169
Moon, Hyoungjoon	526	36
Moon, Hyoungjoon	527	36
Moon, Hyoungjoon	528	36
Moon, J.-W.	979	64
Moon, Jae	887	59
Moon, Jae	2295	176
Moon, Jae	2308	176
Moon, Kyung-Eun	3069	213
Moon, Kyung-Eun	3070	213
Moon, Kyung-eun	2063	142
Moon, Stephanie	542	37
Mooney, Jason	1277	104
Mooney, Jason	1737	127
Mooney, Thomas	2027	140
Moore, Bradley		154
Moore, Courtney	814	56
Moore, Donald	2484	183
Moore, Emily	205	21
Moore, Frances	626	41
Moore, Frances	627	41
Moore, Jonathan	2842	203
Moore, Mary	2823	202
Moore, Matthew	430	31
Moore, Miranda	1162	100
Moore, Robert	501	34
Moore, Tara	2842	203
Moote, Paul	3149	216
Mootz, Joe	2914	205
Mooyottu, Shankumar	1662	124
Mora, Guido	2740	197
Mora, Guido	2828	202
Morales, ADELAIDA	572	38
Morales, Anthony	625	41
Morales, Eduardo	2921	206
Morales, Rhonda	2190	171
Morales-Ramos, Lilia	2589	188
Moran, Mary Ann	2940	207
Moran, Mary Ann		87
Morano, Kevin	611	40
Mordechai, Eli	257	23
More, Gisselle	1052	68
Moreira, Beatriz	2992	209
Moreira, C	1575	117
Moreira, Rolando	481	33
Moreno, Adriana	1273	104
Moreno, Andrea	697	51
Moreno, Luisa	697	51
Moreno, Soledad	1367	108
Moreno, Y	2021	140
Moreno, Yolanda	1530	115
Moreno, Yolanda	1529	115
Morens, David	808	56
Morgan, Daniel	LB-05	233
Morgan, Edward	2324	177
Morgan, Justin	1189	100
Morgan, Margie	1220	102
Morgan, Margie	92	16
Morgan, Margie	1711	126
Morgan, Margie	93	16
Morgan, Margie		80
Morgan, Martin	2631	190
Morgan, Martin	773	54
Morgan, Mary	2742	197
Morgan, Matt	1885	135
Mörgelin, Matthias	2304	176
Mörgelin, Matthias	2301	176
Morgenstern, Alfred	2354	178
Mori, Hirotada		78
Mori, Luisa	2653	191
Mori, Masashi	1710	126
Morici, Lisa	2332	177
Morici, Lisa	822	56
Morikawa, Masaaki	1476	113
Morimoto, Norihito	730	52
Morinaga, Yoshitomo	2116	144
Morinaga, Yoshitomo	170	20
Morisaka, Hironobu	359	28
Morishita, Keiko	702	51
Morisseau, Christophe		231
Morisset, Richard	180	20
Morisset, Richard	2131	169
Morita, Yasu	2664	191
Morones, Jose	2685	195
Morovic, Wesley	1539	116
Morovic, Wesley		229
Morowitz, Michael	775	54
Morowitz, Michael	1758	128
Morrell-Falvey, Jennifer	3015	211
Morris, Brian	1047	67
Morris, Carolyn	2737	197
Morris, J.	1040	67
Morris, James	3037	211
Morris, Paul	494	34
Morris, Paul	500	34
Morris, Rachel	2559	187
Morris, Robert	2563	187
Morrison, Alec	370	29
Morrison, Donald	2902	205
Morrison, Hillary	765	54
Morrison, Holly	199	21
Morrison, Lynda	508	35
Morrison, Mark	501	34
Morrison, Rebecca	703	51
Morrow, Jayne		145
Morse, Stephen		145
Morshed, Muhammad		92
Mortensen, Joel	1169	100
Mortensen, Ninell	3015	211
Morton, Daniel	34	13
Morton, Daniel	2309	176
Morton, Daniel	692	51
Morton, Daniel	695	51
Morton, Daniel	35	13
Moser, Claus	2837	202
Moser, Claus	1262	104
Moser, Claus	2157	170
Moser, Duane	969B	63
Mosha, Fausta		46
Mosher, Jennifer	979	64
Mosher, Jennifer	2087	143
Mosher, Jennifer	1438	111
Mosier, Annika		85
Mosier, Annika		224
Mosier, Annika	966	63
Mosier, Annika	960	63
Moss, Joel	70	15
Mostaghim, Anahita		151

Author	Poster Board	Session Number
Mostov, Keith	2865	203
Motai, Izumi		45
Motamedi, Hossein	470	33
Motin, Vladimir	28	13
Motlagh, Hamed	578	38
Motlagh, Hamed	752	53
Motley, Tim	567	38
Mott, Joanna	3110	214
Mou, Sherry	1689	125
Mou, Xiangyu	37	13
Mou, Xiaozhen	2470	183
Mougous, Joseph		161
Mougous, Joseph	2217	172
Mougous, Joseph	1817	131
Mougous, Joseph	2227	172
Mougous, Joseph	2228	172
Moulton, Karen	1875	134
Mouneimne, Roula	2863	203
Moura, Rodrigo	1904	135
Mourant, Cassandra	2387	179
Mourelatou, Athinaida	999	65
Mousnier, Aurélie	791	55
Movassaghi, Miyad	1875	134
Moyano, Santiago	778	54
Moynihan, Patrick	926	62
Moynihan, Patrick	927	62
Mpabanga, Tandie	2500	184
Muchero, Wellington	3016	211
Mucida, Daniel		149
Mudhasani, Rajini	1322	106
Mueller, Jana	358	28
Mueller, Jana	971	64
Mueller, Lukas	2627	190
Mueller, Rebecca		229
Mueller, Ryan	1758	128
Mueller-Spitz, Sabrina	2923	206
Mueller-Spitz, Sabrina	1408	110
Muelli, Mirjam	6	12
Muhammad, M.	1059	68
Muhammad Umar, Muhammad	14	12
Muhammed, Naeema	1596	118
Muir, Helaina	1584	117
Muir-Paulik, Sarah	3139	215
Mukherjee, Amit	1351	108
Mukherjee, Biplab	1048	67
Mukherjee, Pranab	1799	130
Mukherjee, Pranab	1796	130
Mukherjee, Pranab	1798	130
Mukherjee, Priyanka	67	14
Mukherjee, Sampa	386	29
Mukhopadhyay, Aindrila	993	64
Mukhopadhyay, Aindrila	2409	180
Mukhopadhyay, Aindrila	1369	108
Mukhopadhyay, Aindrila	364	28
Mukhopadhyay, Aindrila	962	63
Mukhopadhyay, A.	1862	133
Mukhopadhyay, Biswarup	2669	191
Mukhopadhyay, Biswarup	2634	190
Mukhopadhyay, Biswarup	899	60
Muldoon, Mark	2547	186
Mulenga, Albert	807	56
Mulenga, Musapa		156
Mulholland, Margaret	1420	110
Mull, Bonnie	2493	184
Muller, Emilie	1026	66
Muller, Jana	2897	205
Müller, Constanze	1815	131
Mullin, Sean	2951	208
Mullin, Sean	2943	207
Mullis, Lisa	533	36
Multari, Rosalie	1465	112
Mulvad, Gert	2283	175
Mulvey, George	2831	202
Mulvey, Michael	158	19
Mun, James	1766	129
Munakata, Kanako	2510	184
Munch, Jean	1449	111
Munier, Gina	156	19
Munier, Gina	149	19
Munns, Denton	2352	178
Muñoz-Castellanos, Laila	2593	188
Muñoz-Castellanos, Laila	1956	137
Muñoz-Colunga, Ana	442	32
Munro, Michelle	1968	138
Munson, Erik	2285	175
Munson, Erik	2287	175
Munson, Erik	2993	209
Munson, Erik		222
Munson, Keith	2429	181
Munson, Kimber	2287	175
Munson, Robert	689	51
Munz, Christian		3
Muraglia, Ryan	2122	144
Murakami, Ei-ichi	2488	183
Murali, Soumiya	2762	198
Murali Mohan, Arvind	3073	213
Muraoka, Wayne	3157	216
Murfin, Kristen	1330	107
Muricy, Guilherme	1415	110
Muricy, Guilherme	1887	135
Murillo, Catalina	1914	136
Murnane, Mollie	1822	131
Murphy, Clodagh	687	50
Murphy, Eileen	1650	123
Murphy, Gloria	1591	118
Murphy, Jasity	340	27
Murphy, Matthew	2609	189
Murray, Alyson	2829	202
Murray, J	1892	135
Murray, P	774	54
Murray, Patrick		85
Murray, Patrick	1536	116
Murray, Peter		159
Murray, Susan	3029	211
Murtaugh, William	3140	215
Muruganandam, Subathra	419	31
Murugapiran, Senthil	2199	171
Muruvanda, Tim	2544	186
Musah, Rabi	2138	169
Mushtaq, Tayyaba	1572	117
Mushtaq, Tayyaba	2330	177
Mushtaq, Tayyaba	2261	174
Musser, James		145
Musser, Kimberlee	1180	100
Musser, Kimberlee	745	53
Mustachio, Lisa Maria	233	22
Mustafi, Sushmita	184	21
Mutharia, Lucy	2109	144
Muthukrishnan, Gowrishankar	1784	129
Muthukrishnan, Gowrishankar	2984	209
Muto, Masaki	2575	187
Mutschall, Steven	2009	140
MVS, Subbalaxmi	2809	201
Mwangi, Waithaka	807	56
Mwaura, Francis	1875	134
Myers, Edith	2057	141
Myers, Kristina	2563	187
Myler, Peter	2748	197
Myrold, David	318	27
Myrold, David	3067	213
Mysliwiec, Tami	2596	188
Mysorekar, Indira	2313	176

N

Author	Poster Board	Session Number
Na, Woon-Sung	526	36
Na, Woonseong	528	36
Na, Woonsung	527	36
Naccache, Samia	2264	174
Nachar, Victoria	2930	207
Nachman, Keeve	3160	216
Nadeau, Lloyd	2562	187
Nadimpalli, Maya	1596	118
Naff, Courtney		151
Nag, H.L.	2174	170
Nag, T.C.	2174	170
Nagalingam, Nabeetha	1727	127
Nagalingam, Nabeetha	759	54
Nagamine, Kenjiro	1160	100
Nagano, Akihiko	359	28
Nagaoka, Kentaro	2116	144
Nagaoka, Kentaro	170	20
Nagaraian, Sowmya	1362	108
Nagarajan, Harish	1822	131
Nagarajan, Harish	1557	116
Nagarajan, Harish	2489	183
Nagarajan, Harish	2525	185
Nagarajan, Harish	2456	182
Nagarajan, Sanjay	982	64
Nagarajan, Sanjay	2054	141
Nagata, Maki	2488	183
Nagel, Jerod	159	19
Nagel, Jerod		94
Nagy, Toni	708	51
Nahar Saikia, Uma	832	56
Nahas, Debbie	830	56
Nahm, Moon		70
Nahm, Moon	722	52
Nahm, Moon		70
Nahm, Moon	68	15
Nahm, Moon	825	56
Nahm, Moon	715	52
Naif, M.	2163	170
Nair, Dipthi	2765	198
Nair, G.	1733	127
Nair, Vinod	2686	195
Nair, Remya	2832	202
Naismith, James		75
Naito, Tsuyoshi	516	35
Nájera-Dominguez, Carolina	1982	138
Naka, Takashi	2666	191
Naka, Takashi	2660	191
Naka, Takashi	1054	68
Naka, Takashi	2663	191
Nakae, Taiji	1102	97
Nakae, Taiji	1096	97
Nakae, Taiji	560	38
Nakagawa, Ichiro	2083	143
Nakagawa, Tatsunori	1410	110
Nakajima, Daichi	359	28
Nakajima, Takuma	1663	124
Nakajima, Yuuya	932	62
Nakamoto, Sayuri	1062	68
Nakamura, Akiko	1254	103
Nakamura, Kristie	145	19
Nakamura, Shigeki	1781	129
Nakamura, Shinji	789	55
Nakamura, Shinji	1731	127
Nakamura, Shinji	2818	202
Nakamura, Takashi	2023	140
Nakanishi, Akihito	2561	187
Nakano, Masayuki	70	15
Nakano, Michiko	230	22
Nakas, James	980	64
Nakasaki, Rosa	LB-03	233
Nakashima, Ryosuke	1101	97
Nakata, Noboru	2660	191
Nakatani, Masato	2561	187
Nakayama, Asami	2811	201
Nakazawa, Keiko	1254	103
Nakhasi, Hira	645	42
Nall, Duncan	2430	181
Nam, Ha Young	1075	69
Nam, Jeong-Hyun	526	36
Nam, Jeong-Hyun	527	36
Nam, Moon	887	59

Author	Poster Board	Session Number
Namba, Greg	269	24
Namba, Greg	268	24
Namdari, Hassan	2772	198
Namwat, Wises	224	22
Nandi, Tannistha		219
Nanjundaswamy, Ananda	976	64
Naor, Adit	891	60
Napierala, Maureen	2285	175
Napierala, Maureen	2287	175
Napierala, Maureen	2993	209
Naraghi-Arani, Pejman	229	22
Naraghi-arani, Pejman	1322	106
Narasimhan, Giri	2199	171
Narayanan, Jothikumar	2046	141
Narayanan, Jothikumar	2493	184
Narayanan, Kumaran	228	22
Narberhaus, Franz	1111	98
Narechania, Apurva	2204	171
Narita, Kaori	874	59
Narm, Koh Eun	198	21
NARMS Working Group	1994	139
NARMS Working Group	2535	186
Narukami, Toshiaki	613	40
Nascimento, Heloisa	2175	170
Nascimento, Juliana	1894	135
Naseeb, Samina	234	22
Nasko, Daniel	488	34
Nassar, Farah	2680	195
Nasser, Abid	2030	141
Nast, Cynthia	1653	123
Nasu, Masao	1062	68
Nasu, Masao	2048	141
Nasu, Masao	395	30
Nasu, Masao	461	33
Nasuno, Harunobu	461	33
Nataro, James	1150	99
Nataro, James	2161	170
Nava-Acosta, Raul	1142	99
Navaratnam, Navaneethan	2559	187
Navarrete, Jonathan	625	41
Navarro, Armando	2307	176
Navarro, Claudio	2598	188
Navarro, Lorena	1156	99
Navarro-Garcia, Fernando	1147	99
Navarro-Garcia, Fernando	1142	99
Navarro-García, Fernando	1158	99
Navas, Maria	2243	173
Nawaz, Mohamed	203	21
Nawaz, Mohamed	1744	127
Nayak, Dipti		220
Nayak, Niranjan	2174	170
Nayak, Rajesh	2373	179
Nayak, Rajesh	1618	119
Nayak, Rajesh	1105	97
Nayak, Rajesh	3151	216
Nazarian, Elizabeth	1180	100
Ndao, Malick	2975	209
Ndealilia, Senyael	1718	126
Neal, Emily	1933	136
Neal, Jack	372	29
Neal, Jay		73
Nealson, Kenneth	767	54
Neary, Brandon	1212	102
Nebergall, Emily	629	41
Nedd, Mary	564	38
Neeld, Dennis	1154	99
Neff, Bill	119	18
Negron, Ginamary	2004	140
Negron Talavera, Ginamary	2003	140
Negrón-Talavera, Ginamary	1528	115
Nehme, Sami	729	52
Neiditch, Matthew		160
Neilan, Brett	2597	188
Neilan, John	1603	119
Neilson, Julia W	967	63
Neilson, Julia W.	969	63
Nektalova, Zinayida	610	40
Nelis, Hans	2705	196
Nellessen, Maria		160
Nelsen, Susan	2242	173
Nelson, David	37	13
Nelson, David	2198	171
Nelson, David	800	55
Nelson, David	924	62
Nelson, Jeff	1076	69
Nelson, Jeff	1075	69
Nelson, Jennifer		220
Nelson, Kara	2600	189
Nelson, Kara	1522	115
Nelson, Kara	1523	115
Nelson, Karen	767	54
Nelson, Karen		85
Nelson, Karis	472	33
Nelson, Kellyx	3104	214
Nelson, Tiffanie	495	34
Nelson, Tyler	1075	69
Nelson, Tyler	1076	69
Nelson, William		224
Nelson, William	1918	136
Nelson, William M.	967	63
Nelson, William M.	969	63
Nemergut, Diana	1387	109
Nemergut, Diana	3010	211
Nemoto, Michiko	2575	187
Nemoto, T. K.	1543	116
Neofytos, Dionissios	2349	178
Nera, Bernadette		217
Nesbit, Lance	1791	130
Nesbø, Camilla	1877	134
Ness, Traci	1777	129
Ness, Traci	1782	129
Nettleton, Dan	2950	207
Neubauer, Cajetan	2124	144
Neubauer, Susan	1285	105
Neuendorf, Elizabeth	801	55
Neuendorf, Elizabeth	792	55
Neumann, Nadine	1267	104
Nevarez, Andres	1303	106
Nevárez-Moorillón, Guadalupe	1560	117
Nevárez-Moorillón, Guadalupe	1982	138
Nevárez-Moorillón, Guadalupe	1017	65
Nevárez-Moorillón, Guadalupe	2577	187
Nevárez-Moorillón, Guadalupe	2418	180
Nevárez-Moorillón, Virginia	2593	188
Nevers, Meredith	1516	115
Nevers, Meredith	2010	140
Neves, Clóvis	1265	104
Nevin, Kelly	450	32
Nevin, Kelly	1814	131
Newburg, David	1268	104
Newburn, Erin	2794	200
Newcombe, Caroline	2590	188
Newcomer, Kelli	2235	173
Newcomer, Kelli	749	53
Newman, Dianne		2
Newman, Dianne		154
Newman, Dianne	2594	188
Newman, Dianne	2445	181
Newman, Dianne	675	50
Newman, Elaine	2915	205
Newman, Jasmine	2198	171
Newman, Kristopher	2671	191
Newman, Lee	429	31
Newman, Tiffanny	1783	129
Newmister, Sean	2447	181
Newsom, David	2741	197
Newton, Duane	116	17
Newton, Duane	1178	100
Newton, Duane	2244	173
Newton, Duane	1176	100
Newton, Duane		94
Newton, K	776	54
Newton, L	96	16
Ng, Jimmy	3136	215
Ng, Ka	1411	110
Ng, Virginia	2082	143
Ngan-Ling, Lai	2814	201
Ng-Liu, Carolina	2012	140
Ngo, Dung	679	50
Ngo, Mimi	475	33
Nguyen, Amelia	2558	187
Nguyen, Chinh	815	56
Nguyen, Chung	676	50
Nguyen, Duylinh	1193	101
Nguyen, Duylinh	1192	101
Nguyen, Jonathan	1932	136
Nguyen, Kathy	2342	177
Nguyen, Khristopher	629	41
Nguyen, Kimberly	2539	186
Nguyen, Lam	2540	186
Nguyen, Lin	2203	171
Nguyen, Linh	740	53
Nguyen, Mi	1523	115
Nguyen, Ngoc-Lien	3021	211
Nguyen, Nhu	3022	211
Nguyen, Susan	1251	103
Nguyen, Tam	809	56
Nguyen, Thuc	703	51
Nguyen, Trang	3136	215
Nguyen, Tuan	2876	204
Nguyen, Tuan	2448	181
Nguyen, Vinh	1812	131
Ngyuen, Thao	687	50
Nho, Seong	2195	171
Nho, Seong Won	1760	128
Nho, Seong Won	1290	105
Nho, Seong Won	1624	119
Ní Chadhain, Sinéad	1480	113
Ní Chadhain, Sinéad	1474	113
Niazy, Abdurahman	1659	124
Nichol, Stuart		158
Nicholas, Darrel	2933	207
Nichols, Jenni	1608	119
Nichols, William	124	18
Nicholson, Tracy	3144	216
Nickel, Amy	311	26
Nico, Peter	1371	109
Nicola, Federico	2770	198
Nicolás, Marisa	489	34
Niederweis, Michael	1561	117
Niedzwiecki, Aleksandra	1628	122
Nieh, Angela	2202	171
Niehaus, Gary	2530	186
Nielsen, David	344	28
Nielsen, Kirsten	847	57
Nielsen, Kirsten	1792	130
Nielsen, Kirsten		79
Nielsen, Kirsten		79
Nielsen, Lars		152
Nielsen, Lene	710	51
Nielsen, Xiaohui	1631	122
Nierman, William		79
Nietch, Christopher	2027	140
Nieto, Pamela	2743	197
Nieto, Pamela	2727	197
Nieves, Wildaliz	2332	177
Nieves, Wildaliz	822	56
Niimi, Hideki	1710	126
Niki, Mamiko	2182	171
Niki, Mamiko	2666	191
Nikolic, Marina	2361	178
Nikolich, Mikeljon	1677	124
Nilles, Matthew	2296	176
Nilsson, Elin	1262	104
Ninneman, Jessica	624	41

Author	Poster Board	Session Number
Niphadkar, Krishna	2971	209
NISC Comparative Sequence Program	1536	116
NISC Comparative Sequencing Program		85
NISC Comparative Sequencing Program	755	54
Nishida, Kei	2023	140
Nishida, Yoshie	730	52
Nishiguchi, Michele	3027	211
Nishiguchi, Michele	1754	128
Nishino, Kunihiko	1101	97
Nishino, Shirley	1497	113
Nishitani, Shinichi	1821	131
Nishitani, Takashi	468	33
Nishiuchi, Yukiko	2182	171
Nishizawa, Akito	1297	105
Nishizawa, Tomoyasu	1297	105
Nishizawa, Tomoyasu	2366	179
Nislow, Corey	2904	205
Nitsche-Schmitz, Patric	2301	176
Niu, Hua	785	55
Niu, Hua	786	55
Nizet, Victor	1779	129
Nizet, Victor	1749	127
Nizet, Victor	1269	104
Nkengasong, John		11
Nnadi, Emmanuel	2789	200
Noailles, Pierre	584	39
Noble, Peter	3066	213
Noble, Rachel	3095	214
Noble, Toni	2583	188
Noble-Wang, Judith	1023	66
Noble-Wang, Judith	2555	186
Nobori, Tsutomu	1254	103
Nobre, Patrícia	459	33
Nock, Richard		11
Noda, Naohiro	1037	66
Noel, Samantha	1345	107
Noggle, Chad	2990	209
Nogueira, Fernanda	2788	200
Nogueira, Fernanda	2270	174
Nogueira, Rita Maria	2270	174
Nogueira, Rita Maria	2788	200
Noguera, Daniel	1359	108
Noguera, Daniel	2041	141
Noll, Sally	482	34
Noll, Sally	1929	136
Nomura, Christopher	980	64
Nomura, Junpei	2966	208
Noormohamed, Aneesa	3050	212
Norambuena, Javiera	2471	183
Nordberg, Vickie	179	20
Normal, Bashir	2799	200
Norman, Laura	2653	191
Noronha, Santosh	2918	206
Norris, Emily	1777	129
Norris, Emily	1782	129
Norris, Michael	671	50
Northen, Trent		220
Northen, Trent	966	63
Northen, Trent	1369	108
Northen, Trent	928	62
Northen, Trent	962	63
Northen, Trent	2935	207
Northen, Trent	960	63
Northup, Diana	402	30
Norton, Jeanette	419	31
Nosanchuk, Joshua	1794	130
Nosanchuk, Joshua	2355	178
Nossa, Carlos		85
Nostrand, Joy	1915	136
Nostrand, Joy D.	348	28
Notake, Shigeyuki	665	49
Nouioui, Imen	2096	143
Novak, Jeffrey	479	33
Novak, Lea	2820	202
Novick, Richard	2200	171
Novick, Richard	302	26
Novicki, Thomas	626	41
Novicki, Thomas	2792	200
Novicki, Thomas	1714	126
Novicki, Thomas	2796	200
Novicki, Thomas	627	41
Nowak, David	1226	102
Nowrouzian, Forough	1081	69
Nozadze, M	1148	99
Nozawa, Takashi	2083	143
Nsenda, Jonas	1202	101
Ntumngia, Francis	827	56
Nu, Tram	1167	100
Nübel, Ulrich	2178	171
Nuccio, Erin	946	63
Nuermberger, Eric	1562	117
Nuermberger, Eric	1563	117
Numano, Setuko	2366	179
Nunes, Priscila	2788	200
Nunes, Priscila	2270	174
Nunes da Rocha, Ulisses	1369	108
Nunes da Rocha, Ulisses	962	63
Nunez, Christian	7	12
Nunez, Christian	122	18
Nuñez, Cinthia	1367	108
Nurmi, Jim	1433	111
Nusair, Arwa	1659	124
Nusslein, Klaus		229
Nutman, Thomas		77
Nutman, Thomas		9
Nyairo, Elijah	835	56
Nyer, David	1369	108
Nyerges, Gyorgyi	3153	216
Nygren, Benjamin	1592	118
Nyholm, Spencer	2856	203
Nyholm, Spencer	1333	107
Nyholm, Spencer	1331	107
Nystrom, Stephanie	1439	111
Nyyssonen, Mari	2455	182
Nyyssönen, Mari	3022	211
O		
Ó Cróinín, Tadhg	201	21
Ó Cróinín, Tadhg	1124	98
O'Brien, Alison	1743	127
O'Connell, Catherine	2325	177
O'Toole, George		149
Oakley, Brian	2506	184
Oakley, Brian	2825	202
Oates, Angela	2156	170
Obare, Peter	1207	101
Oberg, Craig	262	24
Oberg, Craig	266	24
Obiso, Richard	1148	99
Obonyo, Marygorret	2871	204
O'Brien, Alison	812	56
O'Brien, Alison	1145	99
O'Brien, Alison	1699	125
O'Brien, Alison	1153	99
O'Brien, Alison	810	56
O'Brien, Alison	63	14
O'Brien, Alison	1159	99
O'Brien, Charles	1908	135
O'Brien, Debra	2290	175
Ocampo, Tricia	2280	175
Ocampo-Candiani, Jorge	2183	171
Ochoa, Juan	2391	179
Ochoa, Roxanna		84
Ochoa-Zarzosa, Alejandra	183	21
Ochoa-Zarzosa, Alejandra	181	21
Ochsner, Urs	1515	115
Ochsner, Urs	2248	173
O'Connell, Sean	1050	67
O'Connell, Sean	1450	111
O'Connell Motherway, Mary	2826	202
O'Connor, Catherine	3105	214
O'Connor, Robert	1020	65
Odetoyin, Babatunde	2761	198
Odeyale, Charles	906	61
Odeyemi, Grace	2616	189
Odigbe, Oni		46
Odom, Audrey	614	40
Odom, Audrey	2677	195
O'Donnell, Mike		217
O'Donovan, Gerard	1659	124
O'Dowd, Aisling	2341	177
Odugbemi, Tolu	1094	97
Odugbemi, Tolu	2769	198
Odumeru, Joseph	2049	141
O'Dwyer, James	1427	111
Oerther, Daniel	2606	189
Oerther, Daniel	1441	111
Oethinger, Margret	1172	100
Oethinger, Margret	1167	100
O'Gara, James	2516	185
Ogasawara, Naotake	1548	116
Ogata, Yuta	2426	181
Ogata, Yuta	2427	181
Ogawa, Jun	2561	187
Ogawa, Midori	2663	191
Ogawa, Wakano	2160	170
Ogeneh, Bryan	1600	118
Ogeneh, Bryan	2991	209
Ogiefo, Amenawon	2997	210
Ogilvie, Lesley	485	34
O'Grady, Elizabeth	2494	184
Ogram, Andrew	1500	113
Ogunjobi, Adeniyi	441	32
Ogura, Hisashi	2666	191
Ogura, Hisashi	2663	191
Ogura, Hisashi	1054	68
Ogura, Yoshitoshi	2182	171
Ogura, Yositoshi	2663	191
Oh, Ah-Sa	1004	65
Oh, Julia		85
Oh, Julia	774	54
Oh, Juntaek	1691	125
Oh, Kwan Young	2122	144
Oh, Kye-Heon	1846	133
Oh, Man Hwan	1845	133
Oh, Phaik		157
Oh, Sejong	1969	138
Ohanian, Mauricio	2587	188
Ohanyan, Vahe	1842	133
Ohara, Naoya	2666	191
O'Hara, Graham	2477	183
Ohara-Nemoto, Y.	1543	116
Ohashi, Akiko	1037	66
Ohdan, Tomomi	560	38
Ohenhen, Regina	1481	113
Ohenhen, Regina	1965	138
Ohenhen, Regina	3132	215
Ohkusu, Kiyofumi	1582	117
Ohkusu, Kiyofumi	1238	103
Ohkusu, Kiyofumi	2811	201
Ohlson, Maikke	1765	129
Ohman, Dennis	2719	196
Ohshiro, Takeya	1238	103
Oinuma, Ken-Ichi	2966	208
Oishi, Kazunori	2874	204
Oishi, Kenji	2318	176
Ojala, Daniel	480	33
Ojcius, David	802	55
Ojha, Anil	1581	117
Ojo, Bola	2771	198
Ojogba, Mark	2789	200
Ojukwu, Mary	3000	210
Okabe, Satoshi	903	61
Okabe, Satoshi	901	61
Okada, P.	739	53

Author	Poster Board	Session Number
Okagaki, Laura	1792	130
Okamura, Naomi	634	41
Oke, Olufolarin	796	55
Oke, Valerie	2937	207
Okeke, Benedict	976	64
Okeke, Iruka	2742	197
Okeke, Iruka	717	52
Okeke, Iruka	2761	198
Okeke, Lilian	1059	68
Okhuysen, Pablo		8
Okkotsu, Yuta	696	51
Okochi, Mina	2833	202
Okoniewski, Joseph	2350	178
Oktem Okullu, Sinem	1580	117
Okuda, Jun	273	25
Okuda, Jun	2815	202
Okudoh, Vincent	2513	185
Okura, Masatoshi	1255	103
Okura, Masatoshi	634	41
Okwumabua, Ogi	638	41
Olaboye, Josepine	1215	102
Oladeinde, Adelumola	3118	214
Olawale, Adetunji	1995	139
Olin, Anders	2301	176
Oliveira, Aline	1512	114
Oliveira, Aline	635	41
Oliveira, Caio	2125	144
Oliveira, Flávio	2353	178
Oliveira, Jamil	2380	179
Oliveira, Leandro	1265	104
Oliveira, Maria Leonor	1273	104
Oliveira, Mariela	829	56
Oliveira, Patricia	2380	179
Oliveira, Silvia	LB-03	233
Oliveira, Wemerson	378	29
Oliver, Haley	2932	207
Oliver, James	2552	186
Oliver, Melissa	715	52
Olivera, Leticia	2383	179
Olivieri, Adam	2081	142
O'Loughlin, Colleen	287	25
Olsen, S	387	29
Olson, Brooke	627	41
Olson, Brooke	1714	126
Olson, Gina	1079	69
Olson, John	1138	99
Olson, Jonathan	996	65
Olson, Jonathan	1847	133
Olson, Robin	2285	175
Olszewski, Michal		79
Olszewski, Michal	1806	130
Oluboyo, Adeola	2363	178
Oluyege, Adekemi	2771	198
Oluyege, Jacob	2616	189
Omar, Aznan	164	20
Omar, Sabah	1207	101
Omasa, Takeshi	1102	97
Omasino, Stephen	906	61
O'May, Che	274	25
O'May, Che	2168	170
Omosun, Yusuf	2322	177
Ondrey, Jakob	1075	69
O'Neill, Alexander	1644	123
O'Neill, Kim	1510	114
O'Neill, Kim	1721	126
O'Neill, Sean	3010	211
O'Neill, Scott		2
Ong, Catherine		219
Ong, Chong	3136	215
Ong, Eugene Jie Li	13	12
Ong, Eugene Jie Li	9	12
Ong, Peh	1140	99
Ong, Quang	2627	190
Onishi, Hidetaka	634	41
Onisko, Bruce	615	41
Ono, T.	1543	116
Onofri, Silvano	261	24
Onstott, T.	969B	63
Onstott, Tullis	340	27
Onstott, Tullis	944	63
Onyenekwe, Charles	2363	178
Oozeer, Raish	2318	176
Opal, Steven	2892	204
Opalko, Hannah	1423	110
Opitz, Wiebke	1111	98
Oppong, Gertrude	1783	129
Oppong, Gertrude	2873	204
Oram, Diana	1673	124
Orazio, Romeo	2789	200
Orchard, Robert		72
Orellana, Omar	1293	105
Orellana, Roberto	450	32
Orellana, Roberto	1394	109
Oremland, Ronald	1375	109
Oremland, Ronald	1372	109
Oremland, Ronald	1373	109
Orenga, Sylvain	1217	102
Orfe, Lisa	2739	197
Orias, Eduardo	455	33
Orihuela, Carlos	80	15
Orihuela, Carlos	2327	177
O'Riordan, Mary	59	14
O'Riordan, Mary	49	14
O'Riordan, Mary		159
O'Riordan, Mary		159
Orndorff, Paul	72	15
Orphan, V	2498	184
Orphan, Victoria	3082	213
Orphan, Victoria	944	63
Orphan, Victoria		152
Orphan, Victoria		4
Orphan, Victoria	1383	109
Orsi, Renato	2932	207
Orsi, Renato	1354	108
Ortega, Aimee	2724	196
Ortega, Corrie	2655	191
Ortell Cumbaa, Natalie	1480	113
Orth, Kim		3
Ortisi, Giuseppe	148	19
Ortiz, Claudia	2073	142
Ortiz, Elizabeth	2383	179
Ortiz, Elizabeth	987	64
Ortiz, Elizabeth	890	59
Ortiz, Maria	1414	110
Ortiz, Marian	1937	136
Ortiz, Marianyoly	1918	136
Ortiz, Marianyoly	967	63
Ortiz, Marianyoly	969	63
Ortiz Martinez, Margarita	1829	132
Ortiz Vázquez, Elizabeth	1021	65
Ortíz Vázquez, Elizabeth	1019	65
Ortiz-Lopez, Rocio	2183	171
Ortíz-Ortega, R.	646	42
Ortiz-Vazquez, Elizabeth	1018	65
Ortiz-Vázquez, Elizabeth	2957	208
Ortmann, Alice	1480	113
Ortrud Monika Barth	556	37
Orwin, Paul	458	33
Orwin, Paul	3012	211
Ory, Jeramia	1803	130
Osagie, Racheal	1965	138
Osagie, Racheal	3132	215
Osaka, Ichie	2293	175
Osaka, Ichie	2135	169
Osaka, Ichie	2145	169
Osaka, Ken'ichi	2023	140
Osaki, Makoto	1255	103
Osaki, Makoto	634	41
Osamura, Tatsuya	1356	108
Osborne, Geraldine	2800	200
Osborne, Suzanne	677	50
Osei-Owusu, Patrick	2296	176
Oshima, Kevin	1521	115
Oshima, Taku	1548	116
Oshima, Toshifumi	577	38
Oshiro, Robin	2014	140
Osman, Yehia	1696	125
Osorio, César	777	54
Osorio, Manuel	2345	177
Ostash, Alla	1576	117
Osterholzer, John	1806	130
Osterholzer, John		79
Osterman, Andrei	1360	108
Ostrosky-Zeichner, Luis		10
Oswald, Whitney	1715	126
Ota, Irene	1239	103
Ota, Kaede	1204	101
Ote, Isabelle	1615	119
Otero, Miguel	529	36
Otero, Rosa	225	22
Otokunefor, Kome	1179	100
O'Toole, George	2319	176
Otsuka, Chie	2160	170
Otsuka, Yuta		78
Ott, Becky	116	17
Ottemann, Karen	2925	206
Ottemann, Karen	259	23
Otter, Jonathan	8	12
Ottesen, Elizabeth	2460	182
Ottinger, Liz	830	56
Otto, Michael	2222	172
Ouattara, Mahamoudou	26	13
Ouellette, Scot		71
Oukil, Sabrina	2202	171
Oulé, Mathias	2385	179
Outcomes of Pandemic Influenza in Pregnancy (OPIP) Study Group	753	54
Ouverney, Cleber	1439	111
Ouverney, Cleber	760	54
Ouyang, Wenjun		158
Overgaard, Hans	2032	141
Owen, Michele		92
Owens, Jayne	1890	135
Owens, Tim	2628	190
Owings, Joshua	696	51
Ownby, Dennis	3035	211
Oyofo, Buhari	2799	200
Oz, Yasemin	1	12
Oz, Yasemin	1225	102
Ozanich, Holly	1408	110
Ozasa, Kazunari	255	23
Ozcan, Ezgi	2551	186
Ozeki, Yuriko	2182	171
Ozen, Fatma	2551	186
Ozer, Egon	2189	171
Ozhog, Stanislav	1358	108

P

Author	Poster Board	Session Number
P, Uma Bala	2809	201
Paccez, Juliano	829	56
Pacheco, Adriana	444	32
Pacheco, Ana	1186	100
Pacheco, Rita	987	64
Packman, Aaron	1820	131
Packman, Aaron	902	61
Packman, Aaron	3084	213
Paddock, Chris	2212	172
Padilla-Crespo, Elizabeth	409	31
Padmaja, K.	2809	201
Paez, Monica	2381	179
Paez, Monica	2391	179
Páez, David	1539	116
Paez-Espino, David		229
Paganelli, Fernanda	2717	196
Paganelli, Fernanda	1087	97

Author	Poster Board	Session Number
Pagano, Evan		77
Pageni, Binod	2478	183
Pahalawatta, Vihanga	2501	184
Pahwa, Shebani	1673	124
Pai, Peggy	2396	180
Paim, Thiago	2125	144
Painter, Theresa	127	18
Paiva, Aline	2136	169
Paiva, Aline	378	29
Paiva, Aline	1265	104
Paiva, Fernanda	459	33
Paiva Viégas, Larinne	2480	183
Pajon, Rolando	823	56
Pajon Feyt, Rolando	811	56
Pak, Irene	830	56
Pakpour, Nazzy	1764	129
Pakrasi, Himadri	2558	187
Pal, Subrata	1844	133
Pal, Sukumar	820	56
Palacios, Irene	1679	124
Palanza, Paola	2826	202
Palavecino, Christian	2743	197
Palavecino, Elizabeth	143	19
Paley, Suzanne	2627	190
Paley, Suzanne	2944	207
Paliogianni, Fotini	202	21
Palladino, Michael	1775	129
Pallister, Kyler	1280	104
Palma, Giovana	1273	104
Palma, Laura	2570	187
Palma, Laura	491	34
Palmer, Lauren	2955	208
Palmore, Tara	2981	209
Palsson, Bernhard		154
Palsson, Bernhard	2525	185
Palsson, Bernhard	1557	116
Palumbo, Anthony	1438	111
Palumbo, Anthony	2434	181
Palumbo, Anthony	2087	143
Pamboukian, Ruiqing	2533	186
Pan, C	2498	184
Pan, Chongle	960	63
Pan, Chongle	944	63
Pan, Chongle		224
Pan, Chongle		152
Pan, Chongle		85
Pan, Chongle	966	63
Pan, Chongle	3020	211
Pan, Chongle	1758	128
Pan, Donald	312	27
Pan, Hongmiao	448	32
Pan, Jiachuan	2522	185
Pan, Tzu Ping	1967	138
Pan, Tzu-Ming	1990	139
Pan, Tzu-Ming	1942	137
Pan, Wenyang	980	64
Pan, Yongxin	1429	111
Pan, Youwen	2037	141
Pan, Yu	1609	119
Pancari, Greg	830	56
Panda, Aruna	1145	99
Pandori, Mark	667	49
Pandori, Mark	656	49
Pandori, Mark		92
Pang, Victor Fei	520	35
Pankey, George	123	18
Panmanee, Warunya	2726	196
Pannanusorn, Srisuda	1788	130
Pannell, Lewis	2691	195
Pannell, Megan	1095	97
Pantoja-Feliciano, Ida	3033	211
Panya, Marutpong	224	22
Pap, Thomas	2843	203
Papa, Rosanna	1983	138
Papenfort, Kai	2707	196
Papenfort, Kai	214	22
Papke, R. Thane	891	60
Papkov, Vyacheslav	1459	112
Papp, John		223
Pappagianis, Demosthenes	845	57
Pappagianis, Demosthenes	838	57
Pappagianis, Demosthenes	1791	130
Paqualini, Renata	1750	128
Paquette, Nancy	1175	100
Paquette, Nancy	2253	173
Paquette, Nancy	2252	173
Paradela, Alberto	2598	188
Paradis, Benjamin	2331	177
Paradis, Isabelle	2252	173
Paralanov, Vanya	864	58
Parales, Juan	428	31
Parales, Rebecca	428	31
Paramanandam, Vanathy	2984	209
Parameswaran, Prathap		152
Parameswaran, Prathap	412	31
Parameswaran, Prathap	415	31
Paranhos, Rodolfo	1894	135
Paranhos, Rodolfo	1904	135
Paratore, Anthony	2931	207
Paredes-López, Octavio	2577	187
Paredes-Sabja, Daniel	1121	98
Paredes-Sabja, Daniel	196	21
PARENT, LESLIE	540	37
Parenteau, Niki	1398	109
Parfitt, D	2520	185
Park, A	597	40
Park, Ah -Jeong	1778	129
Park, Benjamin	2093	143
Park, Byung	1286	105
Park, Cheol	843	57
Park, Cheon-Seok	1312	106
Park, Dong Jun	603	40
Park, Eun-Mi	293	25
Park, Eunice	1358	108
Park, Hee-Deung	343	28
Park, Hyong	1002	65
Park, Hyun	2648	190
Park, Hyun	2647	190
Park, In	722	52
Park, In Ho	68	15
Park, Ji Hyun	1692	125
Park, Ji-Yeong	1972	138
Park, Jin G.	770	54
Park, Jin Hwan	2704	196
Park, Joonhong		220
Park, Joonhong	2075	142
Park, Joonhong	2567	187
Park, Joonhong	754	54
Park, JuHee	2328	177
Park, Jun-Ho	1004	65
Park, Jung-Ho	45	14
Park, Junmo	716	52
Park, Kyung	150	19
Park, Mi	670	50
Park, Mi	699	51
Park, Min	2760	198
Park, Min	608	40
Park, Min	612	40
Park, Miseon	2112	144
Park, Miseon	2373	179
Park, Na-Young	65	14
Park, Sang Hee	1347	108
Park, Sangcheol	2635	190
Park, Seong Bin	1760	128
Park, Seong Bin	1290	105
Park, Seong Bin	1624	119
Park, Seung Chul	1778	129
Park, Seung-Hwan	2405	180
Park, Shinyoung	343	28
Park, Shinyoung	2576	187
Park, Si Hong	1968	138
Park, Soo-Young	2405	180
Park, Soon Deok	2760	198
Park, Soon-Jung	2849	203
Park, Sumin	717	52
Park, Sun Young	2333	177
Park, Sun-Young	1778	129
Park, Sung-Joon	1980	138
Park, Woojun	2442	181
Park, Woojun	232	22
Park, Young Ha	1347	108
Parker, Craig	2750	197
Parker, Craig	29	13
Parker, Dane	1772	129
Parker, Dane	1275	104
Parkhill, Julian	2088	143
Parmananda, Punit	1681	125
Parnell, Jacob	320	27
Parnell, Michael	1683	125
Parrish, Nicole	1196	101
Parrish, Nicole	1562	117
Parrish, Nicole	1563	117
Parrish, Torrey	1725	126
Parrish, Torrey	994	65
Parrish, Torrey	618	41
Parrott, Terry	270	24
Parsek, Matthew	2704	196
Parsek, Matthew		225
Parshall, Sharon	1214	102
Parsons, Bryony	1627	119
Parsons, Tamasha		85
Partee, ValaRae	396	30
Parthasarathy, Geetha	2879	204
Parthasarathy, Raghuveer	260	23
Parthasarathy, Vaishnavi	LB-10	233
Partin, James	2322	177
Parveen, Seema	2389	179
Pascual, David	75	15
Pasham, Mithun	880	59
Pasko, Chris	2352	178
Pasquali, Paolo	688	50
Passalacqua, Karla	2114	144
Passaretti, Teresa	1180	100
Passetto, Pamela	2148	169
Pasternak, J	1235	103
Pasteur, Bruce	578	38
Paszczynski, Andrzej	397	30
Paszczynski, Andrzej	2402	180
Patch, Harland	2499	184
Patel, Ami	2866	203
Patel, Dharm	1775	129
Patel, Isha	2733	197
Patel, Isha	1067	69
Patel, Isha	2104	143
Patel, Jean		7
Patel, Jean		7
Patel, Jenish	548	37
Patel, Kamlesh	889	59
Patel, Katir	790	55
Patel, Maulik	1859	133
Patel, Mohanbhai	2808	201
Patel, Neil	2656	191
Patel, Parul	2982	209
Patel, Parul	1181	100
Patel, Parul	2978	209
Patel, Pinkesh	609	40
Patel, Pritty	96	16
Patel, Robin	89	16
Patel, Robin	138	18
Patel, Robin	2340	177
Patel, Robin	1634	122
Patel, Robin	1244	103
Patel, Robin	1164	100
Patel, Robin	2165	170
Patel, Robin	2803	201

Author	Poster Board	Session Number
Patel, Robin		155
Patel, Robin		155
Patel, Ronak	2539	186
Patel, Sanjay	438	32
Patel, Sunali	2614	189
Patel, Sunali	1598	118
Pathak, Ashish	1500	113
Pathak, Darshankumar		148
Pathak, Rakesh	2668	191
Patil, Mrinalini	911	61
Patil, Mrinalini	1701	125
Patras, Kathryn	2324	177
Patrauchan, M	1486	113
Patrauchan, Marianna	2954	208
Patrauchan, Marianna	2926	206
Patrick, Elaine	2407	180
Pag, Patrn	390	29
Patro, Jennifer	1976	138
Patro, Jennifer	1975	138
Patten, Cheryl	882	59
Patti, Robert	2242	173
Pattison, Steven	2290	175
Patton, John		158
Patton, Toni		227
Paul, Blair	399	30
Paul, Janet	166	20
Paul, Paul	506	34
Paul, Sandip	1540	116
Paul, Sandip	2636	190
Paula, Caroline	2776	198
Paulander, Wilhelm	1097	97
Paulo Vicente, Ana Carolina	2101	143
Paulus, Darcy		83
Paustian, Tim		78
Pavanelo, Daniel	2913	205
Pavia, A	2260	174
Pavia, Andrew	1716	126
Pavia, Andrew	2233	173
Pavinski Bitar, Alan	189	21
Pavlov, Igor	2121	144
Pawloski, Lucia	LB-03	233
Pawloski, Lucia	570	38
Pawluk, April	309	26
Pay, Samantha	2152	169
Payne, H	2863	203
Peacock, Sharon	3145	216
Peak, Kealy	2773	198
Pearlman, Eric	1798	130
Pearlman, Eric	1796	130
Pearson, Ann		6
Pearson, Drusilla	2478	183
Pease, Scott	1882	134
Peccia, Jordan		73
Peccia, Jordan		145
Pecherskikh, Emilia	1088	97
Pecic, Gary	659	49
Peck, Kyong-Ran	293	25
Peck, Kyong-Ran	1328	106
Pedersen, Joel	3115	214
Pediatric Antimicrobial Stewardship team at Children's Hospital of Illinois	7	12
Pedra, Joao	1776	129
Pedulla, Marisa	311	26
Peed, Lindsay	3095	214
Peed, Lindsay	2027	140
Peek, Richard	2139	169
Peeples, Amy	145	19
Peeples, Mark		158
Pei, Ruoting	1320	106
Pei, Zhiheng		85
Pei, Zhiheng		85
Pelaez-J, Carlos	2345B	177
Pell, Jason	330	27
Pellegrini, Matteo	1869	134
Pellegrino, Flavia	2992	209
Pellet Madan, Rebecca	2804	201
Pelletier, Dale	2454	182
Pelletier, Dale	3016	211
Pelletier, Dale	3015	211
Pelletier, Eric		83
Pelletier, Mark	2868	204
Pellizari, Vivian		229
Pellock, Brett	1317	106
Peltier, Steve	2637	190
Pelve, Erik		71
Peña, Carlos	1367	108
Pendall, Elise	1445	111
Pendall, Elise	956	63
Pendergraft, Samuel	2936	207
Pendleton, Kirk	2218	172
Pendleton, Kirk	1680	125
Pendleton, Sean	57	14
Pendru, Raghunath	699	51
Peng, Donghai	231	22
Peng, Guan-Jhih	216	22
Peng, Hwei-Ling	727	52
Peng, Xuefeng	1902	135
Peng, Yu-Huei	420	31
Penna, Francisco	2776	198
Pennington, Janet	1172	100
Penny, Mary	2028	140
Pentecost, Mickey	541	37
Pentella, Michael		92
Penton, C.	765	54
Penton, Christopher	331	27
Penuelas-Urquides, Katia	2667	191
Penuelas-Urquides, Katia	1642	123
Pepper, Ian	2016	140
Pepper, Ian	2015	140
Peralta, Ligia	801	55
Peralta, Ligia		47
Peralta-Pérez, Maria	2418	180
Peralta-Pérez, María del Rosario	1956	137
Peralta-Pérez, Rosario	2593	188
Perdue, Sarah		78
Pereira, Alban	2525	185
Pereira, Alex	1098	97
Pereira, Lara		230
Pereira, Marion	2326	177
Pereira, Marion	1688	125
Perencevich, Eli	LB-05	233
Peret Filho, Luciano	2776	198
Peretti, Steven	2572	187
Perez, Antonia	2715	196
Perez, C	1575	117
Perez, Justo	1023	66
Perez, Leandro	85	16
Perez, Luis	2907	205
Perez, M	2697	195
Pérez, María	3033	211
Pérez-Jiménez, José	1889	135
Pérez-Jiménez, José	2480	183
Pérez-Jiménez, José	1916	136
Pérez-Jiménez, José	1477	113
Pérez-Jiménez, José	585	39
Perez-Mendez, Alma	2017	140
Perez-Orozco, Juan Pablo	1962	137
Perez-Osorio, Ailyn	939	62
Pérez-Osorio, Ailyn	1576	117
Perez-Perez, Guillermo	1759	128
Perez-Rodriguez, Ileana	1908	135
Perez-Velez, Mariel	1526	115
Pérez-Zapata, America-Beatriz	1943	137
Pérez-Zapata, America-Beatriz	1939	137
Perfect, John	846	57
Perfect, John		10
Perfect, John	839	57
Perfect, John		10
Perfect, John	853	57
Perfield, James	1441	111
Perkins, Andy	2933	207
Perna, Nicole	2100	143
Perrotta, Joseph	980	64
Perrotta, Peter	2250	173
Perrrachio, Michael	1588	118
Perry, Elizabeth		221
Perry, John	1217	102
Perry, Linda	571	38
Persat, Alexandre		76
Persaud, Alana	2984	209
Peru, K	446	32
Pesce, Alexa-Rae	2742	197
Pesciaroli, Michele	688	50
Pesqueda, Argus	2191	171
Pessione, Allessandro	1144	99
Pessione, Enrica	1144	99
Pessoa-Silva, Carmen	2992	209
Pessolani, Maria	803	55
Petermann, Shana	1989	139
Peteroy-Kelly, Marcy	2656	191
Peters, C. J	547	37
Peters, Gary	2234	173
Peters, Georg	2983	209
Peters, Georg	2178	171
Peters, Heather	3140	215
Peters, Kristen	1279	104
Petersen, Emily	2563	187
Petersen, Emily	2562	187
Petersen, Fernanda	2902	205
Petersen, Fernanda	281	25
Petersen, Fernanda	2206	171
Petersen, Hailey	822	56
Petersen, Hailey	2332	177
Petersen, Jillian		83
Peterson, Celeste	1863	133
Peterson, Christopher	1425	110
Peterson, Ellena	145	19
Peterson, Ellena	820	56
Peterson, Ellena	1223	102
Peterson, Kari	2982	209
Peterson, Kari	1181	100
Peterson, Kari	2978	209
Peterson, Lance	2240	173
Peterson, Lance	2786	199
Peterson, Lance	2978	209
Peterson, Lance	1181	100
Peterson, Lance	2982	209
Peterson, Marnie	1151	99
Peterson, Marnie	2224	172
Peterson, Scott	1109	98
Peterson, T	2945	207
Peterson, Todd		81
Petit, Robert	139	18
Petri, Daniel	270	24
Petri, Renee	1443	111
Petrini, Orlando	851	57
Petrini, Orlando	631	41
Petrosino, Joseph	764	54
Petrosino, Joseph	771	54
Petrova, Zaritza	1867	134
Petrovsky, Nikolai	816	56
Pettis, Gregg	2718	196
Pettit, Shannon	683	50
Pett-Ridge, Jennifer	3085	213
Pett-Ridge, Jennifer	1392	109
Pett-Ridge, Jennifer	3022	211
Pett-Ridge, Jennifer		152
Pett-Ridge, Jennifer	946	63
Petty, Wanda	102	16
Petzold, Christopher	992	64
Petzold, Christopher	989	64
Petzold, Christopher	1458	112
Peyer, Suzanne		83
Peyton, Brent	2569	187
Pezeshki, Milad		84

Author	Poster Board	Session Number
Pezzlo, Marie		80
Pfaller, Michael	1210	102
Pfaller, Stacy	2615	189
Pfaller, Stacy	2050	141
Pfeiler, Erika	1975	138
Pfeiler, Erika	1976	138
Pffifner, Susan	944	63
Pfiffner, Susan	340	27
Pfiffner, Susan	1043	67
Pfleger, Brian		154
Pfleger, Brian	366	28
Pfuntner, Rachel	3053	212
Pha, Khavong	1156	99
Pham, Amanda	331	27
Pham, Hoang	2917	206
Pham, Hoang	383	29
Pham, Tan	76	15
Pham, Thi	1958	137
Pham Thi, Van	2379	179
Phelps, Craig	582	39
Phelps, Tommy	340	27
Phelps, Tommy	979	64
Phelps, Tommy	2087	143
Phelps, Tommy	1386	109
Phelps, Tommy	1438	111
Phelps, Tommy	2434	181
Philip, Breugelmans	464	33
Philipp, Mario	2879	204
Philipp, Mario	1774	129
Philips, Jennifer		3
Philips, Jennifer		3
Philips, Jennifer	805	55
Phillip, Susan	667	49
Phillips, Aaron	1707	126
Phillips, Abby	2238	173
Phillips, C	2146	169
Phillips, Daniel	801	55
Phillips, Priscilla	1315	106
Phillips, Priscilla	192	21
Phillips, Rebecca	1380	109
Phipps, Paula	2285	175
Phipps, Sean	2267	174
Pianzzola, Maria	2587	188
Piazza, Roxane Maria	684	50
Picá£o, Renata	2755	198
Piceno, Yvette	894	60
Piceno, Yvette	1926	136
Piceno, Yvette	1399	110
Picerno, Yvette	1925	136
Pich, Oscar	33	13
Pickens, S	2216	172
Pickering, Amy	1502	114
Picking, Wendy	2954	208
Picking, Wendy	2218	172
Picking, Wendy	1701	125
Picking, Wendy	1155	99
Picking, Wendy	1680	125
Picking, Wendy	911	61
Picking, William	1701	125
Picking, William	1680	125
Picking, William	911	61
Pidcock, Kenneth	2772	198
Pier, Gerald	1786	129
Pier, Gerald	2336	177
Pier, Gerald	848	57
Pier, Gerald	1266	104
Pier, Gerald		231
Pier, Gerald		225
Pierce, William	1634	122
Pierson, Kimberly	1858	133
Pierson, Leland	1918	136
Pietrosiuk, A.	3061	212
Pietrusz, Jennifer	1162	100
Piggot, Patrick	888	59
Piggot, Patrick	222	22
Pignatari, Antonio	147	19
Pike, Cory	1714	126
Pike, Cory	627	41
Pilard, Jean-Francois	2148	169
Pillai, Dylan		9
Pillai, Dylan		9
Pillai, Dylan		167
Pillai, Dylan	1638	122
Pillai, Shreekumar	2149	169
Pillai, Shreekumar	2691	195
Pineda-Molina, Estela	250	23
Pineles, Lisa	LB-05	233
Pinkner, Jerome	2720	196
Pinkner, Jerry	1146	99
Pinn, Michael	2672	191
Pinol, Jaume	862	58
Pinsky, Benjamin	2257	174
Pinto, Adrian	1340	107
Pinto, Adrian	1914	136
Pinto, Adrian	481	33
Pinto, Jaqueline	85	16
Pinyakong, Onruthai	1490	113
Piper, Ashley	138	18
Piper, Lauren	2808	201
Pirkkanen, Jake	2334	177
Pirofski, Liise-Anne	1793	130
Pirzai, Waheed		231
Piscitelli, Arelis	1199	101
Pistoia, Allessandra	3075	213
Pitluck, Sam	2096	143
Pitstick, Lenore	1358	108
Pitts, Betsey	939	62
Piuri, Mariana	1577	117
Piuri, Mariana	1871	134
Pizano Martínez, Oscar	1055	68
Pizarro Chávez, Salvador	1055	68
Pizarro-Guajardo, Marjorie	196	21
Planer, Shannon	2314	176
Planet, Paul	2204	171
Plascencia Espinosa, Miguel	1472	112
Plascencia Espinosa, Miguel	1961	137
Plaut, Roger	2297	176
Plecha, Sarah	707	51
Pletcher, Steven	1727	127
Plikaytis, Brian	570	38
Plionieta, M.	708	51
Plotkin, Balbina	2128	169
Plummer, Paul	620	41
Plummer, Paul	624	41
Plummer, Paul	617	41
Plummer, Paul	1607	119
Plunkett, Richard	2583	188
Poceva, Marija	2846	203
Podar, Mircea	3020	211
Podar, Mircea	2087	143
Podar, Mircea	1438	111
Podar, Mircea	3016	211
Podar, Mircea	2434	181
Podell, Brendan	2162	170
Podzorski, Diane	1172	100
Podzorski, Raymond	1208	102
Poe, Adam	688	50
Poehlein, Anja	2085	143
Pogliano, Joe		5
Pohl, Jan	2107	144
Pohl, Mary	819	56
Pohlschröder, Mecky		154
Pohren, Adonica	2367	179
Pokropinski, Sharon	2037	141
Pokusaeva, Karina		77
Poles, Michael		85
Polin, Jenevieve	1305	106
Polin, Jenevieve	1309	106
Pollard, Katherine	2464	182
Pollard, Katherine	1427	111
Polli, Bruno	631	41
Polson, Shawn	2465	183
Polson, Shawn	2492	184
Polson, Shawn	488	34
Poly, Frédéric	2745	197
Polz, Martin		148
Polz, Martin		229
Polz, Martin	2205	171
Polz, Martin	2105	143
Polz, Martin		229
Poma, Ramiro	2022	140
Pomerantsev, Andrei	1300	105
Pomerantz, Richard		217
Pomeroy, Claire	512	35
Ponaka, Reddy	1169	100
Ponnaluri, Sreelatha	2122	144
Pontes, Paula	1415	110
Pontius, William	238	23
Poo, Haryoung	526	36
Poo, Haryoung	527	36
Poole, Keith	1646	123
Poole, Keith	1090	97
Poole, Keith	1084	97
Poole, Keith	1648	123
Poole, Steven	2341	177
Poon, Victor	2303	176
Pop, Mihai	299	26
Popat, Sudeep	412	31
Pope, Robert	2382	179
Pope, Welkin	2997	210
Pope, Welkin	1866	134
Popovic, Jovan	361	28
Pornwongthong, Peerapong	1485	113
Poroyko, Valeriy	3086	213
Porter, Abigail	463	33
Porter, Edith	2338	177
Porter, Edith	2337	177
Porter, Jacob	1408	110
Porter, John	2953	208
Porter, John	2959	208
Porter, Lindsay	2936	207
Portillo, Eder	2289	175
Portillo-Ruiz, Martha	596	39
Portnoy, Daniel		159
Portnoy, Daniel	1126	98
Portnoy, Daniel		72
Portnoy, Daniel	1141	99
Portnoy, Vasiliy	1360	108
Portnoy, Vasiliy	1557	116
Porto, Maura	805	55
Porto-Fett, Anna	388	29
Porwollik, Steffen	2740	197
Porwollik, Steffen	2747	197
Porwollik, Steffen	2099	143
Porwollik, Steffen	2921	206
Porwollik, Steffen	2751	197
Posada-Buitrago, Martha	1611	119
Posada-Buitrago, Martha	2381	179
Posada-Buitrago, Martha	2391	179
Posada-Buitrago, Martha	601	40
Poselero, Beatriz	1199	101
Post, Linda	2258	174
Potharla, Vishwakanth	908	61
Potter, Andrew	2817	202
Potula, Raghava	169	20
Potula, Raghava	738	53
Pougach, Ksenia	3006	210
Poulsen, Steen	2157	170
Poulter, Melinda	2780	199
Pounder, Lauryn	2205	171
Poupard, James		120
Poutanen, Susan	158	19
Poutanen, Susan	1213	102
Powell, Daniel	2868	204
Powell, Rhonda	LB-04	233

Author	Poster Board	Session Number
Power, Anton	2546	186
Power, Anton	1322	106
Power, K	995	65
Power, Karen	1996	139
Power, Karen	389	29
Power, Karen	3054	212
Power, Michelle	3152	216
Powers-Fletcher, Margaret	852	57
Powers-Fletcher, Margaret	844	57
Pozhitkov, Alexander	3066	213
Pozzi, Clarissa	2336	177
Prabaker, Kavitha	1709	126
Prabhakaran, Madhu	1488	113
Prabhu, Rajesh	1664	124
Prabhu, Sunita	1567	117
Prada-Quiroz, A	1575	117
Prade, Lars	2687	195
Prade, Rolf	1488	113
Pradel, Elisabeth	1633	122
Prakash, Om	326	27
Prakash, Om	2453	182
Prakash, Vidhya	2267	174
Prakash, Vittal	2649	190
Prapagdee, Benjaphorn	2595	188
Prasad, K.N.	2763	198
Prasad, Sujata	2174	170
Prashar, Akriti		227
Prateek, Shashank	1224	102
Pratt, Michael	1510	114
Pratt, Zachary	3062	212
Pratt, Zachary	2406	180
Prazak, Vojtech		75
Preheim, Sarah	2105	143
Premraj, Betty	668	49
Presedo, Jacquline	649	49
Pressler, Tacjana	1631	122
Pressman, Jonathan	2606	189
Prestat, Emmanuel	318	27
Prestat, Emmanuel	490	34
Prestridge, Jamie	90	16
Preuth, Ines	2438	181
Prevette, Emylee	2619	189
Price, Connie	2977	209
Price, Connie	15	12
Price, Connie	751	53
Price, Connie	157	19
Price, David	532	36
Price, Michael	846	57
Price, Morgan	2443	181
Price, Morgan	2935	207
Price, Neil	2431	181
Price, Simara	1544	116
Priebe, Gregory		231
Priebe, Gregory	1266	104
Priebe, Gregory	2339	177
Priester, John	455	33
Prince, Alice	1772	129
Pritsch, Karin	1449	111
Pritt, Bobbi		218
Priyadarshini, Richa	39	13
Probert, Will	1165	100
Probert, Will	3124	215
Probst, Alexander	1426	111
Probst, Alexander	1432	111
Probst, Alexander	894	60
Prochaska, Rachel	1210	102
Prochnow, Taisa	158	19
Procop, Gary	1214	102
Procop, Gary	2280	175
Procop, Gary	1240	103
Procop, Gary	1241	103
Procop, Gary	1229	102
Procop, Gary	1227	102
Proctor, Lita		85
Progulske-Fox, Ann	2839	203
Progulske-Fox, Ann	192	21
Progulske-Fox, Ann	1315	106
Promburata, Pinidphon	2074	142
Protozanova, E.	1066	69
Protozanova, Ekaterina	1473	112
Protozanova, Ekaterina	2538	186
Provenzano, Daniele	2209	172
Pruckler, J.	1592	118
Pruckler, Jan	113	17
Pruess, Birgit		78
Pruess, Birgit	3046	212
Pruess, Birgit	923	62
Prufert-Bebout, Leslie	3085	213
Prufert-Bebout, Leslie	1392	109
Prussin II, Aaron	398	30
Pryamchuk, Sergei	1088	97
Pryor, Barry	1918	136
Pryor, Barry M.	969	63
Pryor, Marsha	2614	189
Przybyla-Kelly, Katarzyna	1516	115
Pshenychnyi, S	1361	108
Puente, José	1679	124
Pugh, Charles	1391	109
Pugh, Shawn	344	28
Pukatzki, Stefan	2209	172
Pultz, Ingrid	253	23
Purcell, Erin		226
Purcell, Nora	2493	184
Purohit, Tejal	2281	175
Purssell, Andrew	1648	123
Purvine, Samuel	401	30
Purwantini, Endang	2669	191
Purwantini, Endang	2634	190
Putman, Ben	2008	140
Putman, Kyle	2856	203
Puttikamonkul, Srisombat	853	57
Putty, Kalyani	2179	171
Puzon, Geoffrey	1885	135
Pyles, Richard	862	58
Pyles, Richard	2881	204
Pyun, Yu-Ryang	1986	138
Q		
Qaisar, Uzma	1313	106
Qi, B	1295	105
Qi, Lei		219
Qi, Qingguo	1789	130
Qian, Lishi	1574	117
Qian, Lishi	1057	68
Qian, Lishi	1058	68
Qian, Long	2644	190
Qian, Pei-Yuan		154
Qian, Zhong	1283	105
Qiao, Wanqiong	2378	179
Qin, Aiping	205	21
Qin, Jing	2738	197
Qin, Peibing	2242	173
Qin, Peibing	2235	173
Qin, Peibing	749	53
Qin, Xuan	2251	173
Qin, Yujia	955	63
Qin, Yujia	959	63
Qin, Yujia	958	63
Qin, Yujia	3074	213
Qin, Yujia	2629	190
Qin, Yujia	1447	111
Qin, Yujia	3092	213
Qiu, Dongru	469	33
Qiu, Guanzhou	2584	188
Qiu, Yafeng	1806	130
Qiu, Yafeng		79
Qiu, Yu	1557	116
Qu, Pinghua	1073	69
Qu, Yanyan	2325	177
Qu, Yi	425	31
Quade, Jay	967	63
Quake, Stephen	1936	136
Quake, Stephen	407	31
Quan, Selwyn	1834	132
Quatrini, Raquel	1293	105
Quayle, Alison	1729	127
Quensen, Joh	2507	184
Quesnel-Hellmann, Anne	1751	128
Queudot, Jean-Christophe	1988	138
Quiblier, Catherine	2039	141
Quick, Amy	1680	125
Quidort, Wendi	1520	115
Quieng, Ma. Dolores	1573	117
Quinlan, Brian	3034	211
Quinlivan-Repasi, Vanessa	60	14
Quinn, Conrad	2107	144
Quinn, Conrad	1629	122
Quinn, Criziel	1720	126
Quinn, Criziel	1705	126
Quinn, Criziel	1228	102
Quinn, Mark	2858	203
Quinn, Matthew	1366	108
Quinones, Beatriz	1462	112
Quiñones, Beatriz	2539	186
Quiñones, Beatriz	2062	142
Quintero-Zapata, Isela	1950	137
Quiroz, Omar	1690	125
Quiroz-Cardoso, Martin	1962	137
Quispe, Ruth	1649	123
Qun, Wang	1219	102
Quoreshi, A	446	32
Qureshi, Osama	456	33
R		
Raab, Ronald	1872	134
Rabadi, Seham	2847	203
Rabbani, M.A.G.		232
Rabbow, Elke	272	24
Rabbow, Elke	261	24
Rabideau, Meaghan	205	21
Rabin, Bruce		222
Rabinowitz, Joshua	1863	133
Rabus, Patrick	2856	203
Radek, Christopher	1442	111
Rader, Bethany	2856	203
Radl, Viviane	1449	111
Radtke, Andrea	1281	104
Radtke, Andrea	1729	127
Radtke, Christie	1848	133
Raetz, Christian	2868	204
Raffatellu, Manuela	687	50
Raffatellu, Manuela		84
Raffatellu, Manuela		158
Raffatellu, Manuela	688	50
Raffatellu, Manuella	680	50
Rafii, Fatemeh	2112	144
Rafii, Fatemeh	1089	97
Rafii, Fatemeh	2373	179
Ragoza, Yury	1113	98
Rahal, Elias	2680	195
Rahal, Elias	652	49
Rahman, Annas	2439	181
Rahman, M.	1387	109
Raigne, Amber	2352	178
Rainey, Fred	422	31
Raith, Meredith	3103	214
Raith, Meredith	1907	135
Raith, Meredith	3098	214
Raith, Meredith	3094	214
Rajakuberan, Chitra	522	36
Rajal, Veronica	2022	140
Rajani, Gaurav	71	15
Rajaram, Krithika	2198	171
Rajashekara, Gireesh	1847	133
Rajeev, Lara	962	63

Author	Poster Board	Session Number
Rajeev, Lara	1369	108
Rajeev, Sreekumari	2617	189
Rajendran, Mythilypriya	2853	203
Rajendran, Mythilypriya	2847	203
Rajkumar, Sunanda	840	57
Raju, Kartik		153
Rakonjac, Jasna	1345	107
Ralph, John	1359	108
Ralston, Katherine	1740	127
Ram, Geeta	302	26
Ram, Sanjay	823	56
Rama Narayana, Deepak	1573	117
Ramachandran, Girish	2892	204
Ramachandran, Girish	2208	172
Ramachandran, Padmini	1975	138
Ramachandran, Padmini	1976	138
Ramachandriya, Karthikeyan	1488	113
Ramakrishnan, S	2174	170
Ramakrishnan, V	2124	144
Ramambason, Jean	180	20
Ramasubramanian, Anand	1640	122
Rambin, Ellen	176	20
Ramesh, Geeta	1774	129
Ramesh, Raman	1341	107
Ramirez, Alejandro	3123	215
Ramirez, Gabriela	2753	197
Ramirez, Pablo	1649	123
Ramirez, Rafael	3036	211
Ramirez, Stephania	680	50
Ramírez, Ana	442	32
Ramírez, Rosa-María	1773	129
Ramírez Toro, Graciela	2618	189
Ramirez-Camejo, Luis	854	57
Ramírez-Chavarin, Norma	1001	65
Ramírez-Paredes, Erika-Diana	1943	137
Ramírez-Puebla, Shamayim Tabita	504	34
Ramon Sierra, Jesus	1019	65
Ramón Sierra, Jesús	1021	65
Ramón Sierra, Jesús	2957	208
Ramos, Guilherme	757	54
Ramos, Juan L.	250	23
Ramos-Madrigal, Jazmín	2026	140
Rampersaud, Ryan	2176	170
Ran, Chao	1621	119
Rana, Jatin	2580	188
Rana, Sonia	2580	188
Ranalli, Tammi	2255	174
Rand, Kenneth	1717	126
Rand, Kenneth	743	53
Randel, Kelsey	2689	195
Randken, Ray	1228	102
Randolph, Melissa	2290	175
Raney, Trisha	84	16
Ranganathan, S	2945	207
Ranjan, Priya	548	37
Rank, Roger	792	55
Ranke, Tarah	1166	100
Rao, K	2918	206
Raphael, Eva	1091	97
Raphael, Jocelyn	2144	169
Rappé, Michael	2092	143
Rapp-Giles, Barbara	2962	208
Rapsinski, Glenn	1783	129
Rarran Kurrusi, Sreejith	1461	112
Rascon, Quintin	1299	105
Rascón-Cruz, Quintín	2577	187
Rasheed, Faisal	14	12
Rasheed, James	2098	143
Rashel, John	1242	103
Rashid, Amena	1253	103
Rasko, David		167
Rasko, David	2161	170
Rasko, David	2736	197
Rasko, David	2745	197
Rasko, David	2732	197
Rasko, David	2737	197
Rasmussen, Jed	1667	124
Rasmussen, Jed	69	15
Rasmussen, Mark	1072	69
Rasmussen, Mark	3148	216
Rasmussen, Mark	2532	186
Rasool, Atif	2970	209
Ratani, Shakir	996	65
Rath, Christopher		77
Rath, Matthias	1628	122
Rather, Philip	286	25
Ratho, RK	2254	174
Ratho, RK	2118	144
Rathod, Pradipsinh		93
Ratkiewicz, Irene	1191	101
Ratkiewicz, Irene	2292	175
Ratner, Adam		231
Ratner, Adam	2176	170
Ratner, Adam	1670	124
Rattanaprapanporn, Sopapan	2726	196
Rattei, Thomas	3040	212
Rauch, Leah	656	49
Rauch, Marcus	3035	211
Rauch, Marcus	766	54
Ravaoarinoro, Madeleine	180	20
Ravaoarinoro, Madeleine	2131	169
Ravel, Jacques	792	55
Ravel, Jacques		157
Ravel, Jacques	801	55
Ravichandran, Akshaya	2695	195
Ravindra, Dipti	2876	204
Ravva, Subbarao	2064	142
Rawat, Arun	2201	171
Rawat, Arun	506	34
Rawat, Mamta	1854	133
Rawat, Mamta	1861	133
Rawls, John	3024	211
Rawn, Claudia	979	64
Ray, Richard	2562	187
Ray, Valerie	1809	131
Raybourne, Richard	1753	128
Rayment, Ivan	2447	181
Raz, Assaf	82	15
Raza, Sabeen	764	54
Raza, Yasir	2111	144
Read, Timothy	139	18
Read, Timothy	2114	144
Reason, Donald	2335	177
Rebecca, Rebecca	1447	111
Rech, Sabine	475	33
Reck, Michael	2699	195
Records, Angela	2950	207
Redden, Cassie	567	38
Redden, Julie	561	38
Reddi, Prianca	2031	141
Reddig, B	1285	105
Reddy, Swetha	1608	119
Redfern, James	589	39
Reding, K	776	54
Redman, Julia	2737	197
Reece, Kimberly	1520	115
Reed, Erin		76
Reed, Shawna	799	55
Rees, Douglas		75
Regan, Genevieve	222	22
Regassa, Laura	591	39
Register, Karen	619	41
Regtop, Hubert	1948	137
Rehan, Medhat	1483	113
Rehberger, Joshua	270	24
Rehberger, Thomas	636	41
Rehl, Jaclyn	709	51
Rehm, Bernd	2719	196
Reich, Peter	957	63
Reich, Peter	322	27
Reich, Peter	959	63
Reich, Peter	3074	213
Reich, Peter	956	63
Reichert, Elizabeth		152
Reichl, Ken	327	27
Reid, Fiona	1571	117
Reid, Francine	1926	136
Reid, Francine	3099	214
Reid, Francine	1925	136
Reid, Ray	2034	141
Reidl, Joachim	1108	98
Reihle, Jessica	969B	63
Reimann, Romy	2707	196
Reinhardt, Jessica	810	56
Reinhardt, Richard	214	22
Reis, Roberta	194	21
Reischer, Georg	3098	214
Reischer, Georg	3095	214
Reiske, Heinz	573	38
Reiss, Daniel	2728	197
Reistetter, Emily	401	30
Reistetter, Emily	2509	184
Reiter, Keli	2125	144
Rekasius, Violeta	151	19
Rekasius, Violeta		80
Relich, Ryan	2805	201
Relich, Ryan	2237	173
Relich, Ryan	107	17
Relich, Ryan	860	58
Relich, Ryan	2806	201
Reller, L	95	16
Reller, L	739	53
Reller, L. Barth		80
Relloso, María	2770	198
Relman, David		77
Relman, David		153
Remaly, Erin	717	52
Remmert, Autumn	2071	142
Rempe, Katherine	2711	196
Rempel, Heidi	1604	119
Ren, Dabin	781	55
Ren, Dacheng	2855	203
Ren, Dacheng	2522	185
Ren, Dacheng	2171	170
Ren, Dacheng	1654	123
Ren, Ping	840	57
Ren, Ping	2350	178
Renaud, Nicolas	108	17
Renberg, Rebecca	2678	195
Rendell, Donna	160	19
Renfro, Daniel		78
Rentschler, Ann	2792	200
Rentschler, Ann	626	41
Rentschler, Elizabeth	2922	206
Renzi, Pam	2237	173
Renzi, Ronald	889	59
Renzoni, Adriana	2184	171
Repert, Deborah	333	27
Repeta, Daniel	2460	182
Reponen, Tiina	1508	114
Resende, Mariah	2779	199
Resinger, Heather	LB-05	233
Rest, Richard	47	14
Restrepo, Nicole	688	50
Restrepo, Silvia	491	34
Restrepo, Silvia	2570	187
Retallack, Diane	1471	112
Rettberg, Petra	272	24
Reuss, Sarah	2805	201
Reutlinger, Ian	2926	206
Reveco, Sonia	2948	207
Revell, Paula	657	49
Revell, Paula	1231	103
Revell, Paula		194
Revetta, Randy	1884	135

Author	Poster Board	Session Number
Reyes, Alejandro		153
Reyes-Darias, Jose	250	23
Reyes-Lamothe, Rodrigo	876	59
Reymann, Garrett	1242	103
Reymann, Garrett	1172	100
Reynolds, David	1211	102
Reynolds, Kelly	1008	65
Reynolds, Kelly	1503	114
Reynolds, Kelly	2028	140
Reynolds, M. Megan	1661	124
Reynolds, Stuart	791	55
Rezaei-Boroun, Atefeh	818	56
Rezai, Atefeh	809	56
Rezaie, N.	682	50
Rhee, Joon	670	50
Rhee, Joon	676	50
Rhee, Joon	699	51
Rhee, Joon Haeng	1107	98
Rhee, Sangkee	1691	125
Rhodes, Eric	1033	66
Rhodes, Jon	1627	119
Rhodes, Martha	629	41
Rhodius, Virgil	2912	205
Rhodius, Virgil		81
Rholl, Drew	2896	205
Rhomberg, Paul	140	19
Riahi, Fathollah	2986	209
Riahi, Fathollah	104	16
Riazi, Mansour	2131	169
Ribeiro, Ana	LB-03	233
Ribeiro de Vasconcelos, Ana	489	34
Ribes, Julie		218
Riblet, Sylva	1048	67
Ribot, Efrain	742	53
Ribot, Efrain	1077	69
Ricard, Isabelle	1633	122
Ricci, Christine	2856	203
Ricci, Dante	931	62
Ricci, Gloria	112	17
Ricci, Jessica	1908	135
Rice, Alan	1133	99
Rice, Charles	318	27
Rice, Eugene	1047	67
RICE, KELLY	681	50
Rice, Kelly	2725	196
Richards, Abigail	404	30
Richards, Alexsia	552	37
Richards, Allen	1248	103
Richards, Gregory	1859	133
Richards, Lee	939	62
Richards, Mahmia	2235	173
Richards, Samuel	1715	126
Richards, Thomas		151
Richardson, Anthony	681	50
Richardson, Charles		146
Richardson, David	112	17
Richardson, Leisha	1719	126
Richardson, Leisha	506	34
Richardson, Ruth	421	31
Richardson, Ruth	410	31
Richardson, Ruth	418	31
Richardson, Ruth	424	31
Richardson, Susan		218
Richart, Sarah	480	33
Richie, Robert	2132	169
Richter, Andreas	1815	131
Richter, Michael		83
Richter, Roland		85
Richter, Sandra		165
Richter, Sandra	2986	209
Richter, Sandra	104	16
Richter, Sandra	1241	103
Richter, Sandra	1240	103
Rickard, Alexander	2138	169
Ricke, Steven	2008	140
Ricke, Steven	1968	138
Rickert, Regan	659	49
Ricketts, Alastair	561	38
Ricketts, Paul		11
Ricomini Filho, Antonio	2206	171
Riddell, Geoffrey	908	61
Riddle, Gerald	135	18
Rideout, Steve	2544	186
Riebe, Katherine	1190	101
Riebe, Katherine	165	20
Riebe, Katherine	134	18
Riedel, Christian	2920	206
Riedel, Katharina	1144	99
Riedel, Stefan	130	18
Riedel, Stefan	128	18
Riedel, Timothy	3122	214
Riederer, Nancy	2993	209
Riehle, Michael	1764	129
Rienzo, Matthew	1407	110
Riestch, Arne	1693	125
Rietsch, A.	2221	172
Riga, Ioanna	999	65
Rigel, Nathan	931	62
Riggins, Daniel	1839	133
Riggio, Marcello	768	54
Riggio, Marcello	623	41
Rigney, Todd	76	15
Rijal, Geeta	3105	214
Rikihisa, Yasuko	785	55
Rikihisa, Yasuko	783	55
Rikihisa, Yasuko	782	55
Rikihisa, Yasuko	788	55
Rikihisa, Yasuko	786	55
Riley, Kelley	3107	214
Riley, Laura	2719	196
Riley, Lee	1091	97
Riley, Lee	2755	198
Riley, Lee	2992	209
Riley, Lee	2674	191
Riley, Lee	1053	68
Riley, Shannon	311	26
Riley, William	2274	174
Riley, William	1381	109
Riling, Jamieson	1049	67
Rimsza, Rebecca	2782	199
Rimsza, Rebecca	2098	143
Rindfleisch, Timothy	1576	117
Ringeisen, Bradley	2562	187
Ringelberg, David	970	64
Ringus, Daina	2399	180
Rininsland, Vanessa	1694	125
Rink, Elisabeth	2283	175
Rinker, Sherri	1742	127
Rinsky, Jessica	1596	118
Rio, Rita		156
Rios, Luis	2004	140
Rios Hernandez, Luis	2003	140
Ríos Velázquez, Carlos	496	34
Rios-Hernandez, Luis	1528	115
Rios-Velazquez, Carlos	487	34
Rios-Velazquez, Carlos	1092	97
Rios-Velazquez, Carlos	586	39
Ripp, Steve	1455	112
Ripp, Steven	332	27
Ripp, Steven	1456	112
Ripp, Steven	2543	186
Ririe, Kirk	1239	103
Risech, Martina	2339	177
Rishishwar, Lavanya	2453	182
Rishpon, J.	2030	141
Risseeuw, Martijn	2705	196
Risso, Carla	2457	182
Ritalahti, Kirsti	2968	208
Ritchie, Jenny	2336	177
Rittmann, Bruce	412	31
Rittmann, Bruce		152
Ritz, Daniel	2687	195
Ritzi, Christopher	625	41
Rivadeneyra-Espinoza, Liliana	1642	123
Rivera, Berenise	3107	214
Rivera, Blanca	1299	105
Rivera, Irma	1430	111
Rivera, Irma	1400	110
Rivera, Irma	1416	110
Rivera, Jessica	2624	189
Rivera, Jhon	2381	179
Rivera, Jhon	2391	179
Rivera, Kristina	174	20
Rivera, Marco	1681	125
Rivera, Mercedes	2311	176
Rivera-Hernández, Karla N.	437	32
Rivera Chavira, Blanca	1055	68
Rivera Chavira, Blanca	1560	117
Rivera Perez, Jessica	2620	189
Rivera-Chavez, Fabian	240	23
Rivera-Chavez, Fabian	2299	176
Rivera-Chavira, Blanca	2418	180
Rizvi, Adibul	2323	177
Roayaei Ardakani, Mohammad	470	33
Rob, Lavigne	464	33
Robbins, Douglas	2835	202
Robbins, Gregory	2521	185
Robbins, Hannah	674	50
Robbins, Jennifer	1748	127
Robert, Haerve	2952	208
Robert, Océane	2268	174
Roberto, Inês Conceição	1511	114
Roberts, A	120	18
Roberts, Ava'	90	16
Roberts, Carol	1627	119
Roberts, Ethan	2430	181
Roberts, Jill	1070	69
Roberts, Sally	1568	117
Robertson, B	3066	213
Robertson, Kelly		151
Robertson, Philip	953	63
Robeson, Michael	949	63
Robicsek, Ari	2978	209
Robicsek, Ari	2786	199
Robicsek, Ari		168
Robin, Fréderic	2372	179
Robins, Nikolas		77
Robinson, Ann	1221	102
Robinson, Courtney		47
Robinson, Gabriel	2007	140
Robinson, Gwen	1166	100
Robinson, Howard		225
Robinson, Howard	2713	196
Robinson, Howard	2719	196
Robinson, Murray	160	19
Robison, Richard	1721	126
Robison, Richard	1510	114
Robledo, Jaime	777	54
Robledo, Jaime	1575	117
Rocha, Alípio	1265	104
Rocha, Edson	2414	180
Rocha, Edson	1855	133
Rocha, Edson	40	13
Rocha, Edson	41	13
Rocha, Karen	LB-03	233
Rocha, Miguel	2223	172
Rocheleau, Jessica	2457	182
Rocheleau, Jessica	2592	188
Rock, Channah	2072	142
Rock, Channah	3107	214
Rockel, Andrea	1130	98
Rockenbach, Kate	2998	210
Rockteacher, Susan	1208	102
Rodela, Meghan	1404	110
Roden, Anja	2803	201

Author	Poster Board	Session Number
Rodgers, Jessica	94	16
Rodgers, Laura	839	57
Rodgers, Sandy	632	41
Rodgers-Vieira, Elyse	463	33
Rodionov, Dmitry	1360	108
Rodionova, Irina	1360	108
Rodrigue, Sébastien	1336	107
Rodrigues, Aroha	1334	107
Rodrigues, Camilla	1058	68
Rodrigues, Camilla	1193	101
Rodrigues, Diogenes	85	16
Rodrigues, Gabriela	2346	178
Rodrigues, Jorge		229
Rodrigues, Paulo	2169	170
Rodriguez, A.	1599	118
Rodriguez, Alex	3086	213
Rodriguez, Alia	2485	183
Rodriguez, Christina	666	49
Rodriguez, Jimmy	2654	191
Rodriguez, Maria Jose	2053	141
Rodriguez, Raquel	2337	177
Rodriguez, Roberto	1524	115
Rodriguez, Rossanna	2383	179
Rodriguez, Sarah	1368	108
Rodriguez, Sergio	3110	214
Rodriguez, Sonia	2993	209
Rodríguez - Sarmiento, Karina P.	437	32
Rodriguez Cantu, Elena	2581	188
Rodríguez Guerra, Raul	2523	185
Rodriguez Valdez, Luz	1560	117
Rodriguez-Albavera, Kemish	1939	137
Rodriguez-Bonano, Nydia	2012	140
Rodríguez-Bucheli, Pablo	2026	140
Rodriguez-Granger, Javier	83	16
Rodriguez-Lanetty, Mauricio	2472	183
Rodriguez-Rivera, Lorraine	2857	203
Roe, Bruce	3074	213
Roe, Chandler	2098	143
Roe, Chandler	2782	199
Roecklein-Canfield, Jennifer	592	39
Roediger, Frederick	1727	127
Roehl, Amanda	2198	171
Roesch, Eliane	85	16
Rogatcheva, Margarita	1716	126
Rogatcheva, Margarita	2233	173
Roger-Dalbert, Céline	746	53
Roger-Dalbert, Céline	1175	100
Roger-Dalbert, Céline	2253	173
Roger-Dalbert, Céline	137	18
Roger-Dalbert, Céline	2252	173
Roger-Dalbert, Céline	2798	200
Rogers, Beverly	2271	174
Rogers, Lisa	1271	104
Rogers, Mary	2987	209
Rogers, Nicole	1785	129
Rogers, Peter	1938	137
Rogers, Scott	497	34
Rogers, Scott	494	34
Rogers, Scott	500	34
Rogers, Yu-Hui		85
Roggenbuck, Michael	710	51
Roghmann, Mary-Claire	815	56
Rohde, John	2904	205
Rohde, Manfred	806	55
Rohmer, Laurence		157
Rohmer, Laurence		157
Rohr, Jason	1533	115
Rohwer, Forest		153
Rohwer, Forest		85
Rohwer, Forest		85
Roier, Sandro	1108	98
Roilides, Emmanuel		10
Rojas, Enrique	1824	132
Rojas, Enrique	1833	132
Rojas, Lizzette	1414	110
Rojas, M.	646	42
Rojas, Miguel	1425	110
Rojas, Norma	442	32
Rojas, R.	3159	216
Rojas Chavez, Favio	3036	211
Rojas-Hernandez, S.	646	42
Rojas-Verde, Guadalupe	1950	137
Rojas-Verde, Guadalupe	1959	137
Roland, Kenneth	2403	180
Roldan, Ricardo	2581	188
Roll, Alex	972	64
Rollenhagen, Julianne	2341	177
Romagnoli, Mark	1196	101
Román Toledo, Alondra	1943	137
Román Toledo, Alondra	1939	137
Romanchuk, Artur		157
Romano, Desiree	2127	169
Romano, Kymberleigh	356	28
Roman-Toledo, Alondra	1949	137
Romby, Pascale	705	51
Rome, Marcie	2972	209
Romero, Dennis		149
Romero, Dennis	298	26
Romero, Diana	1812	131
Romero-Herazo, Yesenia	2764	198
Rominger, Rachel	3075	213
Römling, Ute	1788	130
Römling, Ute	2707	196
Rompikuntal, Pramod	1753	128
Ron, Eliora	1349	108
Ronald, Pamela		45
Rondinone, Adam	979	64
Rong, Shang	1219	102
Ronholdt, Chad	2132	169
Roof, Sherry	3142	215
Rooney, Anthony	1618	119
Rooney, Anthony	197	21
Roos, Adam	1319	106
Roossinck, Marilyn		162
Root, Robert	472	33
Roper, Marcus	907	61
Roper, Thomas	2592	188
Rosa, Ana	229	22
Rosa, Ana	1322	106
Rosa, Mary	229	22
Rosa-Fraile, Manuel	83	16
Rosa-Fraile, Manuel	98	16
Rosal, Karen	1482	113
Rosal, Karen	3068	213
Rosario, Danielle	2271	174
Rosas, Irma	3161	216
Rosas, Luz Angela	2235	173
Rosas, Melina	3036	211
Rose, Sasha	2838	202
Rose, Steven	2923	206
Rosen, Michael	1373	109
Rosen, Steven	2819	202
Rosenau, Josh		82
Rosenberg, Eugene	3008	210
Rosenberg, Eugene		164
Rosenberg, Shoshana	1243	103
Rosenblueth, Mónica	504	34
Rosengarten, Rafael	992	64
Rosenthal, Mariana	757	54
Rosenwald, Anne	592	39
Rosenzweig, C. Nicole	2450	182
Rosenzweig, C. Nicole	2106	143
Rosenzweig, Cynthia		43
Rosenzweig, Frank		217
Rosovitz, M.J.	567	38
Ross, Kimberly		73
Ross, Matthias	2848	203
Ross, Shane	398	30
Ross, Tom	1005	65
Ross, Tracy	90	16
Ross, Tristen	2101	143
Ross, Wilma		81
Rossbach, Silvia	1334	107
Rossi, Marika	557	37
Rossi, Michael	139	18
Rossi, Patricia	1673	124
Rossi, Peter	2834	202
Rossier, Cornelia	2076	142
Rota, Paul		158
Rotaru, Amelia	2489	183
Rotaru, Amelia	1814	131
Rotaru, Amelia-Elena	1822	131
Roth, Amanda	1106	97
Roth, Johannes	688	50
Roth, John	875	59
Roth, John	1735	127
Rothamn, Richard	869	58
Rothman, Daniel		78
Rothman, Richard	88	16
Rothman-Denes, Lucia	300	26
Rothschild, Lynn	1875	134
Rott, Lusijah	2115	144
Rottjakob, Dave	1023	66
Rousett, Steve	1245	103
Roussa, Chrysoula	1010	65
Roussa, Chrysoula	394	29
Rousseau, Philippe	872	59
Rout, Marnie	3011	211
Roux, Christelle	204	21
Roux, Damien	2336	177
Roux, Damien		225
Rowe, Annette	421	31
Rowe, Annette	418	31
Rowe, Annette	410	31
Rowland, Jennifer	1561	117
Rowley, Gary	2407	180
Roxas, Bryan	721	52
Roy, Ambrish	1603	119
Roy, Sébastien	446	32
Roy, Sébastien	1337	107
Roy, Sébastien	1336	107
Roy, Sébastien	1335	107
Rozo, J.	1575	117
Ruan, Lifang	231	22
Rubin, Edward	2458	182
Rubino, Salvatore	728	52
Rubio, Aileen	1653	123
Rubio-Orijuela, Lina	1961	137
Rubio-Gonzalez, Michelle	764	54
Ruby, Edward		83
Ruby, Stephanie	225	22
Ruden, Lila	1245	103
Rudge, Tom	1629	122
Rudrik, James	2723	196
Ruedinger, Kyle	2923	206
Ruegg, Katherine	2508	184
Ruekit, Sirigade	2759	198
Ruggero, Nicholas	303	26
Ruiz-Font, Angelica	3019	211
Ruiz-Jimenez, Caleb	580	38
Ruiz-Moyano, Santiago		84
Ruiz-Moyano, Santiago	1919	136
Ruiz-Moyano, Santiago	1981	138
Rukke, Håkon	252	23
Rukke, Håkon	281	25
Rumbaugh, Kendra	2155	170
Rumbaugh, Kendra	1258	104
Ruml, Tomas		230
Rump, Lydia	1998	139
Rump, Lydia	3042	212
Runac, Justin	1316	106
Rundell, Ethan	498	34
Runguphan, Weerawat	990	64
Runyen-Janecky, Laura	1339	107
Rupar, David	2808	201

Author	Poster Board	Session Number
Rupido, Lillibeth	1573	117
Ruskin, Adam	2258	174
Ruskoski, Sallie	1828	132
Russel, Daniel	1871	134
Russell, Alistair	1817	131
Russell, Anne	3090	213
Russell, Chad	1184	100
Russell, Daniel	1866	134
Russell, Daniel	1869	134
Russell, David	2396	180
Russell, Janet	592	39
Russell, Jennifer	2267	174
Russell, Todd	3097	214
Russi, Paola	2587	188
Russo, Cristina	748	53
Russo, Cristina	177	20
Russo, Cristina	1579	117
Rust, Steven	1442	111
Rüter, Christian	2846	203
Rüter, Christian	1152	99
Rüter, Christian	2843	203
Rüter, Christian	2848	203
Rutherford, Steven	291	25
Rutkovsky, Alex	922	62
Ruyle, L.	36	13
Ruzicka, Filip	2360	178
Ruzicka, Filip	2969	208
Ryan, Christopher	2337	177
Ryan, Michael	3108	214
Ryan, Mike		96
Ryan, Shannon	2697	195
Ryang, Dong	150	19
Ryang, Dong Wook	17	12
Ryang, Dong Wook	850	57
Ryazantseva, Mariya	2384	179
Rybak, Michael	127	18
Rybalka, Alexandra	3031	211
Ryou, Sangmi	1491	113
Ryu, Eun Yeon	2333	177
Ryu, Eun-Yeon	1778	129
Ryu, Hodon	2011	140
Ryu, In	608	40
Ryu, In	597	40
Ryu, Ji-Young	1363	108
Ryu, Jio	1009	65
Ryu, Min-Hyung	1310	106
Ryu, Rhea	2904	205
Ryu, Sangryeol	307	26
Ryu, Sangryeol	384	29
Ryu, Sangryeol	305	26
Ryu, Sangryeol	3002	210
Ryu, Sangryeol	1876	134
Ryu, So	2989	209
Ryu, So	1643	123

S

Author	Poster Board	Session Number
Saarunya, Geetha	944	63
Saarunya, Geetha	340	27
Saavedra, Claudia	1118	98
Saavedra, Claudia	2921	206
Saavedra , Tiffany	88	16
Sabatini, Collin	1933	136
Sabato, Daniela	2687	195
Sabo, Jonathan	1072	69
Sabo, Jonathan	3158	216
Sabol, Ashley	1077	69
Sabourin, Avis	1208	102
Sabourin-Provost, Guillaume	2958	208
Sabra, Ahmad	650	49
Sabra, Ahmad	2680	195
Sacchettini, James	1570	117
Sacchi, Claudio	LB-03	233
Saccomani, Marie-Christine	1217	102
Sachdeva, Rohan	2459	182
Sachs, George	2947	207
Sachs, George	212	22
Sachs, George	2429	181
Sader, Helio	1630	122
Sader, Helio	140	19
Sader, Helio	660	49
Sader, Helio	5	12
Sader, Helio	4	12
Sader, Helio	117	18
Sadler, Natalie	2410	180
Sadovskaya, V.P.	3133	215
Sadowsky, Michael	2010	140
Sadowsky, Michael	3060	212
Sadowsky, Michael	1517	115
Sadowsky, Michael	1440	111
Sadowsky, Michael	3094	214
Sadowsky, Michael	3096	214
Sadowsky, Michael	1515	115
Sadowsky, Mike	3056	212
Sadykov, Marat	32	13
Saeij, Jeroen		159
Saeki, Sandra	129	18
Saenz, Carina	2581	188
Saenz-Marta, Claudia	2418	180
Saffert, Ryan	1244	103
Safranovitch, M.	1066	69
Safwat, N.	1717	126
Saha, Badal	351	28
Saha, Badal	350	28
Saha, Nabaneeta	1504	114
Saha, Ratul	1504	114
Sahin, Orhan	1607	119
Sahin, Orhan	568	38
Sahl, Jason	2736	197
Sahl, Jason	2745	197
Sahl, Jason	2732	197
Sahly, Hany	661	49
Sahly, Hany	661	49
Sahni, Pratima	584	39
Sahnow, Laura	740	53
Sahukhal, Gyan	2159	170
Said-Fernández, Salvador	1642	123
Said-Fernández, Salvador	2667	191
Saijo, Arisa	2427	181
Saikaly, Pascal	1441	111
Saikolappan, S.	856	58
Sailer, Christine	1570	117
Sails, Andrew	1571	117
Sainz, Teresita	2753	197
Sainz- Espuñes, Teresita	1690	125
Sainz-Espuñes de Net, Teresita	1137	99
Saito, Hajime	1565	117
Saito, Kazunobu	2231	172
Saito, Tais	209	21
Saka, Alex	195	21
Sakadani, Eleni	393	29
Sakadani, Eleni	394	29
Sakagami, Elsa	121	18
Sakai, Haruna	1731	127
Sakai, Takafumi	2318	176
Sakamoto, Joyce	801	55
Sakamoto, Yasushi	2023	140
Sakhon, Olivia	1776	129
Sakotani, Akiko	395	30
Sakoulas, George	8	12
Sakowski, Eric	2465	183
Sakowski, Eric	2492	184
Sakowski, Erik	805	55
Sakurai, Keisuke	1101	97
Salamanca Velandia, Diego	1475	113
Salamon, Douglas	1712	126
Salamon, Douglas	1708	126
Salas, Everett	2034	141
Salazar, Francisco	2727	197
Salazar, Joelle	380	29
Salazar, Joelle	375	29
Salazar, L.	2690	195
Salazar-Echegarai, Francisco	2743	197
Salazar-Jiménez, Erika	1001	65
Salcedo Martínez, Sergio	2523	185
Sale, Kenneth	973	64
Saleh, Maya		159
Saleh, Saleema	2049	141
Sales, Claudiana	1430	111
Saleska, Scott		224
Salfinger, Yvonne	1071	69
Salhi, Hussam	672	50
Salia, Helen	2845	203
Salimnia, Hossein	1239	103
Salimnia, Hossein	127	18
Salinas, Eva	3161	216
Salisbury, Anne Marie	1602	119
Sall, Khady	2228	172
Sallach, Brett	1046	67
Salman, Verena	1383	109
Salmassi, Tina	268	24
Salmassi, Tina	269	24
Salmassi, Tina	460	33
Salmond, George		161
Salome, Laurence	872	59
Salomone, Jeffrey	574	38
Saltikov, Chad	1375	109
Saltikov, Chad	1373	109
Saltikov, Chad	1370	108
Saluta, Mike	3106	214
Salvador, Alexandra	2547	186
Salvador, Alexandra	2548	186
Samad, Farkhanda	18	12
Samad, Farkhanda	2143	169
Samad, Tahoura	675	50
Samaha, David	357	28
Samanta, Priyankar	923	62
Samaras, Yiannis	1010	65
Samaras, Yiannis	999	65
Samaras, Yiannis	393	29
Samaras, Yiannis	394	29
Samayoa, Erik	2258	174
Sambandan, Dhinakaran	2658	191
Sambhara, Suryaprakash	548	37
Sambrano-Lopez, Miguel	2895	205
Sampaio, Jorge	121	18
Sampaio, Jorge	1566	117
Sampaio, Simone	2270	174
Sampath, Rangarajan	869	58
Sampson, Edith	192	21
Samra, Zmira	1243	103
Sams, Elizabeth	2001	140
Samuel, Linoj	1226	102
Samuel, Linoj	133	18
Samuel, Temesgen	1000	65
Samuelson, Derrick	2854	203
Samuelson, Derrick		158
San Feliciano, Martin	1642	123
San Francisco, Michael	880	59
San Francisco, Michael	1313	106
San Francisco, Susan	880	59
San Martin-Uriz, Patxi	2941	207
Sanad, Yasser	1847	133
Sanchez, Carlos	2127	169
Sanchez, Cesar	209	21
Sanchez, Christine	2213	172
Sanchez, David	2355	178
Sanchez, Ethel	481	33
Sanchez, R.	3159	216
Sánchez, Joaquín	1681	125
Sánchez, Sergio	1773	129
Sanchez Gonzalez, Mónica N.	1829	132
Sánchez-Esgua, Marisol	1963	137
Sanchez-Martinez, Marisel	2869	204
Sánchez-Quinto, Andrés	503	34
Sánchez-Ramírez, Blanca	530	36

Author	Poster Board	Session Number
Sánchez-Ramos, Mariana	1945	137
Sand, Miriam	24	13
Sandal, Indra	1609	119
Sanders, Ian	1541	116
Sanders, Melissa	722	52
Sanders, Melissa	813	56
Sanderson, Roger	2773	198
Sanderson, Sam	2324	177
Sanderson, Sam	2894	204
Sanderson-Smith, Martina	1269	104
Sandoval, Claudia	1478	113
Sandoval, Natalie	2338	177
Sanford, Robert	2968	208
Sanford, Robert	945	63
Sanford, Robert	1917	136
Sanger, James	2834	202
Sanghvi, Jayodita	2625	190
Sanghvi, Jayodita	866	58
Sano, Emiko	875	59
Santana, Estevan	689	51
Santiago, Alejandro	1954	137
Santiago, Clayton	1157	99
Santiago, Paula	1529	115
Santiago, Paula	1530	115
Santiago Hernández, Alejandro	1472	112
Santiago-Rodriguez, Tasha	2029	141
Santiago-Rodriguez, Tasha	2624	189
Santiviago, Carlos	2747	197
Santiviago, Carlos	2740	197
Santiviago, Carlos	2743	197
Santo Domingo, Jorge	2011	140
Santo Domingo, Jorge	1884	135
Santoro, Marcelo	2380	179
Santoro-Lopes, G	2992	209
Santos, Andrea	857	58
Santos, Carla	121	18
Santos, Catarina	2096	143
Santos, Clarice	2270	174
Santos, Eidy	1904	135
Santos, Marilu	329	27
Santos, Marilu	583	39
Santos, Olinda	1415	110
Santos, P.	2690	195
Santos, Renato	793	55
Santos, Rosana	2992	209
Santos, Silvia	1273	104
Santos, Victor	1850	133
Santos Arias, Rosario	1611	119
Santos-Gandelman, Juliana	1887	135
Santovenia, Monica	2767	198
Santovenia, Monica	113	17
Sañudo-Wilhelmy, Sergio	1401	110
Sanz, Patrick	810	56
Sapp, April	681	50
Sapp, April	2725	196
Sargentini, Neil	877	59
Sargentini, Neil	871	59
Sarker, M	2163	170
Sarker, Mahfuz	1121	98
Sarker, Mahfuzur	196	21
Saroj, Sunil	286	25
Sarreal, Chester	2064	142
Sarreal, S. B.	2520	185
Sarreal, Siov	3048	212
Sarwar, Jawad	809	56
Sarwar, Jawad	815	56
Sasías, Sebastián	690	51
Sassetti, Christopher		227
Sassone-Corsi, Martina	687	50
Satchell, Karla		72
Satchell, Karla		72
Satchell, Karla	1135	99
Sathyadevi, Venkataramani	818	56
Sathyamoorthy, V	2089	143
Sathyamoorthy, Venugopal	2714	196
Sathyamoorthy, Venugopal	389	29
Sathyamoorthy, Venugopal	3065	212
Sato, Kazuki	1645	123
Satola, Sarah	2114	144
Satomi, Masataka	2468	183
Satpathy, Gita	2174	170
Satpute, Meenakshi	2971	209
Sattar, Anas	2005	140
Sattar, Syed	1023	66
Satterfield, Benjamin	1721	126
Satterwhite, Rebecca		221
Saubolle, M.	2201	171
Saubolle, Michael	1187	100
Saubolle, Michael		193
Saucedo-Acosta, Tania	1956	137
Sauer, Karin	2726	196
Sauer, Robert		81
Sauer, Uwe		154
Saulnier, Delphine	2844	203
Saulnier, Delphine	764	54
Sautter, Robert		165
Sautter, Robert	2808	201
Sautter, Robert	101	16
Sautter, Robert	2213	172
Savage, Paul	2140	169
Savage-Ashlock, Kristen	892	60
Savarino, Stephan	2341	177
Savilahti, Harri	1612	119
Savinova, T.	1247	103
Savka, Michael	278	25
Sawada, Shinji	273	25
Sawant, Ashish	1015	65
Saxena, Deepak	502	34
Saxena, Deepak	1756	128
Saxer, Gerda	1537	116
Saxer, Gerda	2649	190
Say?Igan, Emine	1977	138
Sayavedra, Lizbeth		83
Saylab, Haroon	2799	200
Sayler, Gary	332	27
Sayler, Gary	2543	186
Sayler, Gary	1456	112
Sayler, Gary	1455	112
Scalarone, Gene	2351	178
Scalarone, Gene	2358	178
Scalarone, Geoffrey	2358	178
Scales, Brittan-Starr	1724	126
Scaletsky, Isabel	2175	170
Scaletsky, Isabel	2757	198
Scalzi, Giuliano	261	24
Scandalis, Mark	1888	135
Scandurra, Marta	851	57
Scanlan, Eoin	201	21
Scanlan, Eoin	1124	98
Scarff, Jennifer	63	14
Scaria, Joy	2731	197
Scaria, Joy	2730	197
Scaria, Joy	2729	197
Scarth, Caleb	480	33
Schaadt, Erin	1414	110
Schaadt, Erin	1421	110
Schaalje, Gary	1510	114
Schadt, Chris	2586	188
Schadt, Christopher	2453	182
Schadt, Christopher	1286	105
Schadt, Christopher	2454	182
Schadt, Christopher	3016	211
Schadt, Christopher	956	63
Schadt, Eric		121
Schadt, Eric		228
Schaefer, Amy	2454	182
Schaenman, Joanna		10
Schafer, Millie	2051	141
Schagat, Trista	1028	66
Schaltenberg, Nicola	1277	104
Schapendonk, Claudia	2756	198
Schapiro, Jeffery	2239	173
Scharfenstein, Leslie	2518	185
Scharnert, Julia	1152	99
Scharringa, Jelle	2756	198
Scharringa, Jelle	1093	97
Scharschmidt, Tiffany		77
Schau, Matthew	1076	69
Schau, Matthew	1075	69
Schauer-Gimenez, Anne	2408	180
Schecter, Gisela	1192	101
Scheffler, Robert	217	22
Scheffler, Robert	233	22
Schewe, Knut	661	49
Schieffer, Kathleen	1237	103
Schiewe, Rachel	2847	203
Schiff, Nathan	362	28
Schiff, Nathan	3021	211
Schild, Stefan	1108	98
Schiller, Neal	1776	129
Schilling, Michael	2505	184
Schindler, Bryan	347	28
Schindler, Bryan	2909	205
Schindler, Susan	1214	102
Schindler, Susan	2280	175
Schlaberg, Robert	1206	101
Schlaberg, Robert	2259	174
Schlaberg, Robert	1595	118
Schleicher, Tyler	1333	107
Schlemmer, Sarah	2534	186
Schlesinger, Sara	2515	185
Schlie-Guzman, Maria Adelina	2608	189
Schlievert, Patrick	1151	99
Schlievert, Patrick	2712	196
Schloegel, Jesse	827	56
Schlömann, Michael	1384	109
Schlömann, Michael	1467	112
Schloss, Patrick	771	54
Schlosser, Melissa	1208	102
Schmale III, David	398	30
Schmaltz, Stephen	2276	174
Schmaltz, Stephen	2277	174
Schmid, Megan	2313	176
Schmidt, Helen	2492	184
Schmidt, Kat	265	24
Schmidt, M.	1152	99
Schmidt, M.	1726	127
Schmidt, M.	2843	203
Schmidt, M.	2848	203
Schmidt, M.	2843	203
Schmidt, M.	2845	203
Schmidt, Steve	949	63
Schmidt, Steven		151
Schmidt, Suzannah	1634	122
Schmidt, Thomas	2502	184
Schmitt, Bryan	89	16
Schmitt, Christine	720	52
Schmitt, Emily		154
Schmitt, Michael	883	59
Schmitt-Kopplin, Philippe	1815	131
Schmitz, Ruth	899	60
Schneegurt, Mark	2484	183
Schneegurt, Mark	2560	187
Schneegurt, Mark	1910	135
Schneper, Lisa	2213	172
Schneper, Lisa	2199	171
Schoelaub, Laura	2207	172
Schoen, Brianna	2766	198
Schoenberger, Megan	2450	182
Schoenborn, Randal	2528	186
Schofield, Shannon	2234	173
Scholes, Delia	2777	198
Scholthof, Karen-Beth		45
Scholthof, Karen-Beth		45
Scholz, Felix	1440	111

Author	Poster Board	Session Number
Schomberg, Harry	1534	115
Schön, Thomas	1788	130
Schoof, Glorene	1245	103
Schora, Donna	1181	100
Schora, Kenneth	2982	209
Schora, Kenneth	1181	100
Schotthoefer, Anna	2796	200
Schrader, Michael	272	24
Schrader, Michael	397	30
Schrantz, Karen	2606	189
Schreckenberger, Paul		165
Schreckenberger, Paul	1252	103
Schreckenberger, Paul	178	20
Schreckenberger, Paul	151	19
Schreiber, Danielle	2290	175
Schreiber, Kirsten	1322	106
Schreiber, Kirsten	229	22
Schreiber, Lukas	2475	183
Schreier, Harold	3023	211
Schrenzel, Jacques	1264	104
Schrezenmeir, Juerguen	1988	138
Schriewer, Alexander	3109	214
Schriewer, Alexander	3098	214
Schrimpe-Rutledge, Alexandra	1557	116
Schrimpf, Jane	508	35
Schroeder, Gunnar	791	55
Schroeder, Steven	2086	143
Schroeder, Steven	2933	207
Schu, Daniel	210	22
Schubert, Wayne	269	24
Schubert, Wayne	397	30
Schubert, Wayne	1025	66
Schueller, Nathaniel	1252	103
Schuetz, Audrey		165
Schuetz, Audrey		165
Schuld, Jessica	1890	135
Schultz, Jonathon	267	24
Schultzhaus, Janna	904	61
Schupp, J	2201	171
Schupp, James	2093	143
Schupp, James	1719	126
Schupp, James	506	34
Schupp, James	2782	199
Schuppler, Markus		71
Schuren, Frank	1093	97
Schurr, Michael	696	51
Schuster, Stephan		153
Schuur, Edward	1913	136
Schuur, Edward	405	30
Schuur, Edward	1446	111
Schuur, Edward	331	27
Schuur, Edward	955	63
Schwab, Dale	1222	102
Schwab, Jeramy	2803	201
Schwabe, Ringo	1467	112
Schwaiger, Tyler	1443	111
Schwake, David	2610	189
Schwalbach, Michael	1870	134
Schwalm, Jaclyn	931	62
Schwan, William	1635	122
Schwan, William	712	51
Schwartz, Daniel		229
Schwartz, Drew	1741	127
Schwartz, Ira	67	14
Schwartz, Ira	50	14
Schwartz, Matthew	130	18
Schwartz, Samantha	633	41
Schwartz, Tara	1934	136
Schwartzman, Louis	808	56
Schwarz, Benjamin	404	30
Schwarz, Monica	1206	101
Schwarzberg, Karen	2394	179
Schwarzberg, Karen	511	35
Schwechheimer, Carmen	921	62
Schweda, Elke	1763	129
Schweizer, Herbert	2896	205
Schweizer, Herbert	2908	205
Schweizer, Marin	LB-05	233
Schwizer, Sarah	53	14
Scilabro, Gail	2773	198
Scissum-Gunn, Karyn	1457	112
Scoarughi, Gian	1983	138
Scotland, Michelle	220	22
Scott, David	2947	207
Scott, Elizabeth	3103	214
Scott, Elizabeth	1505	114
Scott, Elizabeth	1907	135
Scott, Elizabeth	3094	214
Scott, Jamie	1608	119
Scott, Jeness	3028	211
Scott, Ken	719	52
Scott, Ninecia	1795	130
Scott, Russell	2950	207
Scow, Kate	998	65
Sczyrba, Alex	407	31
Seabrook, Gary	2834	202
Seal, Bruce	2825	202
Seale, Thomas	35	13
Seale, Thomas	695	51
Seale, Thomas	34	13
Seale, Thomas	2309	176
Seattle Structural Genomics Center for Infectious Disease	2748	197
Sebbane, Florent	1633	122
Sebert, Michael	276	25
Sedivy, Emma	258	23
Seekircher, Stephanie	1726	127
Seele, Jana	1682	125
Seeley, Renee	90	16
Sefers, Susan	1705	126
Sefers, Susan	1228	102
Segall-Shapiro, Thomas		81
Segato, Fernando	1488	113
Segner, Helmut	631	41
Segre, Julia	2651	190
Segre, Julia		85
Segre, Julia	774	54
Segre, Julie	1536	116
Segre, Julie	755	54
Segura, Francisco	987	64
Segura, Francisco	890	59
Segura Zumarraga, Francisco	1019	65
Sehulster, Lynne	1023	66
Seiber, Kathy	2046	141
Seiber, Kathy	2047	141
Seifert, Kyle	2151	169
Seiler, Peter	2687	195
Seipke, Ryan	2519	185
Sekar, Ramanan	2574	187
Seki, Masafumi	2874	204
Seki, Masafumi	1781	129
Sekiguchi, Junichi	1823	132
Sekiguchi, Yuji	1037	66
Selan, Laura	1983	138
Selbmann, Laura	261	24
Selvam, Kathiresan	873	59
Selvam, Kathiresan	1535	116
Selvaraju, Suresh	1203	101
Semenova, Ekaterina	3006	210
Semenova, Vera	2107	144
Semidei-Rodríguez, Valeria	1528	115
Semkiw, Elizabeth	2962	208
Semmelhack, Martin	287	25
Sen, Arnad	2096	143
Sen, Keya	2543	186
Senerchia, Justin	356	28
Senko, John		73
Senoh, Mitsutoshi	1733	127
Sensabaugh, George	1080	69
Seo, Dong-ho	1312	106
Seo, Keunseok	3051	212
Seo, Kun-Ho	1004	65
Seo, Woo-Duck	2701	195
Seo, Woo-Duck	2760	198
Seo, Yiel-Hea	2785	199
Seok, Yeong Jae	1347	108
Seper, Andrea	1108	98
Sepulveda, Juan	642	42
Serafini, Fausta	2826	202
Serapio-Palacios, Antonio	1147	99
Serfass, Debra	2772	198
Serfecz, Jackie	64	14
Sergian, Irina	656	49
Sergueev, Kirill	1677	124
Serichantalergs, Oralak	2759	198
Serrano, Adelfa	644	42
Serrano, Adelfa	643	42
Serrano Figueroa, Luis	404	30
Serrano-Carreón, Leobardo	1945	137
Serrano-Silva, Rene	2895	205
Servín, Luis Eduardo	503	34
Servinsky, Matthew	1951	137
Seshu, J	1664	124
Sestric, Ryan	2578	187
Seth, Erica	2433	181
Seth, Erica		148
Sethabutr, Orntipa	517	35
Sethi, Shneh	821	56
Sethia, Piyush	2918	206
Sethu, Paniappan	2179	171
Setlow, Peter	220	22
Setlow, Peter	226	22
Settem, Rajendra Prasad	2883	204
Setubal, Joao	2634	190
Setubal, Rafaela	147	19
Seung-Bum, Kim	3017	211
Seveau, Stephanie	191	21
Seveau, Stephanie	193	21
Severein, Ynske	2286	175
Severin, Geoffrey	2494	184
Severinov, Konstantin	3006	210
Severinov, Konstantin		149
Severo, Cecília	2353	178
Severo, Luiz	2353	178
Sevilla-Garcia, Ana Cristina	1949	137
Seymour, Joseph	1897	135
Seyrig, Gregoire	1200	101
Shackelford, Steven	2154	170
Shade, Ashley	1428	111
Shafer, Robert		93
Shafer, William	47	14
Shafikhani, Sasha	2840	203
Shah, Devendra	2541	186
Shah, Devendra	2739	197
Shah, Dimple	668	49
Shah, Jigna	2739	197
Shah, Jyotsna	1207	101
Shah, Manesh	318	27
Shah, Manesh	966	63
Shah, Megha	719	52
Shah, Nita	729	52
Shah, Nita	713	52
Shah, Sanjiv	1591	118
Shah, Vega	966	63
Shah, Zarna	101	16
Shahani, Lokesh	2990	209
Shahbazi, Aboghasem	377	29
Shaheen, Bashar	3151	216
Shahid, Sudipto	1692	125
Shahinas, Dea	1638	122
Shahini, Lorena	393	29
Shakir, Salika	692	51
Shakya, Akhalesh	2877	204
Shakya, Akhalesh	1636	122
Shakya, Migun	3016	211

Author	Poster Board	Session Number
Shakya, Migun	1027	66
Shakya, Migun	1386	109
Shakya, Shailesh	1636	122
Shallom, Shamira	2643	190
Shama, Suzanne	868	58
Shamoo, Yousif	1537	116
Shamoo, Yousif	2649	190
Shams, Alicia	1023	66
Shankar, Jata	1805	130
Shanker, Jaishri	1951	137
Shanks, Orin	3095	214
Shanks, Orin	1525	115
Shanks, Orin	3097	214
Shanks, Orin	3094	214
Shanks, Orin	3098	214
Shanks, Orin	2027	140
Shannon, Oonagh	2304	176
Shannon, Robert	3153	216
Shantappa, Sourabha	2524	185
Shanthalingam, Sudarvili	1619	119
Shao, Yi	294	25
Shao, Yi	291	25
Shao, Yi	328	27
Shao, Yongzhao		85
Shapiro, Daniel	1408	110
Shapiro, Daniel		150
Shapiro, Daniel		150
Shapiro, Lucy		5
Shapiyeva, Zhanna	3134	215
Shardell, Michelle	LB-05	233
Shariat, Nikki	2746	197
Sharkey, Michael	2516	185
Sharma, Adrian	2460	182
Sharma, Amit	174	20
Sharma, Ashu	2883	204
Sharma, Ashu	1663	124
Sharma, Cynthia	705	51
Sharma, Cynthia	214	22
Sharma, Deepak	2500	184
Sharma, Kulbhushan	548	37
Sharma, Shalabh	2940	207
Sharma-Kuinkel, Batu	32	13
Sharon, Itai		229
Sharon, Itai	943	63
Sharon, Itai	2943	207
Sharp, Josh	1840	133
Sharp, Susan	1245	103
Sharp, Susan		7
Sharp, Thomas	780	55
Sharpton, Thomas	2464	182
Sharpton, Thomas	1427	111
Shatheesh Kumar, Muthukannan	2435	181
Shatsky, Max	2949	207
Shatzkes, Kenneth	1109	98
Shaughnessy, Jutamas	823	56
Shaw, Monica	1331	107
Shawver, Alexis	524	36
She, Rosemary	1206	101
Shechter, Nelia		146
Sheetz, Michael	726	52
Sheikh, Bilal	2970	209
Sheldon, Megan	524	36
Shelerud, Jared	1594	118
Shelip, Alla	1276	104
Shelip, Alla	2890	204
Shelman, Diamond	2860	203
Shemesh, Ronen	2208	172
Shen, Ding-Xia	1230	102
Shen, Zhangqi	1623	119
Shen, Zhangqi	1607	119
Shen, Zhi	1411	110
Sheng, X	2260	174
Shenton, Dan	558	38
Sherchan, Samendra	2601	189
Sheridan, Peter	647	42
Sherman, David	1914	136
Sherman, David	2655	191
Sherman, Linda	1712	126
Sherman, Louis	1362	108
Sherratt, David	876	59
Sherwani, Sikander	14	12
Sherwood, Julie	2000	139
Sherwood, Julie	1989	139
Sherwood Lollar, Barbara	969B	63
Sheth, Mili	1553	116
Sheth, Vrunda	2101	143
Shewmaker, Patricia	2813	201
Shi, Aihua	48	14
Shi, C. L.	1011	65
Shi, C. L.	1012	65
Shi, C. L.	2722	196
Shi, Lei	1993	139
Shi, Lixin	460	33
Shi, Shengjing	946	63
Shi, Wenyuan	767	54
Shi, X. M.	1012	65
Shi, X. M.	1011	65
Shi, X. M.	2722	196
Shi, X. M.	1011	65
Shi, X. M.	1011	65
Shi, X. M.	1011	65
Shi, Yixin	2929	206
Shi, Zhou	405	30
Shi, Zhou	1448	111
Shi, Zhou	3080	213
Shi, Zhou	3080	213
Shibata, Mitsuru	1054	68
Shibata, Mitsuru	2666	191
Shibata, Mitsuru	2663	191
Shidell, Vicki	2081	142
Shieh, Y.	382	29
Shields, Malcolm	647	42
Shigeta, Ron	584	39
Shih, Chao-Jen Shih	898	60
Shih, Ming-Che	2232	172
Shih, Patric	1369	108
Shih, Tsung-Wei	1942	137
Shih, Yang-hsin Shih	420	31
Shikuma, Nicholas		225
Shimizu, Motoyuki	613	40
Shimizu, Sakayu	2561	187
Shimizu, Tetsu	2424	181
Shimohata, Takaaki	2420	180
Shimohata, Takaaki	70	15
Shimohata, Takaaki	2602	189
Shimoni, Eyal		146
Shimoyama, Y.	1543	116
Shimp, William	55	14
Shimura, Sadaaki	2023	140
Shin, Hyeon-Seok	363	28
Shin, Jeong-Hwan	1228	102
Shin, Jong	150	19
Shin, Jong Hee	1790	130
Shin, Jong Hee	17	12
Shin, Jong Hee	850	57
Shin, Myung Geun	850	57
Shin, Myung Geun	17	12
Shin, Myung-Kyo	352	28
Shin, Seung Chul	2648	190
Shin, Sung Jae	1063	68
Shin, Yong-Gil	887	59
Shin, Yu	604	40
Shingala, Bhavisha	668	49
Shinoda, Noriko	1565	117
Shinseki, June	475	33
Shiota, Sumiko	2160	170
Shippy, Daniel	693	51
Shirai, Akihiro	1102	97
Shirai, Makoto	1297	105
Shirai, Makoto	2366	179
Shirasu-Hiza, Mimi	1670	124
Shiroda, Megan	3062	212
Shiroguchi, Katsuyuki		81
Shirtliff, Mark	2831	202
Shirvan, Anat	2892	204
Shirvan, Anat	2208	172
Shishkova, Nina	1088	97
Shively, Dawn	1516	115
Shokar, Ajit	639	42
Shokar, Ajit	640	42
Shonnard, David	972	64
Shopsin, Bo	2983	209
Shortt, Claire	1124	98
Shortt, Claire	201	21
Shoyer, Brad	388	29
Shrestha, Bhola Ram	517	35
Shrestha, Gajendra	2144	169
Shrestha, Pravin	2489	183
Shrestha, Pravin	1814	131
Shrestha, Pravin Malla	1822	131
Shrestha, Sanjaya	517	35
Shtarkman, Yury	494	34
Shtarkman, Yury	500	34
Shu, Hung-Yu	1061	68
Shuey, Sunni	1249	103
Shukla, Deepti	LB-01	233
Shukla, Sanjay	1714	126
Shukla, Sanjay	627	41
Shukla, Sanket	2763	198
Shukla, Vibha	2877	204
Shulenin, Sergey	809	56
Shulenin, Sergey	818	56
Shulman, Robert	764	54
Shuman, Diana	523	36
Shuptar, Susan	174	20
Shutinoski, Bojan	1726	127
Shwed, Philip	1261	104
Siady, Spencer	1195	101
Sibley, Samuel	3115	214
Siddiqui, Jameel	2123	144
Siddiqui, Sonia	2298	176
Sidik, Saima	2904	205
Sidor, Inga	3102	214
Sidorenko, S.	1247	103
Sieber, Jessica	2441	181
Siefring, Shawn	1036	66
Siegele, Deborah	2632	190
Siegele, Deborah	2911	205
Siegele, Deborah		78
Siegl, Alexander	1815	131
Siering, Patricia	1403	110
Siering, Patricia	267	24
Siering, Patricia	896	60
Sifuentes, Laura	1506	114
Sigiliano, Lorena	1415	110
Sikorski, Mark	2280	175
Sil, Anita	1768	129
Silapong, Sasikorn	517	35
Silbart, Lawrence	861	58
Silbert, Suzane	1239	103
Silbert, Suzane	666	49
Silbert, Suzane	735	53
Silbert, Suzane	1183	100
Silbert, Suzane	2754	198
Siletzky, Robin	996	65
Silhavy, Thomas	933	62
Silhavy, Thomas	931	62
Silhavy, Thomas	1863	133
Siliciano, Robert	545	37
Silier, Thomas	1580	117
Silletti, Danielle	297	26
Silliker, Margaret	602	40
Siltberg-Liberles, Jessica	1310	106
Silva, Carlos	803	55
Silva, Cecilia	2747	197

Author	Poster Board	Session Number
Silva, Cecilia	2740	197
Silva, Christopher	615	41
Silva, Genivaldo	2101	143
Silva, Juliana	2380	179
Silva, Lucas	2175	170
Silva, Lucas	2757	198
Silva, Luciano	2380	179
Silva, Shalika	1313	106
Silva, Vânia	489	34
Silva, Walter	529	36
Silva, Zilma	1098	97
Silva-Del Toro, Stephanie	487	34
Silva-Herzog, Eugenia	2199	171
Silva-Ramírez, Beatriz	2667	191
Silva-Ramírez, Beatriz	1642	123
Silva-Villanueva, Laura Cecilia	1963	137
Silver, Pamela		163
Silverman, Andrea	1522	115
Silverman, Julie	2217	172
Silverman, Julie	2228	172
Sim, Minji	1851	133
Sim, Se-Hoon	1851	133
Simionato, Maria	2169	170
Simmon, Keith	2259	174
Simmon, Keith	1584	117
Simmon, Keith	172	20
Simmons, Blake	973	64
Simmons, Karen	339	27
Simmons, Lyle	2696	195
Simões, Jaqueline	2270	174
Simon, Benjamin	2334	177
Simon, Daniel	2145	169
Simon, Gary	1162	100
Simon, Holly	1433	111
Simon, Holly	1909	135
Simon, Meinhard	2438	181
Simon, Meinhard	285	25
Simon, Meinhard	2469	183
Simon, Meinhard	1409	110
Simon, Nathan	1699	125
Simon, Stephanie	1928	136
Simon, Thomas	2249	173
Simon, Thomas	262	24
Simone, Bailey	1387	109
Simonet, Michel	108	17
Simonet, Michel	1633	122
Simons, Matthew	356	28
Simons, Steven	1320	106
Simonsen, Lone		11
Simor, Andrew	668	49
Simpson, Alexandra	3058	212
Sims, Kenneth	3018	211
Sinclair, James	1159	99
Sinclair, James	1743	127
Sinclair, Ryan	2028	140
Sing, Andreas		86
Sing, Andreas		86
Singer, Andrew	3078	213
Singer, Andrew	2077	142
Singer, Mary	3089	213
Singer, Piet	2273	174
Singer, Piet	2286	175
Singer, Piet	1569	117
Singer, Steven	2897	205
Singer, Steven	358	28
Singer, Steven	1392	109
Singer, Steven	3085	213
Singer, Steven		224
Singer, Steven	971	64
Singh, Agam	1805	130
Singh, Ajay	2801	200
Singh, Anchal	886	59
Singh, Anup	1756	128
Singh, Anup	3091	213
Singh, Anup	502	34
Singh, Anup	2946	207
Singh, Arvind		219
Singh, J V	2801	200
Singh, Jaya	2446	181
Singh, Jitendra	566	38
Singh, K	2801	200
Singh, Kamlesh	2801	200
Singh, Kanwar	492	34
Singh, Mamtesh	438	32
Singh, Mastan	1224	102
Singh, Mastan	1209	102
Singh, Mastan	2801	200
Singh, Mini	2254	174
Singh, Mini	2118	144
Singh, Pallavi	1442	111
Singh, Pragya	1817	131
Singh, Pragya	1458	112
Singh, Pragya	992	64
Singh, Sarman	566	38
Singh, Shree	2691	195
Singh, Shree	535	36
Singh, Shree	538	36
Singh, Shree	814	56
Singh, Shree	2149	169
Singh, Shree	534	36
Singh, Shree	2375	179
Singh, Shree	835	56
Singh, Shree	834	56
Singh, Shweta	2996	210
Singh, Sikha	3141	215
Singh, Upinder		93
Singh, Vineet	886	59
Singh, Vineet	871	59
Singhal, Krish	886	59
Sinha, Ruchi	1207	101
Sinnott, John	1588	118
Sinsheimer, Robert	55	14
Sintchenko, Vitali	3136	215
Sionov, Edward	855	57
Siqueira, Itacy	1235	103
Siqueiros Cendón, Tania	1055	68
Siquieros-Cendon, Tania	530	36
Siragusa, Gregory	1929	136
Siraj, Hawa	2323	177
Sircili, Marcelo	1675	124
Siriani, Luciana	2169	170
Siripala, Anosha	2850	203
Sirisopana, Narongrit	1597	118
Sironi, Maria	148	19
Sirsat, Sujata		73
Sirsat, Sujata	372	29
Sitepu, Irnayuli	362	28
Sitepu, Irnayuli	3021	211
Sitepu, Irnayuli	2578	187
Sitter, Denise	106	17
Sivaganesan, Mano	3098	214
Sivaganesan, Mano	3097	214
Sivaganesan, Mano	2027	140
Sivapragasam, Smitha	873	59
Sivok, Emily	1888	135
Six, Johan	998	65
Sixt, Barbara	1815	131
Skaar, Eric	688	50
Skaer, Haley	2521	185
Skala, Josie	3156	216
Skare, Jonathan	1750	128
Skehan, Brian	2835	202
Skerrett, Shawn	2868	204
Skerry, Ciaran	2672	191
Skidmore, Mark	1897	135
Skinner, Julie	569	38
Skonieczny, Pat	2993	209
Skov, Marianne	2985	209
Skov, Marianne	1168	100
Skov, Marianne	2640	190
Skov Jensen, Jørgen	2283	175
Skowronski, Evan	2106	143
Skowronski, Evan	2450	182
Skrobot, Frederick 'Trey'	1042	67
Skurnik, David	2336	177
Skurnik, David		225
Slater, Greg	969B	63
Slater, Madeline	LB-09	233
Slauch, James	187	21
Slauch, James	1674	124
Slauch, James	198	21
Slechta, E	1584	117
Slechta, E	1212	102
Slechta, Susan	1195	101
Sleiman, Fawwak	652	49
Slepnev, Vladimir	1169	100
Slezak, Thomas	525	36
Slezak, Tom	515	35
Slinger, Robert	2800	200
Slonczewski, Joan	918	62
Slonczewski, Joan	1839	133
Slots, Jorgan	511	35
Sloup, Rudolph	2723	196
Small, Sandra	1119	98
Smalla, Kornelia		168
Smartt, Abby	2543	186
Smartt, Abby	332	27
Smayevsky, Jorgelina	2770	198
Smiddy, Robert	2213	172
Smidt, Hauke	485	34
Smieja, Marek	2795	200
Smieja, Marek	2289	175
Smit, Maria	1909	135
Smith, Alexandra	2052	141
Smith, Alexandra	636	41
Smith, Amanda	3110	214
Smith, Amanda	2556	186
Smith, Andrew	768	54
Smith, C	40	13
Smith, Caitlin	1339	107
Smith, Charles	1855	133
Smith, Conor	1479	113
Smith, Daniel	1870	134
Smith, Douglas	2045	141
Smith, Douglas	3090	213
Smith, Geoffrey		3
Smith, Geoffrey	2461	182
Smith, Grover	747	53
Smith, Grover		96
Smith, Jenee	2741	197
Smith, Jennifer	1803	130
Smith, Jessica	1822	131
Smith, Jessica	2457	182
Smith, Jessica	1395	109
Smith, Jessica	1487	113
Smith, Katie	1625	119
Smith, Kyle	3130	215
Smith, Leif	2511	185
Smith, Leif	2695	195
Smith, Marie	2242	173
Smith, Mark	1145	99
Smith, Mark	1153	99
Smith, Monica	1651	123
Smith, Richard	2628	190
Smith, Richard	1557	116
Smith, Richard	1388	109
Smith, Richard	333	27
Smith, Ron	2058	141
Smith, Sara	824	56
Smith, Sharon	830	56
Smith, Stephanie	397	30
Smith, Steven	1852	133
Smith, Tara	3123	215
Smith, Tara		82
Smith, Tara		82

Author	Poster Board	Session Number
Smith, Wendy	2352	178
Smithers, Hannah	1764	129
Smoot, J.	2504	184
Smurthwaite, Cameron	522	36
Smyth, Davida	2983	209
Smyth, Katie	2417	180
Snabes, Christopher	2531	186
Sneddon, Michael	238	23
Snekvik, Kevin	3024	211
Sng, Li Hwei	1573	117
Snitkin, Evan	1536	116
Snitkin, Evan	2651	190
Snow, Daniel	1046	67
Snow, Daniel	312	27
Snyder, Anna		156
Snyder, James	156	19
Snyder, Kelly	2132	169
Snydman, David	571	38
So, Jannice		227
So, Magdalene	2314	176
So, Megan	1869	134
Soares, Angelica	1415	110
Sobecky, Patricia	954	63
Söbirk, Sara	2304	176
Sobolev, Dmitri	3083	213
Sobolev, Dmitri	1900	135
Sobral, Bruno	2731	197
Sobral, Bruno	2729	197
Sobral, Bruno	2730	197
Sobsey, Mark	2018	140
Sobsey, Mark	2031	141
Sobsey, Mark	2603	189
Sobsey, Mark	2604	189
Sobsey, Mark	2032	141
Socha, Amanda		149
Sodergren, Erica	2203	171
Soderland, Carol A.	969	63
Soderlund, Carol	1918	136
Soderlund, Carol A.	967	63
Soendjojo, David	1369	108
Soewarna, Victoria	524	36
Sofu, Aytul	1977	138
Sogin, Mitchel	765	54
Soh, Byoung Yul	471	33
Sohail, Hira	456	33
Sohn, Min-Ji	403	30
Sokurenko, Evgeni	1551	116
Sokurenko, Evgeni	2777	198
Sokurenko, Evgeni	2734	197
Sokurenko, Evgeni	2636	190
Sokurenko, Evgeni	1547	116
Sokurenko, Evgeni	1540	116
Soler-García, Ángel	2549	186
Solis, Francisco	1299	105
Solis, Francisco	610	40
Solnick, Jay	2823	202
Solnick, Jay	1746	127
Solomon, Wesley	2108	144
Solomon, Wesley	1637	122
Solomonia, Revaz	1148	99
Soltis, S. Michael	2429	181
Somary, Nhem	2810	201
Somervuo, Panu	3040	212
Sommer, Morten	1103	97
Somogyi, Arpad	1237	103
Son, Insook	1998	139
Son, Insook	2540	186
Son, Jee-Soo	706	51
Son, Minjun		160
Sonbol, Hana	1007	65
Sondhi, Kriti	1369	108
Song, Bongkeun	1380	109
Song, Bongkeun	3120	214
Song, Bongkeun	1389	109
Song, Bongkeun	1388	109
Song, Daesub	528	36
Song, Daesub	527	36
Song, Daesub	526	36
Song, Eun-Jung	527	36
Song, Eun-Jung	528	36
Song, Eun-Jung	526	36
Song, Fuli	2699	195
Song, Jaekyeong	1492	113
Song, Ji-Hoon	207	21
Song, Keang	1140	99
Song, Kwang-Young	1004	65
Song, Saemee	917	62
Song, Simon	255	23
Song, Yongcheng	2682	195
Song, Yuanlin	759	54
Song, Yuanlin	1727	127
Sonnenburg, Justin		77
Sonnleitner, Maria	894	60
Sonstegard, Tad	2086	143
Sonstegard, Tad	2933	207
Sontakke, Amrita		157
Sood, Seema	2765	198
Sooudipour, Farzaneh	129	18
Sordillo, Emilia	2274	174
Sorek, Rotem		229
Sorensen, Darwin	419	31
Sørensen, Søren	2157	170
Sørensen, Søren	2282	175
Sorenson, Leif	1080	69
Soriano, A	2021	140
Sornsakrin, Siriporn	1597	118
Soros, Ampai	2603	189
Sosa, Cesar	2581	188
Sosa, Oscar	2209	172
Soto, C	2690	195
Soto, Carlos	2654	191
Soto-Beltran, Marcela	2028	140
Soto-Beltran, Marcela	1008	65
Soto-Castro, Liliana	3052	212
Sotos, Joshua	1197	101
Sousa, Mireille	2380	179
Southern, Timothy	2113	144
Southern, Timothy	2822	202
Souza, Claudiana	1400	110
Souza, Claudiana	1416	110
Souza, Cristiane	684	50
Souza, Renata	1454	112
Souza, Renata	829	56
Souza, Roberto	1287	105
Spacht, Drew	1423	110
Spain, Jim	425	31
Spain, Jim	1497	113
Spangler, Jessica	2101	143
Spangler, Jessica	3025	211
Spaulding, Adam	1151	99
Spaulding, Susan	966	63
Spearman, Paul		230
Spears, Patricia	72	15
Specter, Steven		46
Speer, Alexander	1561	117
Spence, Cheryl	1431	111
Spencer, Juliet	510	35
Sperandio, Vanessa	1675	124
Sperandio, Vanessa		160
Speser, Sharon	90	16
Spiga, Luisella	728	52
Spigener, Todd	1659	124
Spina, Catherine	2685	195
Spinler, Jennifer		157
Spinola, Stanley	1771	129
Spinola, Stanley	1742	127
Spiropoulou, Christina		158
Spivey, Angela		147
Spoljaric, Ashley	1516	115
Spontak, Jeff	1464	112
Spormann, Alfred	1392	109
Spormann, Alfred	407	31
Spormann, Alfred	3085	213
Sprenger, Hanna	2302	176
Springer, Aaron	1298	105
Springer, Steven	1253	103
Springman, Amber	2975	209
Spring-Pearson, Senanu	2196	171
Spurbeck, Rachel	52	14
Spurr-Michaud, Sandra	182	21
Squassina, Alice	748	53
Squibbs, Jenny	558	38
Sreedharan, Sunil	2150	169
Sreenivasa, MY	1296	105
Sreevatsan, Srinand	2675	191
Sridharan, Vinidhra	2293	175
Srikumar, R.	2364	178
Srikumaran, Subramaniam	1619	119
Srinivas, Swaminath	354	28
Srinivasa, Vani		85
Srinivasan, Anand	1640	122
Srinivasan, Sathiyaraj	417	31
Srinivasan, Sujatha	2317	176
Srinivasan, Sujatha	2631	190
Srinivasan, Sujatha	773	54
Srinivasan, Usha	2122	144
Srinivasen, Ramya	2638	190
Srivastava, Shalini	LB-01	233
St. Clair, Larry	2144	169
St. Louis, Derek	331	27
St.Clair, Kristina	653	49
St.George, Kirsten	2791	200
Staab, Janet	563	38
Stabb, Eric	2483	183
Stackhouse, Brandon	944	63
Stackhouse, Brendon	340	27
Stacy, Alyssa	81	15
Stacy, Robin	2748	197
Stafford, Graham	2883	204
Staggs, Sarah	2020	140
Stahl, Buffy		229
Stahl, Buffy	1539	116
Stahl, Buffy	2052	141
Stahl, David	2409	180
Stahl, David	2443	181
Stahl, David	2949	207
Stahl, David	452	32
Stahl, David		221
Stahl, Michelle	356	28
Staley, Zachery	1533	115
Stamper, Paul	90	16
Stamper, Paul	1250	103
Stamper, Paul	1237	103
Stamper, Paul	2235	173
Stamper, Paul	749	53
Stampfl, Melinda	105	17
Standon, Brittany	2234	173
Standridge, Douglas	1253	103
Stanikzai, Nasir	2799	200
Stanker, Larry	579	38
Stanley, Mark	2239	173
Stanton, Brielle	2772	198
Stanton, Thad	3147	216
Stanton, Thad	3143	216
Stanton, Thad	2462	182
Stanton, Thaddeus	1930	136
Stanton, Thaddeus	3150	216
Stapleton, Melanie	2653	191
Starke, Carly	1872	134
Starkey, Colleen	2280	175
Starks, Angela	1198	101
Starr, Gregory	954	63
Stasiewicz, Matthew	379	29
Stasko, Judith	2830	202
Staubli, Titu		71

Author	Poster Board	Session Number
Steckelberg, James	138	18
Stedtfeld, Robert	1200	101
Steed, Lisa	1172	100
Steele, Joshua		152
Steele, Joshua	944	63
Steele, Roger	533	36
Stefanova, Rossina	1992	139
Stehling, Eliana	1045	67
Steidley, Brandi	1434	111
Stein, Daniel	2328	177
Steinberg, Alfred	2521	185
Steinbrecher, Kris	1780	129
Steinmann, Rebekka	1111	98
Steinmetz, Heather	2278	174
Steitz, Joan		74
Stella, Stefano		146
Stellbrink, Hans-Juergen	661	49
Stelling, John		223
Stelma, Gerard	2006	140
Stemper, Mary	1714	126
Stemper, Mary	626	41
Stemper, Mary	627	41
Stemper, Mary	2792	200
Stenkamp, Ronald	2227	172
Stensland, Wendy	624	41
Stenström, Thor Axel	2032	141
Stenuit, Ben	413	31
Stenzel, Timothy	2255	174
Stepanauskas, Ramunas		4
Stephan, Roger	3040	212
Stephan, Roger	53	14
Sterba-Boatwright, Blair	3110	214
Sterzenbach, Torsten	1735	127
Steudler, Paul	1436	111
Steven, Blaire	961	63
Stevens, Harold	2975	209
Stevens, Niall	2166	170
Stevens, Timothy	731	53
Stevenson, Timothy	3034	211
Stewart, Jill	1596	118
Stewart, Jill	2619	189
Stewart, Jill	1035	66
Stewart, Kerry-Ann	226	22
Stewart, Lance	2748	197
Stewart, Philip	939	62
Steyert, Susan	2736	197
Stibitz, Scott	879	59
Stibitz, Scott	2297	176
Stiefel, Usha	2972	209
Stiles, Jeffrey	174	20
Stiles, Jonathan	2108	144
Stiles, Jonathan	1637	122
Stilwell, Matthew	131	18
Stilwell, Matthew	117	18
Stingemore, Neil	1189	100
Stipanovic, Arthur	980	64
Stock, Frida	2981	209
Stock, Patricia	1330	107
Stocker, Lenea	2328	177
Stockman, C	2260	174
Stoddard, Robyn	3145	216
Stol, Kim	1763	129
Stolz, John	1375	109
Stopford, C	2221	172
Stopford, Charles	1693	125
Storch, Gregory	2256	174
Stougaard, Peter	1466	112
Stout, Janet	2611	189
Strain, Anna	847	57
Strain, E.	3038	212
Strain, Errol	3042	212
Strain, Errol	3049	212
Strain, Errol	2639	190
Strait, Erin	624	41
Strand, Stephanie	1260	104
Strand, Stuart	452	32
Strap, Janice	456	33
Strassmann, Joan		148
Stratton, Charles	1720	126
Stratton, Charles	1228	102
Strauss, William	2720	196
Strawn, Laura	3053	212
Strengert, Monika	780	55
Strepparava, Nicole	631	41
Strepparava, Nicole	851	57
Strietelmeier, Betty	2461	182
Stroehle, Angelika	2245	173
Stroia, Olivia		73
Stroika, Steven	1077	69
Stroke, Ilana	257	23
Strom, Mark	2190	171
Stronck, David	594	39
Stroup, Gregory	565	38
Stroup, Gregory	2247	173
Strozen, Timothy	1694	125
Struewing, Ian	1437	111
Struewing, Ian	2119	144
Strugatsky, David	2429	181
Strum, John	778	54
Strunk, Niko	1475	113
Struve, Isabelle	3026	211
Strycharz-Glaven, Sarah	2565	187
Stuart, James	2234	173
Stuart, Jamie		76
Stuart, Joshua	401	30
Stuart, Melissa	877	59
Stuckey, Ryan	1089	97
Stuecker, Tara	2428	181
Stukes, Sabriya	1804	130
Stukey, Joseph	297	26
Stull, Terrence	2309	176
Stull, Terrence	34	13
Stull, Terrence	695	51
Stull, Terrence	35	13
Stull-Lane, Annica	LB-07	233
Stumpf, Curtis	2530	186
Sturey, Courtney	718	52
Sturm, Pamela	94	16
Styer, Cathy	2823	202
Stylianou, Marios	2213	172
Su, Bixia	2524	185
Su, Jing	1112	98
Su, Shengchang	2376	179
Su, Xia	1620	119
Su, Xiaowei	2527	186
Su, Xiaowei	1966	138
Su, Yongxuan	2525	185
Suarez Herrera, Martha A.	1829	132
Suba, Justine	451	32
Subashchandrabose, Sargurunathan		225
Subbarayan, Praseetha	535	36
Subhraveti, Pallavi	2627	190
Subramaniam, Renuka	1619	119
Subramanian, Mani	2120	144
Subtil, Agathe		71
Suburayan, Praseetha	1738	127
Sucgang, Richard	2103	143
Suda, Hiroshi	2989	209
Suda, Yasuo	2488	183
Sudhakar, Padhmanand	2699	195
Suebwongsa, Namfon	224	22
Sugimura, Yuya	634	41
Sugio, Tsuyoshi	478	33
Sugita, Tomoya	2833	202
Sugiura, Tetsuro	730	52
Sugiyama, Hiroyuki	1149	99
Suh, Sang-jin	1938	137
Suh, Soon	150	19
Suh, Soon Pal	850	57
Suh, Soon Pal	17	12
Suh, Yae-Seul	920	62
Sui, H	622	41
Sui, Xiaolin	2439	181
Sullivan, Aaron	1259	104
Sullivan, Matthew		224
Sullivan, Nadine	1197	101
Sultan, Omar	1462	112
Sultana, Munawar	637	41
Summage West, Christine	649	49
Summerfelt, Steven	3024	211
Summers, Michael	1302	106
Summers, Michael	521	36
Summers, Michael	1304	106
Summers, Michael	1309	106
Summers, Michael	1305	106
Summers, William		120
Summers, Zarath	1379	109
Sumner, Jeff	2289	175
Sun, Christine	1539	116
Sun, Christine		229
Sun, Christine		149
Sun, Christine	966	63
Sun, Deborah	2265	174
Sun, Fei	1109	98
Sun, Jessica	1750	128
Sun, Ming	231	22
Sun, S	2498	184
Sun, Shulei	2637	190
Sun, Wayne	913	61
Sun, Wei	51	14
Sun, Yan	382	29
Sun, Yan	1796	130
Sun, Yan	1798	130
Sun, Yanni	2507	184
Sun, Yanni	2626	190
Sun, Yvonne	59	14
Sun, Yvonne	49	14
Sun, Zhenxin	1263	104
Sun, Zhenxin	671	50
Sunakawa, Keisuke	560	38
Sund, Christian	1951	137
Sundareshan, Vidya	2973	209
Sung, Chang-Hyeon	1004	65
Sung, Joohon	763	54
Sung, Kidon	203	21
Sung, Kidon	1089	97
Sung, Kidon	1744	127
Sung Jae, Shin	2676	191
Sunghee, Lee	761	54
Suo, Zhiyong	75	15
Suresh, Anil	979	64
Surivet, Jean-Philippe	2687	195
Susa, Nobuyuki	1149	99
Susanti, Dwi	899	60
Suslow, Trevor	998	65
Suslow, Trevor	2475	183
Sutherland, John	1495	113
Sutrina, Sarah	919	62
Suttle, Curtis		162
Suttle, Curtis		162
Sutton, Deanna	2093	143
Sutton, Mark	679	50
Suzuki, Makoto	1554	116
Suzuki, Makoto	651	49
Suzuki, Yukiko	516	35
Suzuki, Yutaka	1548	116
Svensson, Lisbeth	2301	176
Svetoch, Edward	1088	97
Svetoch, Edward	648	49
Svitana, Kevin	2080	142
Svoboda, Pavel	2107	144
Swain, Rick	682	50
Swanson, Juliet	339	27
Swanson, Laura	1319	106
Swanson, Michele	2194	171

Author	Poster Board	Session Number
Swarbreck, Stephanie		220
Swartwood, Claire	2977	209
Sweeney, Emily	260	23
Sweeney, Nathan	2653	191
Sweeney, Scott	260	23
Swenson, Gabriel	2919	206
Swick, Michelle	2103	143
Swiecicka, Izabela	3045	212
Swift, Dean	2702	195
Swimley, Michelle	1462	112
Swimley, Michelle	2539	186
Swingley, Wesley	1555	116
Swingley, Wesley	1549	116
Switt, Andrea	1873	134
Switzer, Alexandra		230
Swords, W. Edward	2715	196
Sycuro, Laura	2317	176
Sydnor, Emily	2349	178
Syed, Haseeba	2522	185
Syed, Zeyad	2673	191
Sylvestre, Michel	1958	137
Symayyah, M	2163	170
Symington, Janey	2313	176
Symonds, J.	1066	69
Symonds, Jimmy	2538	186
Symonds, Jimmy	1473	112
Synold, Tim	1632	122
Syring, Michael	886	59
Systems Virology Center	2628	190
Syu, Wan-Jr	913	61
Szakal, Evelin	2949	207
Szakal, Evelin	2948	207
Szeinbaum, Nadia	1377	109
Sztein, Marcelo	1257	104
Szulborski, Kasia	2772	198
Szymanski, Christine		225
Szymczak, Wendy	1793	130

T

Author	Poster Board	Session Number
Tabakh, Hannah	2912	205
Tabata, Homare	1710	126
Tabe, Ebot	641	42
Tabita, Fred	2446	181
Taboada, Eduardo	2009	140
Taborda, Laura	642	42
Tachon, Sybille	1973	138
Tadepalli, Shravani	1978	138
Tadesse, Daniel	1072	69
Tae-Woon, Kim	3017	211
Tafe, Laura	2278	174
Taga, Michi		148
Taga, Michi	2433	181
Taggart, Bill	1206	101
Taha, Muhamed-Kheir	720	52
Taha, Murtada	814	56
Taj, Aneela	2298	176
Taj, Yasmin	1188	100
Takahashi, Akira	2420	180
Takahashi, Akira	70	15
Takahashi, Akira	2602	189
Takahashi, K	789	55
Takahashi, Kaori	1731	127
Takahashi, Kaori	2818	202
Takahashi, Masatoshi	2366	179
Takahashi, Reiji	1410	110
Takahashi, Yasunori	1476	113
Takai, Ken	950	63
Takamatsu, Daisuke	634	41
Takamatsu, Daisuke	1255	103
Takanezawa, Akira	1297	105
Takanezawa, Akira	2366	179
Takawira, Desire	796	55
Takaya, Naoki	613	40
Takeda, Yoshifumi	1733	127
Takeuchi, Fumiaki	478	33
Takeuchi, Hiroaki	730	52
Takeuchi, Rikiya		78
Takeyama, Haruko	2195	171
Takhar, Herlinder	78	15
Taku, Nyiawung	2314	176
Talaat, Adel	2652	191
Talamantes, Marissa	1113	98
Talay, Susanne	82	15
Talbot, Andrea	1948	137
Talbott, Jayme	1172	100
Talbott, Jayme	2235	173
Talbott, Jayme	749	53
Taliana, A	2945	207
Talibzade, Ayden	3137	215
Talkington, Deborah	1592	118
Tall, B	2089	143
Tall, B	3061	212
Tall, Ben	389	29
Tall, Ben	2714	196
Tall, Ben	22	13
Tall, Ben	3065	212
Tall, Ben	390	29
Tall, Ben	3054	212
Tallon, Luke		157
Talreja, Deepa	2893	204
Talukdar, P	2163	170
Tam, Connie	1766	129
Tam, Connie	1259	104
Tamai, Kiyoko	665	49
Tamaki, Yoshikazu	1238	103
Tamang, David		231
Tamayo, Giselle	1914	136
Tamayo, Rita		226
Tamborero, Silvia	723	52
Tambosco, Jennifer	2039	141
Tamerius, John	2275	174
Tamilselvam, Batcha	1685	125
Tamilselvam, Batcha	200	21
Tamura, Noriko	2393	179
Tamura, Tomohiro	2393	179
Tan, Grace	1223	102
Tan, Kennard	1250	103
Tan, Kennard	1237	103
Tan, Patrick		219
Tan, Wenzhi	699	51
Tan, Wenzhi	676	50
Tan, Zheng Huan	312	27
Tanaka, Akitaka	1781	129
Tanaka, C	899	60
Tanaka, Masayoshi		71
Tanaka, Masayoshi	2575	187
Tanaka, Ryuichiro	2318	176
Tanaka, Tsuyoshi		71
Tanaka, Tsuyoshi	2575	187
Tanasupawat, Somboon	2571	187
Tang, Hailin	1105	97
Tang, Jinyun	1381	109
Tang, Juliet	2933	207
Tang, Laura	968	63
Tang, Ming-Jer	2859	203
Tang, P	2945	207
Tang, Silin	379	29
Tang, Silin	3044	212
Tang, Silin	3043	212
Tang, Swee-Seong	1131	98
Tang, Winnie	1933	136
Tang, Yi	174	20
Tang, Yi	1705	126
Tang, Yi-Wei	1720	126
Tang, Yi-Wei	1228	102
Tang, Yinjie	1355	108
Tang, Yinjie	2432	181
Tang, Yinjie	2558	187
Tang, Yiwei	105	17
Tang Feldman, Yajarayma	512	35
Tani, Katsuji	461	33
Taniguchi, Hatsumi	2663	191
Tanitovsky, V.	3135	215
Tankersley, Amy	1272	104
Tankouo-Sandjong, Bertrand	2768	198
Tanner, Ralph	984	64
Tao, Jing	2916	205
Tapia, Jazma	2337	177
Tarantal, Alice	2325	177
Tarasova, Yekaterina	1557	116
Taratov, Ivan	1145	99
Tardif, Keith	2259	174
Tardin, Catherine	872	59
Tarjan, Dan	3089	213
Tarleton, Sandy	101	16
Tarlton, John	1003	65
Tarlton, Nicole	2876	204
Tarlton, Nicole	2115	144
Tarnowski, Mitch	1038	67
Tarr, Cheryl	2205	171
Tarr, Phil		194
Tarr, Phillip	2975	209
Tarrand, Jeffrey	2785	199
Tarrien, Rebecca	52	14
Tartera, Carmen	2306	176
Tarwater, Patrick	1008	65
Tas, Neslihan	327	27
Tasara, Taurai	3040	212
Tashiro, Takayoshi	1781	129
Tashiro, Yosuke	903	61
Tatavarthy, Aparna	1713	126
Tatavarthy, Aparna	2773	198
Tate, Heather	386	29
Tate, Robert	1435	111
Tateda, Kazuhiro	2980	209
Tateishi, Yoshitaka	2182	171
Taton, A.	2945	207
Tattersall, Jeremiah	1316	106
Taubenberger, Jeffery	808	56
Tavakkoli, Alireza	1900	135
Tavares, Fernando	2096	143
Tavares, Milene	829	56
Tavarez, Milene	1454	112
Taverniti, Valentini	2826	202
Taviani, Elisa	1038	67
Tayabali, Azam	2342	177
Taylor, Cullen	663	49
Taylor, Huw	3117	214
Taylor, James	1388	109
Taylor, John	842	57
Taylor, Lacey	2113	144
Taylor, Lacey	2822	202
Taylor, Michael	2164	170
Taylor, S	2173	170
Taylor, Sidney	813	56
Tchatalbachev, Svetlin	821	56
Tchesnokova, Veronika	1547	116
Tchesnokova, Veronika	2777	198
Tchigvintsev, Anatoli	1469	112
Teal, Tracy	2502	184
Tebo, Bradley	1376	109
Tecon, Robin	243	23
Teel, Louise	1159	99
Teeling, Hanno	1424	110
Teixeira, Bruno	209	21
Teixeira, Fabiana	1566	117
Teixeira, Nathalia	2757	198
Tejkowski, Thiago	635	41
Tekle, Tsigereda	130	18
Telang, Nilima	2971	209
Téllez-Espino, Edgar	1952	137
Téllez-Pérez, Ana	183	21
Tellier, Lauren	733	53
Tellier, Lauren	734	53
Tello, Carlos	1051	68

Author	Poster Board	Session Number
Temesvari, Lesly	LB-04	233
Temperton, Ben	1870	134
Temple, Louise	1872	134
ten Broeke-Smits, Nicole	1270	104
Tenaillon, Olivier	1546	116
Tender, Leonard	2565	187
Tenor, Jennifer	839	57
Tenover, Fred		223
Teoh, Wei Ping	1117	98
Tepp, William	2214	172
Teppen, Brian	2451	182
Terebeznik, Mauricio		227
Terhorst, Samantha	1607	119
Terhune, Jeffery	1621	119
Terhune, Jeffery	2086	143
Tesic, Vera	1251	103
Teter, Ken	2851	203
Tettelin, Herve		157
Teymouri, Arin	2673	191
Tfaily, Malak	326	27
Thaipadungpanit, Janjira	3145	216
Thaitrong, Numrin	889	59
Thajuddin, Nooruddin	2435	181
Thalmann, M.	1717	126
Thangamani, Saravanan	209	21
Thapa, BR	2118	144
Thatcher, Stephanie	1239	103
Thatcher, Travis		76
Thau, Eve	381	29
Theel, Elitza	1218	102
Theis, Kevin		164
Theis, Kevin		164
Thekkiniath, Jose	880	59
Theriot, Casey	2888	204
Theriot, Julie	1824	132
Therrien, Roseline	1175	100
Therrien, Roseline	2252	173
Thiagarajan, Mathangi		85
Thiennimitr, Parameth	1735	127
Thigarajan, Magesh	2917	206
Thissen, James		73
Thissen, James	515	35
Thiyagarajan, Magesh	383	29
Thoman, Marilyn	2324	177
Thomas, Brian	1758	128
Thomas, Brian	943	63
Thomas, Brian	966	63
Thomas, Brian	2943	207
Thomas, Brian		149
Thomas, Brian	775	54
Thomas, Brian		229
Thomas, Brian	2495	184
Thomas, Brian	1927	136
Thomas, Brian	1883	134
Thomas, Brian	960	63
Thomas, Carissa	2844	203
Thomas, Clayton	1698	125
Thomas, Ivor	1167	100
Thomas, Jeffrey	2836	202
Thomas, Jesse	1895	135
Thomas, John	752	53
Thomas, John	578	38
Thomas, Naam	919	62
Thomas, Paul	2632	190
Thomas, Wendy		76
Thompson, Andrew	2025	140
Thompson, Charles	2334	177
Thompson, Courtney	2592	188
Thompson, Cristiane	2101	143
Thompson, Cristiane	1894	135
Thompson, Elizabeth	2093	143
Thompson, Fabiano	2101	143
Thompson, Fabiano	1904	135
Thompson, Fabiano	1894	135
Thompson, Hayley	3032	211
Thompson, Jennifer		85
Thompson, Lisa	1180	100
Thompson, Melene	1319	106
Thompson, Rachel	2334	177
Thomsen, Kim	2837	202
Thomsen, Kim	1262	104
Thomsen, Line	2419	180
Thomsen, Sarah	3119	214
Thomson, Joshua	694	51
Thomson, Kenneth	155	19
Thomson, Kenneth	149	19
Thomson, Kenneth	156	19
Thomson, Richard	741	53
Thomson, Richard	1163	100
Thongaram, Taksawan	1979	138
Thorkildson, Peter	576	38
Thornton, Justin	722	52
Thornton, Peter	1386	109
Thrash, Cameron	1870	134
Thrash, Cameron	2092	143
Thulsiraj, Vanessa	3116	214
Tian, Yun	1898	135
Tibbetts, Robert	1226	102
Tibbetts, Robert	133	18
Tice, H	2096	143
Tiedje, James		229
Tiedje, James	331	27
Tiedje, James	3092	213
Tiedje, James	330	27
Tiedje, James	772	54
Tiedje, James	2586	188
Tiedje, James	2458	182
Tiedje, James	2507	184
Tiedje, James	955	63
Tiedje, James	1446	111
Tiedje, James	2451	182
Tiedje, James	2075	142
Tiedje, James	3067	213
Tiedje, James	2626	190
Tiedje, James	765	54
Tieku, Prince	696	51
Tiensuu, Teresa		219
Tighe, Damon		151
Tikhonov, Anton	3006	210
Tilak, Justin	1090	97
Timberlake, Sonia	2105	143
Timberlake, Sonia	1538	116
Timke, Markus	1190	101
Tinoco-Quintero, Aketzali	1962	137
Tipton, Peter	2719	196
Tiquia, Sonia	948	63
Tiquia, Sonia	316	27
Tirado, Grissell	546	37
Tirrell, David	3082	213
Tirrell, David		72
Tiru, Vaidehi	2762	198
Tisa, Louis	1483	113
Tisa, Louis	2096	143
Tischler, Dirk	1467	112
Tischler, Monica	663	49
Tiwari, Pooja	2149	169
Tiwari, Pooja	538	36
Tiwari, Pooja	534	36
Tiwari, Sangeeta	2658	191
Tiwari, Tejpratap	2783	199
Tiwary, Bhupendra	1805	130
Tjaden, Brian	1317	106
Tjokro, Natalia	39	13
Tobar, Hugo	2743	197
Tobar, Hugo	2727	197
Tobe, Toru	1548	116
Tobias, Craig	1380	109
Tobias, Craig	1389	109
Tobias, Craig	1388	109
Todd, Jennifer	2153	169
Todd, William	3131	215
Toesca, Isabelle	1668	124
Toffaletti, Dena	846	57
Tokajian, Sima Toros	2778	199
Tokumoto, Naoki	2561	187
Tokutake, Yuka	2427	181
Tokutake, Yuka	2426	181
Tolar, Bradley	1479	113
Toleno, Donna	1228	102
Toll, P.	1023	66
Tolosa, Maria	2381	179
Tolstikov, Vladimir	1735	127
Tom, Lauren	1926	136
Tom, Lauren	1925	136
Tom, Lauren	1432	111
Tom, Lauren	1399	110
Tomalka, Amanda	2221	172
Tomalka, Amanda	1693	125
Toman, Carol	2937	207
Tomasch, Jürgen	285	25
Tomasino, Stephen	477	33
Tomida, Shuta	2203	171
Tominaga, Kiyoshi	634	41
Tomljenovic-Berube, Ana	677	50
Tomono, Kazunori	2874	204
Tomsho, John	2681	195
Ton, Vivian	688	50
Tondella, M Lucia	570	38
Tondella, Maria	LB-03	233
Tondella, Maria	2783	199
Tong, Emily	1999	139
Tong, Amy	1452	111
Tong, Emily	2535	186
Tong, Tiezheng	1886	135
Top, Janetta	1545	116
Topp, Justin	1076	69
Topp, Justin	1075	69
Torabian, Kian	1833	132
Toranzos, Gary	2029	141
Toranzos, Gary	2624	189
Torgomyan, Heghine	1841	133
Torgomyan, Heghine	1842	133
Torkelson, Andrew	2600	189
Torn, Margaret	327	27
Torok, Tamas	319	27
Torok, Tamas	3089	213
Torok, Tamas	LB-02	233
Torok, Tamas	400	30
Torok, Tamas	964	63
Torralba, Manolito		85
Torres, Alfredo	684	50
Torres, Cesar		152
Torres, César	2564	187
Torres, Elizabeth	642	42
Torres, Juan	984	64
Torres, Victor	1672	124
Torres, Victor	1678	124
Torres-Chavolla, Edith	1570	117
Torres-Ocampo, Pamela	854	57
Torto-Alalibo, Trudy	2634	190
Tortorello, Mary Lou	380	29
Toscano, Michael	1003	65
Tosserams, Janna	1706	126
Totola, Marcos	459	33
Tourigny, Gregory	2592	188
Tournier, Jean-Nicolas	2343	177
Tournier, Jean-Nicolas	1751	128
Towe, Carolann	3104	214
Townsend, Hugh	2817	202
Townsend, Stacy	2697	195
Townsley, Loni	2721	196
Toyoda, Atsushi	2427	181
Traczewski, M.	2129	169
Traczewski, Maria	146	19
Traczewski, Maria	154	19

Author	Poster Board	Session Number
Traficante, David	2339	177
Tran, Thu-Thuy	1999	139
Tran, Christopher	408	31
Tran, Cindy	2865	203
Tran, Cindy	1703	125
Tran, Jennifer	2433	181
Tran, John	1836	132
Tran, Quynh	1060	68
Tran, Thai	599	40
Tran, Vanessa	2665	191
Tran, Victor	475	33
Trantham, Emma		232
Trantham, Emma	1003	65
Tratnyek, Paul	1433	111
Traube, Morris		85
Travers, Andrew		146
Travers, Michael	2627	190
Trchounian, Armen	2425	181
Trchounian, Armen	1849	133
Trchounian, Armen	2423	181
Trchounian, Armen	1842	133
Trchounian, Armen	1841	133
Trchounian, Armen	2369	179
Trchounian, Armen	2557	187
Trchounian, Karen	2423	181
Treadwell, Megan	1892	135
Treangen, Todd	495	34
Treangen, Todd	299	26
Trebotich, Jovanka	2073	142
Trees, Eija	1077	69
Trejo, Sergio	1954	137
Trejo-Estrada, Sergio	1952	137
Trejo-Hernández, María del Refugio	1945	137
Trembath-Reichert, Elizabeth	3082	213
Tremblay, Julien	492	34
Tremblay, Mireille	137	18
Tremblay, Mireille	746	53
Tremblay, Mireille	2798	200
Tremblay, Pier-Luc	1385	109
Tremblay, Pier-Luc	1395	109
Tremblay, Pier-Luc	1487	113
Tremblay, Pier-Luc	1822	131
Trescos, Yannick	2343	177
Treseder, Kathleen	2455	182
Trethewey, Jeffrey	1474	113
Trevino, Saul		78
Tribble, Gena	2173	170
Tribble, Gena	76	15
Trienski, Tamara	87	16
Trienski, Tamara	125	18
Trifilio Martinez, Marella	1342	107
Tringe, Susannah	337	27
Tringe, Susannah	318	27
Tringe, Susannah	1914	136
Tringe, Susannah	330	27
Tringe, Susannah	3085	213
Tringe, Susannah	492	34
Tringe, Susannah	1911	135
Tringe, Susannah		151
Trinh, Nhat	2365	179
Tripathi, Aparna	2763	198
Tripathi, Shashank	548	37
Triplett, Eric	963	63
Triplett, Eric	338	27
Triplett, Eric	3067	213
Trivedi, Leena	1589	118
Trivedi, Urvish	2155	170
Troll, Joshua	2864	203
Trombert, Annette	2828	202
Trombley, Michael	1742	127
Tropini, Carolina	1835	132
Trøstrup, Hannah	2837	202
Trotman-Grant, Ashton	84	16
Truant, Allan	738	53
Truant, Allan	169	20
Truesdell, Mélanie	1605	119
Trujillo, Jessie	617	41
Tsai, Hsiang-Jung	1730	127
Tsai, Hsiang-Jung	3127	215
Tsai, Tsung-Yu	1942	137
Tsai, Tsung-Yu	1990	139
Tsang, Jennifer	241	23
Tse, Longping	2202	171
Tse-Dinh, Yuk-Ching	2684	195
Tseng, Charles	3100	214
Tseng, Charles	3101	214
Tseng, Ching Wen	2869	204
Tseng, Min	447	32
Tseng, Yi-Hsiung	1874	134
Tsereteli, David	LB-02	233
Tshering, K	2759	198
Tshibangu, Evariste	1202	101
Tsodikov, Oleg		81
Tsoi, Tamara	2451	182
Tsolis, Renee	793	55
Tsolis, Renee	1737	127
Tsolis, Renée	1277	104
Tsolis, Renee	204	21
Tsolis, Renee	1735	127
Tsolis, Renée	240	23
Tsolou, Aggeliki	393	29
Tsolou, Aggeliki	394	29
Tsongalis, Gregory	2278	174
Tsuchiya, Tokuji	1776	129
Tsuchiya, Tomofusa	2160	170
Tsuji, Brian	679	50
Tsujimoto, Kazuko	516	35
Tu, Qichao	1447	111
Tu, Qichao	958	63
Tu, Qichao	2629	190
Tu, Qichao	322	27
Tu, Qichao	3092	213
Tuanyok, Apichai	2196	171
Tubban, Marites	1182	100
Tucker, Alex	1350	108
Tucker, Tommy	2239	173
Tudor, John	244	23
Tufenkji, Nathalie	274	25
Tuglus, Cathy	2646	190
Tuinema, Brian	677	50
Tukel, Cagla	2873	204
Tukel, Cagla	1783	129
Tullman-Ercek, Danielle		163
Tullos, Nathan	813	56
Tully, Benjamin		224
Tully, Jeffrey	254	23
Tummala, Praveena	1199	101
Tun, Sandy	122	18
Tun, Sandy	7	12
Tung, Hsin-hsin	2024	140
Tuohy, Marion	146	19
Tupasi, Thelma	1574	117
Tupasi, Thelma	1058	68
Turchi, Barbara	1987	138
Turina, Massimo	557	37
Turnbull, Lynne	1005	65
Turner, David	166	20
Turner, Jeffrey	2190	171
Turner, Maria		85
Turner, Maria	774	54
Turner, Paul	1546	116
Turner, Paul	1248	103
Turner, Paul		221
Turner, Raymond	938	62
Turner, Raymond	936	62
Turng, Ben	1651	123
Turnsek, Maryann	2205	171
Turroni, Francesca	2826	202
Tuskan, Gerald	3016	211
Tuttle, Ellen	102	16
Tutz, Sarah	1108	98
Twelkmeyer, Brigitte	1763	129
Twine, Susan	714	52
Tyler, Brett	2634	190
Tyler, Heather	430	31
Tyner, Harmony	2165	170
Tyrrell, Frances	1198	101
U		
Uberbacher, Edward	1286	105
Uberbacher, Edward	3016	211
Ubilla, Pamela	598	40
Ubilla, Pamela	2471	183
Ubukata, Kimiko	2320	176
Uchida, Taeko	2160	170
Uchino, Utsuki	1104	97
Uchiumi, Toshiki	2488	183
Udoh, Iniekong	2991	209
Udoh, Iniekong	1600	118
Ueda, Mitsuyoshi	2561	187
Ueda, Mitsuyoshi	468	33
Ueda, Mitsuyoshi	359	28
Ueda, Mitsuyoshi	1463	112
Ueda, Osamu	1254	103
Ueda, Takeshi	1548	116
Ueno, Shunji	1149	99
Ueno, Tomohiro	1710	126
Uetz, Peter	2911	205
Ugalde-Silva, Paul	1158	99
Ugozzoli, Luis	2036	141
Uh, Young	2760	198
Uhl, James	138	18
Uhl, Jim	1164	100
Uhlfelder, Samantha	2766	198
Ulrich, Katharina	1551	116
Um, Hyun-Ju	2891	204
Umezinne, Nkemdilim	1600	118
Underwood, Jennifer	333	27
Underwood, Jessica	1253	103
Underwood, Mark	778	54
Ung, Thearith	1253	103
University of California, San Francisco Viral Diagnostics and Discovery Center	511	35
Unterweger, Daniel	2209	172
Uphoff, Tim	564	38
Uphoff, Timothy	2796	200
Uphoff, Timothy	2792	200
Urakawa, Hidetoshi	453	33
Uranga, Lee	1857	133
Urbach, Valerie	186	21
Urbach, Valerie	2166	170
Urbanczyk, Henryk	1413	110
Urdaneta, Miguel	2029	141
Urdaniz, Estefanía	1577	117
Uribe-Velez, Daniel	2485	183
Ursell, Tristan	247	23
Ursell, Tristan		227
Ursula-Mary, Emenyonu	3	12
Uruty, Anaïs	6	12
Ussery, David		157
Ustun, Narmin	3137	215
Utria, Alan	291	25
Utter, Christopher	644	42
Utturkar, Sagar	2454	182
Uwate, Maki	1102	97
Uyanwune, Yvonne	391	29
Uyar, Ebru	1548	116
Uzeh, Roseline	3041	212
V		
Vaca, Inmaculada	2471	183
Vaca, Inmaculada	598	40
Vadesilho, Cintia	1273	104
Vadia, Stephen	193	21

Author	Poster Board	Session Number
Vadyvaloo, Viveka	2711	196
Vafa, Rob	2334	177
Vaillancourt, Rolland	1604	119
Vaino, Ian	992	64
Vaishampayan, P	1024	66
Vaishampayan, Parag	272	24
Vaishampayan, Parag	1298	105
Vaishampayan, Parag	269	24
Vaishampayan, Parag	268	24
Vaishampayan, Parag	1426	111
Vaishampayan, Parag	1432	111
Vaishampayan, Parag	3079	213
Vaksman, Zalman	2173	170
Val, Marie-Eve		146
Valbuena, Gustavo	209	21
Valdez, Isa	2007	140
Valdez, José	3003	210
Valdez-Torres, Benigno	3001	210
Valdez-Torres, Benigno	3055	212
Valdez-Torres, Jose	2607	189
Valdez-Torres, José	388	29
Valdivia, Raphael	195	21
Valdivia Anda, Guillermo	2307	176
Valdivia-Anda, Guillermo	621	41
Valdivia-Lara, Edgar	621	41
Valentin, Jean	1894	135
Valentin, Shirley	546	37
Valentine, David	399	30
Valentin-Vargas, Alexis	472	33
Valentin-Weigand, Peter	1682	125
Valentin-Weigand, Peter	806	55
Valenzuela, Camila	2740	197
Vallée, Marilyse	2979	209
Vallès, Yvonne	1905	135
Vallès, Yvonne	1816	131
Van, Se Young	65	14
Van Assche, Ado	LB-06	233
van Baren, Marijke	401	30
Van Brackle, Regina	654	49
Van Bruggen, A	2545	186
Van Caeseele, Paul	106	17
Van Calenbergh, Serge	2705	196
Van De Werfhorst, Laurie	3095	214
Van De Werfhorst, Laurie	3103	214
Van De Werfhorst, Laurie	3096	214
van den Brule, Adriaan	1706	126
Van Den Bussche, Katie	2387	179
van der Graaf-van Bloois, Linda	2744	197
van der Graaf-van Bloois, Linda	1292	105
van der Heide, Han	2088	143
van der Laan, Mark	2646	190
van der Marel, Gisbert	724	52
Van Der Pol, Barbara	2291	175
Van Der Pol, Barbara		92
van Dijk, Karin	2841	203
van Dijk, Linda	29	13
Van Eden, Marc	1031	66
Van Ert, Matthew	3133	215
van Etten, James		78
van Gent, Marjolein	2088	143
Van Hamme, Jonathan	3149	216
Van Horn, Kenneth	1222	102
van Kessel, Julia	283	25
van Kessel, Julia	291	25
Van Loco, Joris	3045	212
van Mourik, Andries	29	13
Van Nostrand, Joy	957	63
Van Nostrand, Joy	1920	136
Van Nostrand, Joy	3092	213
Van Nostrand, Joy	1913	136
Van Nostrand, Joy	317	27
Van Nostrand, Joy	2503	184
Van Nostrand, Joy	1898	135
Van Nostrand, Joy	953	63
Van Nostrand, Joy	2586	188
Van Nostrand, Joy	1445	111
Van Nostrand, Joy	1447	111
Van Nostrand, Joy	469	33
Van Nostrand, Joy	3080	213
Van Nostrand, Joy	3080	213
Van Nostrand, Joy	2487	183
Van Nostrand, Joy	1448	111
Van Nostrand, Joy	2584	188
Van Nostrand, Joy	405	30
Van Nostrand, Joy	1446	111
Van Nostrand, Joy	958	63
Van Nostrand, Joy	324	27
Van Nostrand, Joy	955	63
Van Nostrand, Joy	315	27
Van Nostrand, Joy	322	27
Van Nostrand, Joy	3074	213
Van Nostrand, Joy	951	63
Van Nostrand, Joy	2482	183
Van Nostrand, Joy	956	63
van Nostrand, Joy	959	63
van Passel, Mark	485	34
van Putten, Jos	29	13
van Ranst, Marc	561	38
Van Schaik, Willem	485	34
van Schaik, Willem	1545	116
van Schaik, Willem	1087	97
Van Schooneveld, Trevor	120	18
van Sinderen, Douwe	2826	202
Van Tassell, Maxwell	1987	138
Van Voorhis, Wesley	2748	197
VanBennekom, Neyda	2851	203
Vance, Jessica	114	17
Vance, Jessica	115	17
Vance, Russell		158
Vandaei, Eamon	1812	131
Vandenesch, François	705	51
VanderKelen, Jennifer	1931	136
Vanderkelen, Jennifer	1932	136
Vanderpool, Carin	1859	133
Vandervoort, Kurt	934	62
Vannavong, Anan	2032	141
VanWagoner, Timothy	34	13
VanWagoner, Timothy	2309	176
Varadharajan, Charuleka	1371	109
Varaldi, Julien		164
Varani, Gabriele	2748	197
Vardanyan, Zaruhi	2369	179
Vargas, Gabriel	1340	107
Vargas, Nadia	1430	111
Vargas-Asensio, Gabriel	1914	136
Vargas-Villarreal, Javier	2183	171
Varma, Manju	2013	140
Varman, Arul	2558	187
Vasanthakumar, Archana	2505	184
Vasanthakumar, Archana	2035	141
Vasileva, Tonka	2952	208
Vasoo, Shawn	1709	126
Vasquez, George	1649	123
Vassilian, Anait	2425	181
Vats, Abhay	2611	189
Vaughan, Kimberly	1171	100
Vaughn, Charles	2242	173
Vaughn, Mike	2233	173
Vaughn, Mike	1716	126
Vaz de Lima, Lourdes	LB-03	233
Vaze, Nachiket	2836	202
Vazquez, Alejandro	2007	140
Vazquez, Manuel	546	37
Vedantam, Gayatri	721	52
Vedantam, Gayatri	1123	98
Vedula, Priya		79
Veerabadran, Dheenadhayalan	2673	191
Veeramani, Balaji	2661	191
Veesenmeyer, Jeff	1329	107
Vega Mendoza, Daniel	910	61
Vega-Arroyo, Manuel	2173	170
Veisaga, Maria-Luisa	184	21
Velarde-Felix, Salvador	3001	210
Velasco, Valeria	2000	139
Velázquez, Norma	3161	216
Veldkamp, Ardean	270	24
Velickovic, Lili	2983	209
Velidis, G.	2545	186
Velmurugan, Kamalakannan	2673	191
Velsko, Irina	2311	176
Vendrone, Elaine	1183	100
Venegas, Cristina	1442	111
Venida, Anthony	795	55
Venkataraman, Nitya	1785	129
Venkataramani, Sathyadevi	809	56
Venkatesh, Kareenhalli	2956	208
Venkatesh, Shaila	1207	101
Venkateswaran, K	1024	66
Venkateswaran, Kasthuri	3079	213
Venkateswaran, Kasthuri	1432	111
Venkateswaran, Kasthuri	894	60
Venkateswaran, Kasthuri	269	24
Venkateswaran, Kasthuri	1426	111
Venkateswaran, Kasthuri	272	24
Venkateswaran, Kasthuri	268	24
Venkitanarayanan, Kumar	1662	124
Vensel, William	899	60
Ventura, Christy	1699	125
Ventura, Christy	1153	99
Ventura, Christy	812	56
Ventura, Christy	63	14
Ventura, Marco	2826	202
Ventura, Rita	279	25
Venturini, Elisa		153
Vera-Cabrera, Lucio	2183	171
VerBerkmoes, Nathan	966	63
VerBerkmoes, Nathan	318	27
VerBerkmoes, Nathan	943	63
Verberkmoes, Nathan	2943	207
Vereen, Ethell	2617	189
Verghese, Bindhu	1504	114
Verghese, Bindhu	2045	141
Vergin, Kevin	1870	134
Vergis, James	1699	125
Vergis, James	812	56
Vergis, James	63	14
Verija, Spiridon	672	50
Verkade, Paul	780	55
Verma, Naresh	1131	98
Vermeij, Mark	1905	135
Verran, Joanna	589	39
Verrier, Bernard	2343	177
Versalovic, James		157
Versalovic, James	2844	203
Versalovic, James		77
Versalovic, James	764	54
Versalovic, James		95
Veselenak, Ron	2881	204
Vesper, Stephen	1508	114
Vessoni Penna, Thereza	2068	142
Vessoni Penna, Thereza	1512	114
Vessoni Penna, Thereza	1511	114
Vestal, Sarah	1827	132
Vester, Jan	1466	112
Vetriani, Costantino	1419	110
Vetriani, Costantino	1908	135
Veyrier, Frederic	720	52
Vial, Jean-Claude	1751	128
Vicente, Davin	952	63
Vicino, David	1203	101
Vick, Eric	1761	129
Victor, Kaitlin	1776	129
Victor, Tanya	2350	178
Victor, Tommie	1058	68
Victor, Tommie	1193	101

Author	Poster Board	Session Number
Vidal, Guadalupe	383	29
Vidal, Gudalupe	2917	206
Vidal, Marc	805	55
Vidal, Roberto	2727	197
Videau, Patrick	223	22
Vidic, Radisav	3073	213
Vieille, Claire	2909	205
Vieille, Claire	347	28
Vieira, Ataíza	1098	97
Vieira, Debora	556	37
Vieira, Denise	2068	142
Vieira, Mônica	1430	111
Viernes, Lofrieda	1586	118
Vig, Komal	835	56
Vig, Komal	538	36
Vig, Komal	2149	169
Vig, Komal	2691	195
Vig, Komal	534	36
Vig, Komal	535	36
Vigil, Katie	2191	171
Vigil, Patrick	1687	125
Vilgalys, Rytas	3016	211
Villa, Bárbara	2125	144
Villafane, Robert	1457	112
Villard, Aimee	1319	106
Villareal, Luis		162
Villarreal-Treviño, Licet	2523	185
Villarreal-Treviño, Licet	2667	191
Villarreal-Treviño, Licet	1642	123
Villegas, Eric	2020	140
Villeval, Francois	91	16
Villinger, Francois	1738	127
Vinetz, Joseph	793	55
Vingadassalom, Didier	2835	202
Vinnichenko, Iana	760	54
Vinuesa, Pablo	2026	140
Viramontes-Ramos, Sabina	596	39
Virata, Michael	8	12
Visalli, Robert	509	35
Visessanguan, Wonnop	1022	65
Vishnivetskaya, Tanya	944	63
Vishnivetskaya, Tatiana	340	27
Vishnivetskaya, Tatiana	1027	66
Vishwanathan, V.K.	721	52
Visi, David	1928	136
Visi, David	1921	136
Visick, Jonathan	2449	181
Visick, Karen	1809	131
Vismara, Chiara	148	19
Visomblin, Nathalie	2258	174
Vissa, Varalakshmi	1064	68
Viswanathan, V.	1123	98
Vital, Marius	765	54
Vitale, Marco	1983	138
Vitek, Kara	731	53
Vives, Martha	1478	113
Viviescas, Maria	601	40
Vlaspolder, Ferdinand	2286	175
Vlaspolder, Ferdinand	1569	117
Vlaspolder, Ferdinand	2273	174
Voelschow, Erin	1319	106
Voets, Guido	2756	198
Voets, Guido	1093	97
Vogel, Jörg		219
Vogel, Jörg	705	51
Vogel, Jörg	214	22
Vogel, Jörg		219
Vogelbein, Wolfgang	629	41
Voget, Sonja	1409	110
Vogl, Thomas	688	50
Vogt, Sarah	1897	135
Voigt, Christopher		81
Volegova, Marina	2638	190
Volkan, Ender	1146	99
Vollmer, Waldemar	1817	131
Vollmers, John	1409	110
Volozhantsev, Nikolai	648	49
von Eiff, Cristoff	2983	209
Von Groll, Andrea	1564	117
Von Konell, Giovana	121	18
von Mutius, Erika	1937	136
von Pawel-Rammingen, Ulrich	1682	125
von Rosenvinge, Erik	2831	202
von Tils, Dominik	1726	127
Vongkamjan, Kitiya	1873	134
Voolstra, Christian	2939	207
Voordeckers, James	1448	111
Voordeckers, James	405	30
Voordeckers, James	2091	143
Voorhies, Randy	1191	101
Vora, Gary	2497	184
Vora, Haily	846	57
Vore, Kelly	679	50
Voss, Barbara	1163	100
Voyich, Jovanka	311	26
Voyich, Jovanka	1280	104
Voyich, Jovanka	1672	124
Voyich, Jovanka	1678	124
Voytek, Mary		224
Vu, Gia-Phong	1306	106
Vu, Hong	818	56
Vu, Hong	809	56
W		
Wacher-Rodarte, Carmen	1001	65
Wachsmuth, Kaye		147
Wada, Hideo	1254	103
Wade, Jim	1116	98
Wade, Joseph	1291	105
Wade, Tim	2006	140
Wade, Timothy	2619	189
Wade, Timothy	2001	140
Wade, William	3031	211
Wade, William	3030	211
Wade, William	3032	211
Waffo, Alain	535	36
Waffo, Alain	834	56
Waffo, Alain	538	36
Waffo, Alain	835	56
Wafula, Denis	1895	135
Wagenaar, Jaap	2094	143
Wagenaar, Jaap	1292	105
Wagenaar, Jaap	2095	143
Wagenaar, Jaap	2744	197
Wagers, Patrick	2137	169
Waggoner, Jesse	2257	174
Wagley, Pravin	2560	187
Wagner, David	506	34
Wagner, David	2196	171
Wagner-Döbler, Irene	285	25
Wagner-Döbler, Irene	2699	195
Waheed, Sadia	11	12
Waheed, Sana	2876	204
Wahli, Thomas	631	41
Wahman, David	2606	189
Wai, Sun	1753	128
Wai, Tint Tint	817	56
Wainwright, Mark	2346	178
Waites, Ken	864	58
Waites, Ken	860	58
Waka, Betelhem	1507	114
Wakefield, Teresa	1237	103
Wakim, Rima	650	49
Waldbieser, Geoffrey	2086	143
Waldenmaier, Julian	2303	176
Waldman, Eliseu	LB-03	233
Waldner, Landon	2709	196
Waldor, Matthew	2336	177
Waldrop, Mark	337	27
Waldrop, Thomas	3024	211
Walia, Sandeep	2580	188
Walia, Satish	2893	204
Walia, Satish	2580	188
Walian, Peter	2949	207
Walker, Anna	781	55
Walker, Edward	1318	106
Walker, Madalynn	633	41
Walker, Melissa	2820	202
Walker, Robert	2477	183
Walker, Sharon	1531	115
Walker-Peddakotla, Arti	1361	108
Walkling-Ribeiro, Markus	3064	212
Wall, Chris	2452	182
Wall, Daniel		148
Wall, Judy	1852	133
Wall, Judy	2898	205
Wall, Judy	2409	180
Wall, Judy	2948	207
Wall, Judy	454	33
Wall, Judy	2962	208
Wall, Kate	897	60
Wall, Lewis	2313	176
Wall, Luis	2096	143
Wallace, Andee	609	40
Wallace, Isha	2768	198
Wallace, James	2834	202
Wallace, Mark	1211	102
Wallace, R.	1194	101
Wallace, Rachael	2233	173
Wallace, Rachael	1716	126
Wallace, Richard	2671	191
Wallenstein, Matthew	1445	111
Wallenstein, Matthew	956	63
Waller, Sharon	2614	189
Wallis, Audra	57	14
Wallis, Frederick	2513	185
Wallis, Robert	1563	117
Wallis, Robert	1562	117
Walsh, Brian	2696	195
Walsh, Fiona		168
Walsh, Fiona		168
Walsh, John	1236	103
Walsh, Kevin	3025	211
Walsh, Thomas		10
Walsh, Thomas		10
Walsh, Tom	1885	135
Walston, Stefan	2072	142
Walter, Jens		157
Walter, Nick	711	51
Waltman, Peter	401	30
Walton, Troy		75
Walzer, Peter	1787	130
Wan, Fanghao	2487	183
Wan, Xuehua	1057	68
Wang, Aijie	348	28
Wang, Aijie	2566	187
wang, Aijie	435	32
Wang, Alice	2176	170
Wang, Alice	2031	141
Wang, B		226
Wang, Baixin	431	31
Wang, Baolin	1014	65
Wang, Bo	344	28
Wang, Caihong	2313	176
Wang, Charles	2639	190
Wang, Charles	2544	186
Wang, Chen	1897	135
Wang, Chia-Lan	3127	215
Wang, Chia-Lan	1730	127
Wang, Chinling	3051	212
Wang, D. P.	1012	65
Wang, Dan	3094	214
Wang, Dan	3093	214
Wang, Dan	3097	214
Wang, Dan	3104	214

Author	Poster Board	Session Number
Wang, Dan	3109	214
Wang, Guiqing	2130	169
Wang, Hai	2890	204
Wang, Hai	1276	104
Wang, Haiyan	610	40
Wang, Hannah	122	18
Wang, Hannah	7	12
Wang, Hengzhauang	1631	122
Wang, Hua	328	27
Wang, Hua		153
Wang, Hua	1993	139
Wang, Huan-Ling	2785	199
Wang, Jing	1610	119
Wang, Jingjing	2482	183
Wang, Kaifei	1230	102
Wang, L	1295	105
Wang, Lei	1480	113
Wang, Lei	1353	108
Wang, Li	2566	187
Wang, Li	435	32
Wang, Lingling	501	34
Wang, Ning	432	31
Wang, Ouwei	400	30
Wang, Qiong	2507	184
Wang, Qiong	2626	190
Wang, Qiong	463	33
Wang, Qiong	765	54
Wang, Rong	2154	170
Wang, Ruobing		9
Wang, Shao-Hung	1256	104
Wang, Shao-Hung	1614	119
Wang, Shiao	1405	110
Wang, Shiao	2056	141
Wang, Shiping	324	27
Wang, Shiping	317	27
Wang, Sin-Tian	1614	119
Wang, Siyun	1354	108
Wang, Siyun	3043	212
Wang, Suxing	1573	117
Wang, Tianren	13	12
Wang, Wei	1739	127
Wang, Wei	1119	98
Wang, Wei	2699	195
Wang, Wei	979	64
Wang, Wenfei		156
Wang, Wenliang	674	50
Wang, Xiaoqing	1355	108
Wang, Xiaoxue	215	22
Wang, Xiaoyuan	2868	204
Wang, Xueyan	382	29
Wang, Yanling	2202	171
Wang, Yao	541	37
Wang, Yinzhao	1429	111
Wang, Yun	2439	181
Wang, Yun	2444	181
Wang, Yun	1231	103
Wang, Yun	1232	103
Wang, Yun	1236	103
Wang, Yun	574	38
Wang, Yun	1234	103
Wang, Zhe-Chong	727	52
Wang, Zheng	2497	184
Wang, Zheng		151
Wang, Zhong	1625	119
Wangchuk, Sonam	2759	198
Wanger, Audrey	154	19
Wanjugi, Pauline	1518	115
Wannamaker, AnneMarie	237	23
Wanner, Barry		78
Wanner, Barry	3006	210
Ward, Bess	1902	135
Ward, Bess	1420	110
Ward, Bess		87
Ward, Catherine	2127	169
Ware, Michael	2020	140
Warfel, Jason	2212	172
Warfel, Jason	2887	204
Warfield, Kelly	818	56
Warfield, Kelly	809	56
Wargo, Matthew	20	13
Warner, Barbara	2975	209
Warner, Wayne	669	49
Warren, Rob	1058	68
Warshauer, David	1594	118
Wasiura, Jillianna	171	20
Wasiura, Jillianna	2976	209
Wasserman, Gregory	2983	209
Wassermann, Tina	1083	97
Watanabe, Fumiko	434	31
Watanabe, Mineo	1565	117
Watanabe, Takayasu	2083	143
Waterman, Paige	654	49
Waterman, Paige	2988	209
Waterman, Paige	653	49
Waters, Chris		226
Waters, Christopher	2723	196
Waters, Christopher	752	53
Waters, Christopher	578	38
Waters, Christopher	2827	202
Waters, Christopher	2708	196
Waters, Elaine	2516	185
Waters, Katrina	2628	190
Watkin, Elizabeth	2477	183
Watson, David	2586	188
Watson, David	2458	182
Watson, Kimberly	218	22
Watson, Ruth	1370	108
Watt, Christine	668	49
Watters, Amy	1630	122
Watthanaworawit, Wanitda	1248	103
Watts, Joy	3023	211
Watz, Nancy		80
Watzka, Margarete	1815	131
Waugh, David	1461	112
Wawrick, Boris	1908	135
Way, Sing Sing	2868	204
Waycott, Sandra	1587	118
Weadge, Joel	2719	196
Wear, Emmaleen	397	30
Weart, Ilona	1506	114
Weatherspoon-Griffin, Natasha	2929	206
Webb, Samuel	1372	109
Webber, Charles	1921	136
Weber, Carolyn	2490	183
Weber, Karrie	312	27
Weber, Kristen	1245	103
Weber, Peter	1392	109
Weber, Peter	3085	213
Weber, Scott	1955	137
Webley, Wilmore	616	41
Webley, Wilmore	790	55
Webley, Wilmore	833	56
Webster, Amy	558	38
Webster, Paul	251	23
Wedman, Piper	2071	142
Wee, Seng Kew	1397	109
Weed, Charriz	633	41
Weed, Diane	15	12
Weening, Eric	1734	127
Weerasinghe, Deepika	2627	190
Wegerhoff, F	96	16
Wegerhoff, Frank	1185	100
Wehnes, Christopher	636	41
Wei, Li	1610	119
Wei, Qijian	600	40
Wei, Qing	1143	99
Wei, Shan	501	34
Wei, Xueming		148
Wei, Yu-Hong	367	28
Weibel, Douglas		76
Weidler, Erica	764	54
Weihe, Claudia	2455	182
Weikl, Fabian	1449	111
Weiland, Joseph	820	56
Weiler, Leah	94	16
Weiler, Tara	564	38
Weimer, Bart	1865	133
Weimer, Bart	55	14
Weimer, Jason	1777	129
Weina, Peter		9
Weinberg, Rebecca	3063	212
Weinberg, Zasha	2642	190
Weiner, Allon		146
Weiner, Zachary	2862	203
Weiner, Zachary	2315	176
Weinert, Colin	728	52
Weingarten, Rebecca	1153	99
Weinrick, Brian	2658	191
Weinstein, Melvin	131	18
Weinstein, Melvin	95	16
Weinstock, George	2099	143
Weinstock, George	2203	171
Weir, Susan	2049	141
Weisberg, Stephen	3094	214
Weisberg, Stephen	3097	214
Weiser, Jeffrey	304	26
Weiser, Jeffrey	1275	104
Weiser, Jeffrey		89
Weiss, Alison	549	37
Weiss, Brian	1339	107
Weiss, Shimon	1740	127
Weissfeld, Alice		193
Weissfeld, Alice		193
Weissman, Scott	1551	116
Weissman, Scott	2777	198
Weitz, Joshua	1757	128
Wekesa, Kennedy	1457	112
Welch, Matthew	799	55
Welch, Matthew	2850	203
Welch, Rodney	1128	98
Welch, Ryan	2995	209
Welch, William	576	38
Welcome, Zaynah	1457	112
Welinder-Olsson, Christina	1081	69
Welkos, Susan	812	56
Welkos, Susan	810	56
Welle, John	1167	100
Weller, Monika	6	12
Welsh, Allana	1917	136
Welsh, Oliverio	2183	171
Welter, Brenda	LB-04	233
Weltman, Helena	1207	101
Wen, Ai	2122	144
Wen, Xiaoyun		230
Wen, Yan Cheng	65	14
Wen, Yancheng	706	51
Wen, Yi	212	22
Wendling, Morgan	1514	114
Weng, Bor-Chun	1256	104
Weng, Pei-Ya	476	33
Weng, Shu-Fen	1874	134
Wengenack, Nancy	1218	102
Wengenack, Nancy	1197	101
Wengenack, Nancy	1194	101
Wenke, Joseph	2127	169
Wenstrom, Christopher	32	13
Wenten, David	2285	175
Werlin, Rebecca	455	33
Wertheimer, Anne	2314	176
Weschler, Thomas	368	29
West, Sheila	2291	175
West, Stuart		148
West, Thomas	1941	137
Westcott, Elizabeth	2847	203
Westcott, Elizabeth	2853	203

Author	Poster Board	Session Number
Westermark, Linda	2300	176
Western, Linda	1174	100
Western, Marianne	2238	173
Wetmore, Kelly	1926	136
Wetzel, Sharon	2242	173
Wetzel, Silke		83
Wever, Peter	1706	126
Wexler, Hannah	2735	197
Weyand, Nathan	2314	176
Whalan, Rachael	2653	191
Wheeler, Susan	1504	114
Whichard, Jean	2767	198
Whichard, Jean	662	49
Whichard, Jean	659	49
Whistler, Cheryl	1810	131
Whiston, Emily	842	57
Whitaker, Gillian	2166	170
Whitaker, Rachel	1757	128
Whitaker, Rachel	1417	110
Whitby, Paul	692	51
Whitby, Paul	34	13
Whitby, Paul	35	13
Whitby, Paul	2309	176
Whitby, Paul	695	51
Whitchurch, Cynthia	1005	65
Whitcraft, Christine	965	63
White, Aaron	2709	196
White, Aaron	2710	196
White, Peter	689	51
White, Peter	2741	197
White, Theodore		93
Whitehead, Terence	1431	111
Whiteside, Matthew	2726	196
White-Ziegler, Christine	2928	206
White-Ziegler, Christine	683	50
White-Ziegler, Christine	1671	124
White-Ziegler, Christine	1125	98
Whitfield, Natalie	102	16
Whitman, Richard	3105	214
Whitman, Richard	2010	140
Whitman, Richard	1516	115
Whitman, Richard	1515	115
Whitmire, William	2822	202
Whitney, Adeline	1683	125
Whitney, Anne	2813	201
Whitney, John	2713	196
Whitney, John		225
Whittier, Susan	2272	174
Whittier, Susan		80
Whittier, Susan	1173	100
Whooley, Amy	1330	107
Whyte, Lyle	340	27
Whyte, Lyle	944	63
Wiacek, Claudia	1384	109
Wiatrowski, Heather	2934	207
Wickes, Brian		150
Widen, Ray	2754	198
Widen, Ray	735	53
Widen, Ray	666	49
Widen, Ray	1183	100
Widen, Raymond	1239	103
Wiebe, Deborah	1186	100
Wieczorek, Doug	1028	66
Wiedemann, Kenia		224
Wiedmann, Martin	2932	207
Wiedmann, Martin	3142	215
Wiedmann, Martin	1873	134
Wiedmann, Martin	3044	212
Wiedmann, Martin	3043	212
Wiedmann, Martin	379	29
Wiedmann, Martin	2399	180
Wiedmann, Martin	2857	203
Wiedmann, Martin	1354	108
Wiedmann, Martin	3053	212
Wieler, Lothar		86
Wiesman, William	2697	195
Wiggins, Kristin	2098	143
Wiggins, Kristin	2782	199
Wigley, Paul	1627	119
Wigley, Paul	1602	119
Wikström, Arne	2282	175
Wilbanks, Elizabeth	1383	109
Wilches, E	1575	117
Wildschutte, Hans		148
Wiles, Tim	166	20
Wiles, Timothy	744	53
Wiley, Graham	3074	213
Wilhelm, Christy	1629	122
Wilkens, Marcela	2073	142
Wilkins, Michael	2943	207
Wilkinson, Alisha	2331	177
Wilks, Sandra	2043	141
Willems, Kris	LB-06	233
Willems, Rob	485	34
Willems, Rob	2717	196
Willems, Rob	1087	97
Willems, Rob	1545	116
Willenborg, Joerg	806	55
Willey, Barbara	158	19
Willey, Barbara	1213	102
Willey, Joanne		78
Willger, Sven	849	57
Willger, Sven	841	57
Willger, Sven	853	57
Williams, Allison	720	52
Williams, Cassandra	1762	129
Williams, Celeste	1234	103
Williams, David	179	20
Williams, Henry	1892	135
Williams, Henry	306	26
Williams, James	2291	175
Williams, Jessica	2950	207
Williams, Kathy	1563	117
Williams, Kenneth	943	63
Williams, Kenneth	2943	207
Williams, Kristina	2326	177
Williams, Kristy	2038	141
Williams, Kristy	2683	195
Williams, Laurina	2277	174
Williams, Laurina	2276	174
Williams, Lisa	1003	65
Williams, Lorinette	2772	198
Williams, Malachi	1621	119
Williams, Pat	1725	126
Williams, Patrick	618	41
Williams, Patrick	994	65
Williams, Paula	744	53
Williams, Robert	2880	204
Williams, Susan	2925	206
Williams, Tiffany	2552	186
Williams, Wesly	3025	211
Williams-Hill, Donna	2533	186
Williams-Hill, Donna	2537	186
Williams-Newkirk, Amanda		156
Williamson, Deborah	1568	117
Williamson, Kerry	939	62
Williamson, Kerry	937	62
Williamson, Kurt	1912	136
Williamson, Kurt	313	27
Williamson, Shannon	2492	184
Willianmson, Peter		79
Willias, Stephan	28	13
Willingham, Crystal	2403	180
Willms, Daniela	806	55
Wilson, A.	36	13
Wilson, Adam	2132	169
Wilson, Alison	578	38
Wilson, Brittan	323	27
Wilson, Deborah	1241	103
Wilson, Deborah	146	19
Wilson, Deborah	1229	102
Wilson, Deborah	1240	103
Wilson, Emily	505	34
Wilson, Emily	1811	131
Wilson, James	64	14
Wilson, James	1157	99
Wilson, Mark	1403	110
Wilson, Mark	267	24
Wilson, Mark	896	60
Wilson, Michael	131	18
Wilson, Michael	15	12
Wilson, Michael	2977	209
Wilson, Nana	2108	144
Wilson, Nana	1637	122
Wilson, Robyn		82
Wilson David, Selwyn	2389	179
Wilson-Stanford, Shawanda	2511	185
Wilusz, Jeffrey	542	37
Wimpee, Charles	1891	135
Wimpee, Charles	237	23
Wimpee, Charles	1890	135
Wimpee, Charles	2494	184
Wince, Jodi	1169	100
Winchell, Jonas	1074	69
Winchell, Jonas	2609	189
Winchell, Jonas	1722	126
Winchell, Jonas	1552	116
Windau, Anne	132	18
Windham-Myers, Lisamarie	337	27
Wing, Rod	1918	136
Wing, Rod A.	969	63
Wing, Rod A.	967	63
Wing, Steve	1596	118
Wingreen, Ned	295	25
Wingreen, Ned		4
Winkler, David	1249	103
Winkler, Jonathan	2685	195
Winter, Maria	2303	176
Winter, Maria	793	55
Winter, Maria	1735	127
Winter, Maria	240	23
Winter, Sebastian	2303	176
Winter, Sebastian	725	52
Winter, Sebastian	2299	176
Winter, Sebastian	240	23
Winter, Sebastian	1735	127
Winter, Sebastian		84
Wisen, Susanne	247	23
Witcher, Savannah	1133	99
Withers, Sydnor	914	61
Withey, Jeffrey	694	51
Withey, Jeffrey	707	51
Withey, Jeffrey	691	51
Witkowska, Ewa	2949	207
Witkowska, Halina	2948	207
Witten, Anika	1267	104
Wittink, Floyd	1270	104
Wittmann, Torsten	2865	203
Wnuk, Stanislaw	640	42
Wobser, Dominique	724	52
Woebken, Dagmar	1392	109
Woebken, Dagmar	3085	213
Woertz, Erica	480	33
Wohlfiel, Sherri	1194	101
Wohlfiel, Sherri	1197	101
Wojack, Bette	1187	100
Wojewoda, Christina	2266	174
Wolboldt, Melinda	1847	133
Wolcott, Mark	2106	143
Wolf, Julie		79
Wolf, Rebecca	72	15
Wolfaardt, Gideon	236	23
Wolfe, Alan	1361	108
Wolfe, Gordon	1403	110
Wolfe, Pamela	2780	199

Author	Poster Board	Session Number
Wolff, Peregrine	624	41
Wolfgruber, Stella	2302	176
Wolfram, Francis	2713	196
Wolf-Watz, Hans	1111	98
Wolk, Donna		193
Wolk, Donna		48
Wolk, Donna		48
Wolk, Donna	1237	103
Wolk, Donna	102	16
Wolkowicz, Roland	522	36
Wollam, Aye	2099	143
Wollants, Elke	561	38
Wollein Waldetoft, Kristofer	2301	176
Wollenberg, Michael		77
Wolschendorf, Frank	1561	117
Womack, Ann		224
Wommack, K	2492	184
Wommack, K	488	34
Wommack, K	2465	183
Won, Brian	1331	107
Wong, Alex	947	63
Wong, Amy	2406	180
Wong, Anthony	2115	144
Wong, Arthur	559	38
Wong, Cheryl	207	21
Wong, Choi-lok	1032	66
Wong, Choi-lok	2017	140
Wong, Christina		158
Wong, Eileen	2051	141
Wong, Hayden	2951	208
Wong, James	2321	176
Wong, Jocelyn	44	14
Wong, Joshua	899	60
Wong, Ka Hing	2738	197
Wong, Kelvin	3118	214
wong, Kelvin	1048	67
Wong, Moh	164	20
Wong, Remi	2395	180
Wong, Richard	2784	199
Wong, Sandi	3024	211
Wong, Scott	2314	176
Wong, Sharon	1082	97
Wong, Steven	1031	66
Wong, Tit-Yee	429	31
Wong, Victoria	100	16
Wong, Wayne	1668	124
Wong, Weng	1639	122
Wong, Wenge	74	15
Wong-Beringer, Annie	1632	122
Wong-Beringer, Annie	655	49
Wong-Beringer, Annie	2900	205
Wongwongsee, Wanwasan	1490	113
Woo, Hye-Jin	1953	137
Woo, Hyun Joon	2701	195
Woo, Hyun joon	2760	198
Woo, Nathan	1462	112
Woo, Sung-Geun	2567	187
Woo Sik, Kim	2676	191
Wood, Elaine	723	52
Wood, Matthew	1784	129
Wood, Matthew	544	37
Wood, Thomas	215	22
Wood, Thomas	2396	180
Woodbury, Ronald	2127	169
Woodhams, Katelynn	2225	172
Woodley, Lucille	508	35
Woods, Kenneth	2	12
Woodward, Cyndi	2247	173
Woodward, Joshua		226
Woodward, Zachary	1222	102
Wooley, John	2637	190
Woolverton, Christopher	2413	180
Woosley, Leah	1641	123
Woosley, Leah	1210	102
Wooten, R. Mark		230
Worden, Alexandra	401	30
Worden, Alexandra	1911	135
Worden, Alexandra	2509	184
Worden, Alexandra		87
Wormley, Floyd		47
Wormley Jr, Floyd	1801	130
Woron, Amy	1705	126
Worrell, Alice		83
Worsham, Patricia	1689	125
Wortham, Jonathan	1074	69
Wortmann, Glenn	653	49
Wosten, Marc	29	13
Woyke, Tanja		151
Woyke, Tanja	407	31
Wozniak, Daniel	1130	98
Wozniak, Karen	1801	130
Wreden, Christopher	260	23
Wright, Aaron	2410	180
Wright, Andre-Denis	3154	216
Wright, Anita	682	50
Wright, Anita	2545	186
Wright, Anne	1937	136
Wright, Carolyn	2258	174
Wright, Erik	2041	141
Wright, Gerard	674	50
Wright, Jackie	1199	101
Wright, Marc	2978	209
Wright, Matthew	1156	99
Wrighton, Kelly	943	63
Wrighton, Kelly	2579	188
Wrighton, Kelly	2943	207
Wroblewski, Danielle	745	53
Wu, Chean-Ping	1256	104
Wu, Chen	2054	141
Wu, Chen	982	64
Wu, Chia-Chen	2024	140
Wu, Chien-Chen	727	52
Wu, Chun-Hua	2861	203
Wu, Cindy	1926	136
Wu, Cindy	3089	213
Wu, Fann	93	16
Wu, Fann	1711	126
Wu, Fann	92	16
Wu, Hongzhuan	1457	112
Wu, Hui	2374	179
Wu, Jianfeng	246	23
Wu, Jiunn	2797	200
Wu, Kaiyu	1264	104
Wu, Kun-Han	1990	139
Wu, Linwei	317	27
Wu, Liyou	958	63
Wu, Liyou	3092	213
Wu, Liyou	2503	184
Wu, Liyou	2584	188
Wu, Liyou	957	63
Wu, Liyou	1915	136
Wu, Liyou	1445	111
Wu, Liyou	1446	111
Wu, Liyou	405	30
Wu, Liyou	1448	111
Wu, Liyou	1913	136
Wu, Liyou	3080	213
Wu, Liyou	3080	213
Wu, Liyou	315	27
Wu, Liyou	951	63
Wu, Liyou	953	63
Wu, Liyou	3074	213
Wu, Liyou	331	27
Wu, Liyou	469	33
Wu, Liyou	2458	182
Wu, Liyou	322	27
Wu, Liyou	955	63
Wu, Liyou	956	63
Wu, Liyou	348	28
Wu, Liyou	1447	111
Wu, Liyou	959	63
Wu, Meihua	634	41
Wu, Ruobin	1306	106
Wu, Shangwei	519	35
Wu, Sheng-Yang	1797	130
Wu, Siva	251	23
Wu, Vivian	1016	65
Wu, Vivian	1978	138
Wu, Wei-Min	2586	188
Wu, Wei-Min	3081	213
Wu, Weihui	2339	177
Wu, Weimin	1469	112
Wu, Zuowei	568	38
Wu, Zuowei	1623	119
Wuertz, Stefan	3088	213
Wuertz, Stefan	3098	214
Wuertz, Stefan	2022	140
Wuertz, Stefan	3109	214
Wuertz, Stefan	3104	214
Wu-Hsieh, Betty	1797	130
Wurtzel, Omri		229
Wyatt, Geoff	704	51
Wyber, Andrew	1885	135
Wyckoff, Gerald	911	61
Wyckoff, Peter	3156	216
Wyckoff, Timna	3156	216
Wylie, Jason	1885	135
Wylie, John	106	17
Wymer, Larry	1521	115
Wymer, Larry	2006	140

X

Author	Poster Board	Session Number
Xavier, Karina	279	25
Xavier, M	793	55
Xavier, Mariana	1277	104
Xavier, Mariana	1735	127
Xavier, Mariana	240	23
Xayarath, Bobbi	700	51
Xi, Chuanwu	246	23
Xi, Chuanwu	2158	170
Xia, Yu	353	28
Xiang, Zuoshuang	1603	119
Xiao, Li	864	58
Xiao, Yazhong	1494	113
Xiao, Yi	2558	187
Xie, Gary	322	27
Xie, Jianping	957	63
Xie, Jianping	2503	184
Xie, Jianping	1447	111
XIE, Ming	469	33
Xie, Xiaoliang		81
Xie, Yi	55	14
Xin, Lu	1246	103
Xin, Lu	1219	102
Xiong, Jinbo	956	63
Xiong, Qingming	788	55
Xiong, Qingming	786	55
Xiong, Yan	2415	180
Xu, Chengjiao	2566	187
Xu, Depeng	317	27
Xu, Depeng	324	27
Xu, Depeng	3092	213
Xu, Feng	2096	143
Xu, Fuzhou	48	14
Xu, Fuzhou	21	13
Xu, Fuzhou	1620	119
Xu, H	669	49
Xu, Lifeng		217
Xu, Meiying	3074	213
Xu, Meiying	956	63
Xu, Mouzhong	1433	111
Xu, Tao	2903	205
Xu, Tingting	1455	112
Xu, Wayne	2675	191
Xu, Xiao	105	17

Author	Poster Board	Session Number
Xu, Xiaofeng	1386	109
Xu, Yi	1770	129
Xu, Yi	779	55
Xu, Ying		154
Xue, Kai	1920	136
Xue, Kai	953	63
Xue, Kai	1915	136
Xue, Kai	959	63
Xue, Kai	322	27
Xue, Kai	2503	184
Xue, Kai	1448	111
Xue, Kai	956	63
Xue, Kai	958	63
Xue, Kai	1913	136
Xue, Kai	957	63
Xue, Kai	1446	111
Xue, Kai	324	27
Xue, Kai	955	63
Xue, Kai	3080	213
Xue, Kai	3080	213
Xue, Kai	317	27
Xue, Qiong	779	55
Xun, X	622	41

Y

Author	Poster Board	Session Number
Yachimski, Patrick		85
Yaeger, Michael	1607	119
Yaguchi, Takashi	1554	116
Yakunin, Alexander	408	31
Yakunin, Alexander	1469	112
Yaligara, Veeranagouda	2735	197
Yaliwal, Lakshmi	3117	214
Yamada, Eri	1254	103
Yamada, Koichi	2116	144
Yamada, Koichi	170	20
Yamada, Mamoru		78
Yamada, Yoichi	2160	170
Yamagishi, Hiromi	371	29
Yamaguchi, Akihito	1101	97
Yamaguchi, Hiroyuki	1731	127
Yamaguchi, Hiroyuki	2284	175
Yamaguchi, Hiroyuki	789	55
Yamaguchi, Hiroyuki	2818	202
Yamaguchi, Nobuyasu	1062	68
Yamaguchi, Nobuyasu	2048	141
Yamaguchi, Nobuyasu	395	30
Yamaguchi, Saori	1325	106
Yamaguchi, Takashi	950	63
Yamahara, Kevan	3097	214
Yamaki, Jasib	1632	122
Yamamoto, Norihisa	2874	204
Yamamoto, Saburo	2666	191
Yamamoto, Tomomi	2420	180
Yamamoto, Yoshihiro	170	20
Yamamoto, Yoshihiro	1781	129
Yamamoto, Yoshihiro	2116	144
Yamanaka, Katsuo	2811	201
Yamane, Chikayo	789	55
Yamasaki, Eiki	70	15
Yamasaki, Hisashi	516	35
Yamasaki, Seiji	1101	97
Yamazaki, Tomohiro	2284	175
Yamazaki, Yukiko	1297	105
Yan, Dalai		75
Yan, Fan	1246	103
Yan, Jennifer	1870	134
Yan, Jun	409	31
Yan, Mi	360	28
Yan, Q.	389	29
Yan, Qiong	3054	212
Yan, Tao	2010	140
Yanagihara, Kastunori	2116	144
Yanagihara, Katsunori	170	20
Yanagihara, Katsunori	1781	129
Yanagisawa, Hideji	665	49
Yanai, Machi	2223	172
Yando, Erik	1903	135
Yang, Bing	48	14
Yang, Bing	1620	119
Yang, Caiyun	1898	135
Yang, Caiyun	1913	136
Yang, Chao-Hsun	1940	137
Yang, Ching-Hong	1041	67
Yang, Edward	1306	106
Yang, Heejeong	2751	197
Yang, Hongqiu	801	55
Yang, Honqiu Yang	792	55
Yang, Joy	2651	190
Yang, Joy	755	54
Yang, Junshu	1353	108
Yang, Junshu	1136	99
Yang, Li	2582	188
Yang, Li	1371	109
Yang, Liying		85
Yang, Mei-Kwei	447	32
Yang, Menghua	54	14
Yang, Soo-Jin	2415	180
Yang, Xinghong	75	15
Yang, Yan	360	28
Yang, Ying	3087	213
Yang, Yong	1581	117
Yang, Youngik	767	54
Yang, Yu Jin	2849	203
Yang, Yunfeng	324	27
Yang, Yunfeng	317	27
Yang, Zamin	3016	211
Yang, Zamin	2434	181
Yano, Ikuya	2666	191
Yano, Sho	300	26
Yao, Xiangyu	2694	195
Yao, Xiangyu	2134	169
Yao, Yao	2269	174
Yao, Yufeng	2916	205
Yasmin, T	2163	170
Yassin, Mohamed	2	12
Yasuki, Tatsuya	273	25
Yasuoka, Akira	170	20
Yazdani, Arash	1302	106
Ye, Lei	1993	139
Ye, Lin	1452	111
Ye, Xunyan	2056	141
Yea, Hyun Soo	1969	138
Yea, Mi-Chi	2308	176
Yeaman, Michael	2415	180
Yee, Emma	2095	143
Yee, Emma	1292	105
Yee, Emma	2094	143
Yee, Rebecca	54	14
Yegemberdiyeva, R.	3134	215
Yeh, Hung-Yueh	2825	202
Yeh, Jean	2897	205
Yeh, Teresa	2649	190
Yeh, Yi-Chun	971	64
Yeh, Yi-Chun	358	28
Yehualaeshet, Teshome	1000	65
Yelton, Alexis	2579	188
Yen, Hung-Chen	893	60
Yen-Lieberman, Belinda	2266	174
Yeom, Jinki	2442	181
Yep, Alejandra	686	50
Yesilyurt, Elif	1580	117
Yeung, Ivy	2239	173
Yi, Hana	2097	143
Yi, Hana	2635	190
Yi, XinZhu	2044	141
Yi, Xinzhu	2054	141
Yi, Xinzhu	10	12
Yi, Xinzhu	9	12
Yi, Xinzhu	13	12
Yi, Xuan	226	22
Yi, Y	622	41
Yildiz, Fitnat	2721	196
Yildiz, Fitnat		76
Yilma, Abebayehu	1738	127
Yilma, Abebayehu	834	56
Yilmaz, Lutfu	2041	141
Yilmaz, Suzan	2946	207
Yilmaz, Suzan	502	34
Yilmaz, Suzan	1756	128
Yilmaz, Suzan	3091	213
Yim, Jin-Hyeok	1004	65
Yim, Lucía	690	51
Yin, Shuang	2746	197
Yin, Zhifei	1006	65
Ying, Claire	1184	100
Ying, Claire	172	20
Yip, Andrea	896	60
Yip, Patrick	2713	196
Yohannes, Feben	1222	102
Yokoyama, W.	2520	185
Yoneyama, Hiroshi	1645	123
Yoneyama, Hiroshi	1096	97
Yong, Henry	174	20
Yoo, Ah Young	701	51
Yoo, Hyejin	701	51
Yoo, Miyoun	2084	143
Yoo, Miyoun	403	30
Yoo, Ran	2308	176
Yoo, Ran	887	59
Yoo, Sang-Ho	1312	106
Yoon, Bo-Young	917	62
Yoon, Eun-Jeong	1658	123
Yoon, Hyunjin	307	26
Yoon, Jeong-Jun	352	28
Yoon, Jihee	603	40
Yoon, Jihee	2891	204
Yoon, Jihee	2692	195
Yoon, Seok-Hwan	2635	190
Yoon, Seok-Hwan	2097	143
Yoon, Sukhwan	2968	208
Yoong, Pauline	1672	124
Yooseph, Shibu	767	54
Yooseph, Shibu		85
York, Mary	1207	101
Yoshida, Keitaro	903	61
Yoshida, M	789	55
Yoshida, Mitsutaka	2818	202
Yoshida, Mitsutaka	1731	127
Yoshino, Tomoko	2575	187
Yoshino, Tomoko	1308	106
Yoshioka, Hideyoshi	950	63
Yoshiyama, Mikio	634	41
Yoshizawa, Sadako	2980	209
Yost, Diane	1880	134
Yother, Janet	825	56
Yother, Janet	715	52
Yotpanya, Pajamaporn	224	22
You, Le	2432	181
You, Le	1355	108
You, Lingchong		163
You, Taek Hyun	417	31
Youhei, Youhei	2488	183
Youn, Hwan	1303	106
Youn, Hwan	1307	106
Young, Brian	484	34
Young, Carol	159	19
Young, Carol	1178	100
Young, Carol	116	17
Young, Carol	1176	100
Young, Carol	2244	173
Young, Glenn		72
Young, Jacque	1758	128
Young, Kevin	1827	132
Young, Kevin		5
Young, Kimberly	2242	173

Author	Poster Board	Session Number
Young, Lily	463	33
Young, Lily	585	39
Young, Mark	1757	128
Young, Mark		224
Young, Mark		224
Young, Ryan	1978	138
Young, Shenia	386	29
Young, Shenia	3158	216
Young, Shenia	2535	186
Young, Steven	1253	103
Young, Vincent	765	54
Young, Vincent	2888	204
Young, Vincent	771	54
Young Min, Shin	3017	211
Youngblut, Nicholas	336	27
Youngblut, Nicholas	1417	110
Youngs, Wiley	2137	169
Youssef, Noha	892	60
Youssef, Noha	1434	111
Yu, Changping	1796	130
Yu, Changping	1798	130
Yu, Charles	744	53
Yu, Chi Li	2120	144
Yu, Feiqiao	1936	136
Yu, Hao	322	27
Yu, Hao	324	27
Yu, Hao	956	63
Yu, Hao	958	63
Yu, Hao	1445	111
Yu, Hao	957	63
Yu, Hao	959	63
Yu, Hao	317	27
Yu, Jiujiang	2526	185
Yu, Jong Earn	716	52
Yu, Li	1044	67
Yu, Li-Rong	1495	113
Yu, Li-Rong	1492	113
Yu, Lirong	2474	183
Yu, Marie	159	19
Yu, S. J.	2722	196
Yu, S. J.	1012	65
Yu, Victor	2611	189
Yu, Xiaomin	2431	181
Yu, Xilan	2950	207
Yu, Zhongtang	501	34
Yuan, Mengting	317	27
Yuan, Mengting	1913	136
Yuan, Mengting	405	30
Yuan, Mengting	955	63
Yuan, Mengting	1446	111
Yuan, Tong	317	27
Yuan, Tong	405	30
Yuan, Tong	1913	136
Yuan, Tong	2503	184
Yuan, Tong	324	27
Yuan, Tong	1448	111
Yuan, Tong	1446	111
Yuan, Tong	958	63
Yuan, Tong	3080	213
Yuan, Tong	3080	213
Yuan, Tong	2584	188
Yue, W		226
Yueh, Pei-Ying	1970	138
Yuen, Yvonne	2018	140
Yukio, Hirayama	2182	171
Yun, Bohyun	1969	138
Yun, Hea-Yeon	2393	179
Yun, JeongHee	3070	213
Yun, Jiae	3002	210
Yun, Jiae	1876	134
Yura, Takashi	235	22

Z

Author	Poster Board	Session Number
Zaborina, Olga	719	52
Zacharewski, Timothy	772	54
Zadroga, Rebecca	179	20
Zafar, Mirza	2323	177
Zaffiri, Lorenzo	124	18
Zaher, Sakha	2510	184
Zahid, Hassaan	2970	209
Zaidi, Tanweer	1266	104
Zaidi, Tanweer	848	57
Zaidi, Tauqeer	1266	104
Zaidi, Tauqeer	848	57
Zak, Donald	961	63
Zak, John	335	27
Zakharov, A.	3135	215
Zaltzman, Liron		146
Zambon, Alessandro	1936	136
Zambrano, Maria	777	54
Zambrano, María	491	34
Zambryski, Patricia	907	61
Zamudio, Luis	442	32
Zane, Grant	2409	180
Zane, Grant	2962	208
Zane, Grant	454	33
Zane, Grant	2898	205
Zangaladze, Ekaterine	LB-02	233
Zangari, Tonia	1145	99
Zanzini, Gabriel	1430	111
Zapata, Guido	1021	65
Zapor, Micheal	653	49
Zappulla, Frank	861	58
Zarate, Mariela	2770	198
Zartler, Edward	715	52
Zarzycki-Siek, Jan	1263	104
Zarzycki-Siek, Jan	671	50
Zavadil, Jiri		153
Zavala Diaz-de la Serna, Francisco	530	36
Zavascki, Alexandre	162	19
Zawada, David	1399	110
Zayas, Jessica	640	42
Zayner, Josiah	2936	207
Zechiedrich, Lynn	2682	195
Zechiedrich, Lynn	2103	143
Zechner, Ellen	2302	176
Zeglin, Lydia	318	27
Zehnbauer, Barbara	2277	174
Zehnbauer, Barbara	2276	174
Zehr, Jonathan		6
Zehravi, Zeba	2262	174
Zehravi, Zeba	2261	174
Zehravi, Zeba	2790	200
Zehravi, Zeba	2790	200
Zeigler, Kate	249	23
Zeigler, Kate	242	23
Zeigler Allen, Lisa	1909	135
Zeisler, Viktoria	2475	183
Zelaya, Anna	934	62
Zelazny, Adrian	1536	116
Zelazny, Adrian	2651	190
Zelazny, Adrian	LB-08	233
Zelazny, Adrian	2981	209
Zeldovich, Varvara	1748	127
Zellars, Malcolm	1879	134
Zemanick, Edith	2337	177
Zemansky, Jason	1126	98
Zemla, Marcin		220
Zeng, An-Ping	2699	195
Zeng, Erliang	2463	182
Zeng, Lucy	2949	207
ZENG, MINGTAO	537	36
Zeng, Ximin	48	14
Zeng, Ximin	31	13
Zeng, Ximin	1625	119
Zeng, Ximin	21	13
Zeng, Zheng-Yu	519	35
Zengler, Karsten	2456	182
Zengler, Karsten	1822	131
Zengler, Karsten	1557	116
Zengler, Karsten	2489	183
Zenilman, Jonathan		95
Zenilman, Jonathan		95
Zentron, Chad	2800	200
Zentz, Emily	2794	200
Zepp, Richard	1048	67
Zeuschner, Dagmar	1152	99
Zhalnina, Kateryna	963	63
Zhalnina, Kateryna	338	27
Zhang, Ping	2586	188
Zhang, Alex	3100	214
Zhang, Changwei	1830	132
Zhang, Chen	107	17
Zhang, Chi	90	16
Zhang, Ellisa	2720	196
Zhang, Fan	3023	211
Zhang, Fan	2844	203
Zhang, Fuzhong	991	64
Zhang, Gengxin	2586	188
Zhang, Guodong	381	29
Zhang, Hua	2374	179
Zhang, Huili	2526	185
Zhang, Huiwen	2482	183
Zhang, Jianbo	1264	104
Zhang, Jianmei	2134	169
Zhang, Jin	955	63
Zhang, Jin	1913	136
Zhang, Jin	405	30
Zhang, Jin	1446	111
Zhang, Jing	105	17
Zhang, Jingni	2487	183
Zhang, John	495	34
Zhang, Kangling	1752	128
Zhang, Kun	677	50
Zhang, Kunyan	1264	104
Zhang, L. D.	1011	65
Zhang, Lei	1184	100
Zhang, Limin	1340	107
Zhang, Lu	1993	139
Zhang, Lu		153
Zhang, Minlu		79
Zhang, Nan	57	14
Zhang, Peijun	1581	117
Zhang, Ping	1920	136
Zhang, Ping	3092	213
Zhang, Ping	3081	213
Zhang, Qijing	568	38
Zhang, Qijing	3157	216
Zhang, Qijing	1607	119
Zhang, Qijing	1623	119
Zhang, Qing-Yu	1704	125
Zhang, Qingpeng	3026	211
Zhang, Sean	1250	103
Zhang, Sean	2349	178
Zhang, Shulin	2110	144
Zhang, Tian	1487	113
Zhang, Tianyi	2674	191
Zhang, Ting	3051	212
Zhang, Tong	3087	213
Zhang, Tong	1453	111
Zhang, Tong	2078	142
Zhang, Tong	353	28
Zhang, Tong	1452	111
Zhang, Tong	445	32
Zhang, W	2945	207
Zhang, Wei	1820	131
Zhang, Wei	2463	182
Zhang, Wei	375	29
Zhang, Wei	902	61
Zhang, Wei	3084	213
Zhang, Wei	380	29
Zhang, Weiwen	344	28
Zhang, Xiaoxiao	LB-07	233
Zhang, Xinglin	1087	97
Zhang, Xu	3101	214

Author	Poster Board	Session Number
Zhang, Xu	2078	142
Zhang, Xuecheng	1494	113
Zhang, Y	622	41
Zhang, Yan	2613	189
Zhang, Yan	346	28
Zhang, Yang	1603	119
Zhang, Ying	1073	69
Zhang, Yong	2747	197
Zhang, Yong-Mei	288	25
Zhang, Yuping	1046	67
Zhao, Shaohua	1999	139
Zhao, Fanjie	1915	136
Zhao, Fumei	2308	176
Zhao, Fumei	887	59
Zhao, Jiangchao	771	54
Zhao, Jiangchao	3029	211
Zhao, Jiao	2588	188
Zhao, Lei	2566	187
Zhao, Lei	435	32
Zhao, Ming	2747	197
Zhao, Shaohua	2535	186
Zhao, Shaohua	3158	216
Zhao, Shaohua	1994	139
Zhao, Shaohua	659	49
Zhao, Shaohua	386	29
Zhao, Shaohua	2767	198
Zhao, Shaohua	1072	69
Zhao, Shaohua	3049	212
Zhao, T	1295	105
Zhao, Weidong	2530	186
Zhao, Wenjing	924	62
Zhao, Xiuying	2269	174
Zhao, Yanlin	1870	134
Zhaxybayeva, Olga	1877	134
Zhen, L	1295	105
Zheng, G.	3121	214
Zheng, He	2439	181
Zheng, He	2444	181
Zheng, Jiaqi	663	49
Zheng, Jie	2544	186
Zheng, Jinshui	231	22
Zheng, Li	1353	108
Zheng, Min	105	17
Zheng, Po	2797	200
Zheng, Tianling	1898	135
Zheng, Yan	1387	109
Zheng, Yi	1661	124
Zheng, Yu	663	49
Zhgenti, E	1148	99
Zhgenti, Ekaterine	LB-02	233
Zhi, Xiaoyang	2629	190
Zhou, Aifen	2409	180
Zhou, Aifen	469	33
Zhou, Aifen	348	28
Zhou, Hongzhuan	1620	119
Zhou, Jizhong	317	27
Zhou, Jizhong	975	64
Zhou, Jizhong	2487	183
Zhou, Jizhong	3074	213
Zhou, Jizhong	331	27
Zhou, Jizhong	324	27
Zhou, Jizhong	322	27
Zhou, Jizhong	1447	111
Zhou, Jizhong	469	33
Zhou, Jizhong	1913	136
Zhou, Jizhong	2409	180
Zhou, Jizhong	959	63
Zhou, Jizhong	3080	213
Zhou, Jizhong	3080	213
Zhou, Jizhong		152
Zhou, Jizhong	3081	213
Zhou, Jizhong	2482	183
Zhou, Jizhong	1445	111
Zhou, Jizhong	2503	184
Zhou, Jizhong	953	63
Zhou, Jizhong	2629	190
Zhou, Jizhong	951	63
Zhou, Jizhong	3092	213
Zhou, Jizhong	955	63
Zhou, Jizhong	2584	188
Zhou, Jizhong	958	63
Zhou, Jizhong	405	30
Zhou, Jizhong	2903	205
Zhou, Jizhong	2586	188
Zhou, Jizhong	315	27
Zhou, Jizhong	348	28
Zhou, Jizhong	1898	135
Zhou, Jizhong	1446	111
Zhou, Jizhong	956	63
Zhou, Jizhong	957	63
Zhou, Jizhong	1920	136
Zhou, Jizhong	1915	136
Zhou, Jizhong	1448	111
Zhou, Jizong	2458	182
Zhou, L	1295	105
Zhou, Ming		75
Zhou, Nicolette	1496	113
Zhou, Peiran	2076	142
Zhou, Peng	1390	109
Zhou, Shengmin	613	40
Zhou, W	622	41
Zhou, X. J.	1011	65
Zhou, X. J.	1012	65
Zhou, Xiaoxue	1825	132
Zhou, Xiaoxue	905	61
Zhou, Xishu	2584	188
Zhou, Yaguang	3048	212
Zhou, Zhi	2044	141
Zhou, Zhi	10	12
Zhou, Zhi	9	12
Zhou, Zhi	13	12
Zhou, Zhi	982	64
Zhou, Zhi	2054	141
Zhowandai, Mariam	1567	117
Zhu, Bin		146
Zhu, Dong	2269	174
ZHU, FAN	2374	179
Zhu, Hongbo	449	32
Zhu, Jianguo	2482	183
Zhu, Jun	54	14
Zhu, Mei	387	29
Zhu, Mei	1014	65
Zhu, Mei		226
Zhu, Shanshan	1610	119
Zhuang, Xiaowei		76
Zia, Asad	935	62
Zibura, Cynthia	2242	173
Zimmerman, Lindsay	602	40
Zimmerman, Lindsey	2328	177
Zimmerman, Michael		77
Zinder, Stephen	336	27
Zinder, Stephen	1428	111
Zinder, Stephen		220
Zinder, Stephen	1444	111
Zinder, Stephen	433	31
Zinder, Stephen	2400	180
Zinder, Steven	2491	183
Zinder, Steven	1383	109
Zink, Erika	2410	180
Zinser, Erik	3037	211
Zitomer, Daniel	2568	187
Zitomer, Daniel	2408	180
Zitomer, Daniel	2559	187
Ziv-El, Michal	412	31
Zogaj, Xhavit	704	51
Zomer, Bert	29	13
Zomok, Catherine	2803	201
Zora, J	2216	172
Zoratti, Edward	3035	211
Zou, Wen	2536	186
Zuber, Peter	1326	106
Zuber, Peter	1860	133
Zucconi, Laura	261	24
Zuck, Meghan	795	55
Zulfiqar, Maryam	2147	169
Zuñiga, Jacobo	1158	99
Zúñiga, María	1954	137
Zurek, Oliwia	311	26
Zurek, Oliwia	1280	104
Zurenski, Matthew	794	55
Zuzow, Richard		83
Zweifel, Adrienne	2911	205
Zweifel, Adrienne		78
Zwicker, Paula	1467	112
Zwickl, Beth	1742	127
Zylstra, Gerben	2084	143
Zylstra, Gerben	463	33
Zylstra, Gerben	1498	113
Zylstra, Gerben	471	33

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