

The FERMENTOGRAM

FERMENTATION AND BIOTECHNOLOGY THE DIVISION O NEWSLETTER THE AMERICAN SOCIETY FOR MICROBIOLOGY

NOTES FROM DIVISION "O" CHAIR (and other editorial comments)

The program for ASM 2000 annual meeting (May 21-25, Los Angeles, CA) is being finalized; and this fall issue of the Newsletter is prepared highlighting some of events planned as part of Division O activities at the meeting.

But before I discuss the program, I would like to take this opportunity to thank Dr. Sima Sariaslani for a job very well done as last year's Division O chair. Her enthusiasm and organization have left an example to be followed for future Division O chairs. I want to personally thank Drs. Army Demain and Joan Bennett for their guidance to me in the ways of Division O and ASM, and for their continued active participation in building on the successes of the Fermentation and Biotechnology Division.

All attempts will be made to bring back the days of the biannual issues of "FermentOgram." The fall issue will remind members of the events scheduled for the upcoming ASM annual meeting, and notes of interest to the membership. From time to time, we will cover special topics, such as "viewpoint" included in this issue. To refresh our memories of the history of Division O, I requested two members of our Division, who happen to be two of the most prominent members of ASM, to provide us with their thoughts. These have been included in this issue.

ASM 2000 Division O scientific programs include four symposia (including one pending final approval) and two colloquia. The Division O lecture will be delivered by Dr. Joan Bennett. We did get approval for all of the sessions we had requested. Details of these sessions are provided on pages 6 and 7 of this issue. Additional scheduling details will be provided in the spring issue of FermentOgram.

The abstracts for the annual meeting are due on December 1 (for electronic submissions). Members are encouraged to specify that the presentations be included as part of the Division O program.

Thanks to many corporations as well as ASM, several travel grants to attend the national meeting are available (valued at \$400 or more) for students and postdocs. This year Kikkoman Corporation, Japan has provided \$4,200 to Division O in support of these travel grants. Please specify on the abstract form if you wish to be considered for the ASM travel award (submitted under one of the Division O topics). A copy of request for a travel grant included to the Chair or Chair-elect would be helpful in assigning the non-ASM travel awards.

As Army reminds us in his article in this issue, the Division O mixer is a hallmark of our program at the annual meeting. **And we are grateful to Becton Dickinson for their continued support in hosting this event.** We, the members of Division O, thank Kurt Harbordt, Marketing Manager (B & D) and his organization for their keen interest in Division O activities.

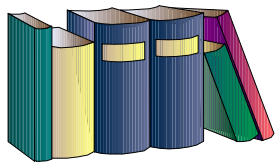
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HISTORY OF THE DIVISION O (FERMENTATION MICROBIOLOGY AND BIOTECHNOLOGY) OF THE AMERICAN SOCIETY FOR MICROBIOLOGY

By: Arnold L. Demain, M.I.T.



In 1966, I was the head of the Department of Fermentation Research at Merck & Co., Inc. in Rahway, NJ. As a devoted 12-year member of ASM, I was concerned about the low quality and quantity of papers dealing with fermentation

which were presented at annual ASM meetings. On the other hand, I was very pleased with the coverage given to the fermentation area in our local branch, the Theobald Smith Society (New Jersey Branch of ASM). I wondered whether anything could be done about the annual ASM situation. An idea came to mind when I recalled the success that Herman Phaff (my former professor and long-time roommate at Annual ASM meetings) had been having with his informal annual Yeast Roundtable at the annual meeting. Thus, in 1966, I contacted friends in the ASM and proposed an informal Fermentation Roundtable for the 1967 meeting in New York City. I explained that although many fermentation people attended the Annual ASM meeting, they presented their best work at ACS meetings and something had to be done to make the Annual ASM meeting more interesting. About 100 people showed up and most presented, in an informal setting, what they were working on. A mailing list was established. I was also able to influence the Agricultural and Industrial Division (there were only four ASM Divisions in those days) to try to improve their program. Bill Hynes of USDA in Peoria was Chair of the A&I Division in 1967 and he proved very cooperative. He agreed to place a box on the abstract form labeled "Fermentation."

The second Fermentation Roundtable in Detroit attracted 150 people and was so successful that the A&I Division, under the Chairmanship of Dave Pramer of Rutgers University, invited us to become the Fermentation Section of the A&I Division in 1968. At that time, I defined our interests to be "fermentation products and biochemistry, genetics, nutrition, microbiology and regulation of the organisms which produce them." We voted in Oldrich K. Sebek of the Upjohn Co. as our first Chair. Oldrich had been instrumental in the A&I Division's decision to set up a Fermentation Section.

Towards the end of 1968, I started a Fermentation Newsletter to be sent out twice a year to the 150 people on our mailing list. Issue number 1 announced the Third

Chairs for the next few years were Dick Elander (1977-78), Mike Pisano (1978-79) and Bernie Abbott (1979-80). In 1979, the editorship of the Newsletter passed on from me to Steve Drew. Barbara Lago became Chair for 1980-81.

Fermentation Roundtable, which was to take place at the 1969 Miami Beach Annual ASM meeting. It was a formal program featuring a roundtable on "Metabolic Regulation and Fermentation" which brought together for the first time basic and applied scientists dealing with microbial physiology, biochemistry and fermentation. In addition to the Roundtable, we organized the first Fermentation Luncheon. It was another huge success since it made available a time and a place for fermentation people to gather, interact and enjoy themselves. Indeed it was decided that since the new Section had been so successful in attracting papers and Seminars, there was no need to continue the Fermentation Roundtable and that it would be replaced by the Fermentation Luncheon. I was elected to be the 2nd Chair of the Section (1969-70).

The 1970 Annual ASM meeting in Boston featured, for the first time, a full program of fermentation offerings including two symposia, four seminars and three paper sessions. Alex Ciegler of the USDA (Peoria) was chosen as Chair for 1970-71. During 1971, ASM agreed to our suggestion to change the name of the Agricultural and Industrial Division to the Environmental and Applied Microbiology Division and I was elected as Chair of the Division. Thus, we became the Fermentation Section of the Applied and Environmental Microbiology Division of ASM.

The 1971-72 Chair was Ed Katz of Georgetown University. During 1972, the ASM decided to reorganize its structure from a small number to a large number of Divisions. We were consulted as a model group for the formation of new Divisions. Twenty-one provisional Divisions were set up including one called Fermentation Microbiology. One hundred and fifty members were necessary for a provisional Division to become a permanent Division and we made it easily. Jerry Birnbaum (Merck & Co.) was elected Chair of the Fermentation Microbiology Section for 1972-73 and Al Laskin (Esso, Linden, NJ) for 1973-74. Finally, the new Fermentation Microbiology Division was born in 1974 with the late Dave Perlman as its Chair.

The Fermentation Microbiology Division continued to grow under the chairs of Bill Charney (1975-76) and Claude Vezina (1976-77). At the 1976 meeting, the annual Fermentation Luncheon was changed into the Fermentation Cocktail Party since participants wanted more conversation time than eating time. Both types of events were huge successes due to the enthusiasm, loyalty and conviviality of our members.

She was succeeded by Chuck Claridge (1981-82), Paul Lemke (1982-83), Charlie Cooney (1983-84), John Litchfield (1984-85), Joan Bennett (1985-86), Steve Drew (1986-87) and Bob Detroy (1987-88). Alan Proctor took the Chair during 1988-

89 and Ed Katz in 1989-90. They were followed by Lou Kaplan (1990-91), Burt Pogell (1991-92), Linda Lasure (1992-93), Vince Gullo (1993-94), Doug Eveleigh (1994-95), Al Laskin (1995-96), Richard Wax (1996-97), David Wu (1997-98), Sima Sariaslani (1998-99) and Deepak Bhatnagar (1999-00). The Chair for 2000-01 will be Lonnie Ingram.

In 1983, the name of the division was changed to Fermentation Microbiology and Biotechnology. The Division has always been blessed with devoted workers including the Newsletter Editors who followed Steve, i.e., Pamela McCormick, Chuck Claridge, Bob Detroy, Sima Saraslani, Brenda Faison, and most recently Deepak Bhatnagar and Jeff Cary. In 1997, the newsletter was given the name “The FermentOgram.” The companies who have aided in the survival of the Newsletter and the progress of the Division are too numerous to mention and we love them all. The Division was also blessed with excellent speakers who were chosen as Divisional Lecturers after this honor was initiated in 1978. They are listed below:

- | | |
|-----------------------|--------------------------|
| 1978 - Bernie Abbott | 1989 - Paula Myers Keith |
| 1979 - Burt Pogell | 1990 - Leo Vining |
| 1980 - Arny Demain | 1991 - Maurice Gaucher |
| 1981 - Jack Rosazza | 1992 - Bob Hamill |
| 1982 - Doug Eveleigh | 1993 - Dick Hutchinson |
| 1983 - Karl Esser | 1994 - Jack Rosazza |
| 1984 - Graham Stewart | 1995 - Tony Warren |
| 1985 - Dick Elander | 1996 - Arny Demain |
| 1986 - Barbara Lago | 1997 - Harry Taber |
| 1987 - Joan Bennett | 1998 - Lonnie Ingram |
| 1988 - Saul Neidelman | 1999 - Boyd Woodruff |

The Division has matured from an idea in 1966 to an informal get-together in 1967, to a formal ASM section in 1968, to a Division in 1974. Today, it is one of the most successful and powerful Divisions of the American Society for Microbiology, made up of over 1000 members. It will continue to be leader and supporter of the fermentation and biotechnology industries and will provide a friendly collegial home to all members of these industries, and to the academicians and government scientists who work in these fields both young and old. I thank all the contributors over the years. For me, it's been a labor of love.

“DON’T THINK OF SAYING NO, TO ASM’S DIVISION O”

By: Joan W. Bennett, Tulane University

That year, the Fermentation Cocktail Party was held at the Royal Orleans Hotel. I sat by the door, collecting entry fees and selling tickets for drinks. Although the setting was elegant, in other ways the party was not a great success. There was no industrial sponsor so we had to charge a fee to cover

Deepak Bhatnagar, end-of-millennium chair of Division O, asked me to write something about our Division for this Newsletter. I am delighted to do so.

Like many people, I was overwhelmed by my first ASM meetings. Thousands of people, hundreds of sessions, and a scientific embarrassment of riches made me feel lost and insignificant. I preferred smaller meetings where there was an opportunity to talk one-on-one with people. It was at one of these smaller meetings – a Gordon Conference on Fungal Metabolism in 1976 – that I first met several of my scientific heroes – John Bu’Lock, Arny Demain and Alex Ciegler. All three men had published extensively about secondary metabolism. All three men had international reputations. And all three men liked to flirt. Over the course of the Gordon Conference, I had several opportunities to talk with them personally and try to impress them with stories of my research using blocked mutants to study aflatoxin biosynthesis.

The following winter when I received a telephone call from Arny Demain, I was thrilled. He’d remembered me! He was impressed with my research! He started his conversation by saying that he wanted me to do something for ASM. My heart soared. I immediately assumed he was going to invite me to speak about my aflatoxin work. My excitement was short lived. His request was for something far more mundane. He asked if I would help organize the annual Fermentation Cocktail party for Division O. The 1977 ASM meeting was going to be held in New Orleans and my proximity to local hotels put me in an ideal position to help with the party arrangements. (In those days, the cocktail party was not organized through the ASM Meetings Board the way it is now.)

I vividly remember my feelings. In those days, women in science held a precarious toe hold on being taken seriously. We were often asked to make coffee in the laboratory, bring home baked cookies to departmental seminars, and type papers for our colleagues. Many of us balked at what we considered demeaning assignments. Making arrangements for the Fermentation Cocktail Party seemed precariously close to traditional “woman’s work.” Nevertheless, the geographic arguments were compelling: I lived in New Orleans and it would be easy for me to call local hotels. I swallowed my feminist pride and told Arny, “Yes.”

room rental; there wasn’t enough food; several participants complained about the cost. Nevertheless, for me personally, the evening was a positive experience. I met a lot of people. Many of these people went on to become good friends (e.g. Ron Cape, Lou Kaplan, Ed Katz, Marv Weinstein). Some of

the personal contacts turned into scientific collaborations – and the following year, when the ASM meeting was held in Las Vegas, I was an invited speaker. Ever since, I've made a point of never missing the Fermentation Cocktail party nor underestimating the importance of social events in providing an entry into a large and seemingly impersonal society.

For me, Division O was the key to understanding all of ASM. ASM is not a large monolith; it is a consortium of thriving smaller units. The success of ASM depends on the robust health of these individual components – Divisions, Branches, Boards, Journals, Committees. Each one of these components functions with remarkable autonomy. Each one is almost entirely dependent on volunteer labor. The Headquarters staff in Washington, D.C., coordinates the volunteer efforts but it is the individual members who make the difference. After my first volunteer activity for ASM, organizing the Division O cocktail party, one thing has led to another: I soon joined the Editorial Board of *Applied and Environmental Microbiology*; organized a symposia for Annual Meetings; with Linda Lasure organized an entire meeting (“Gene Manipulations in the Study and Exploitation of Fungi”); became Chair of Division O; co-chaired a Committee on Biotechnology; and then, from 1990-91, had the honor of being President of ASM. It all started when I decided *not* to get on a feminist high horse back in 1977.

Here's the moral to my story: If Arny Demain ever asks you to donate some time to ASM (or other microbiological causes) just say “YES.” And here is some doggerel to go with my story:

ODE TO DIVISION O

*Don't be shy, don't be scared
When you're asked to volunteer.
There's much to learn about our world
While drinking a glass of cold beer.*

*Microbiologists flock to meetings
In cities far and wide
We listen to papers from dawn to dusk
Until our brains are fried.*

*But the secrets of fermentation
Don't always reduce to slides
It's the power of conversation
That opens up our minds.*

*For shaking colleague's hands
And talking face to face
I guarantee the mixer
Provides the perfect place.*

So here's a little motto

*To end my simple tale:
Don't ever say “No”
To Division O.*

VIEWPOINTS

(Items in this section may not reflect the views of Division O or ASM. These are just viewpoints expressed by members of Division O. The items published in this section are selected by the Editorial Board.)

FIGHT FEAR IN THE 21ST CENTURY

By: Philip T. Pienkos, Energy BioSystems Corp.



I have been pursuing a career in microbiology for almost 20 years, working for a number of biotechnology companies involved in the pharmaceutical, agricultural, and environmental markets. I never thought that there would be people who would oppose the development of biotech solutions to social problems until I saw something in the October

11 issue of *The New York Times* that sent a shiver down my spine. It was a full page ad entitled “Who plays God in the 21st century?”, placed by an organization called the Turning Point Project, a “coalition of more than 60 non-profit organizations that favor democratic, localized, ecologically sound alternatives to current practices and policies”. This coalition includes such organizations as the Sierra Club, the Humane Society and the Friends of the Earth.

The ad uses the time honored technique of using a variety of examples out of context, extrapolating technology to absurd extremes, and exploiting fear of the unknown coupled with loathing of large corporations and their pursuit of profit. A photo depicts what is apparently an experiment in graft rejections with a human grafted onto the back of a mouse, but the clear implication is that this genetically engineered mouse has been induced somehow to grow a human ear. A cry of outrage is raised against the breaking of “the species barrier”, a boundary credited “to God or to Nature” that gives each lifeform its “integrity, and identity.” No work with recombinant DNA is spared their disapproval; this is work, we are reminded, not carried out by “mad scientists”, but rather by “highly paid graduates of prestigious universities such as Harvard, Princeton, and MIT, dazzled by dollars and fame.” Biotechnology is opening Pandora’s box to release “environmental pollution” because biotech companies cannot “control these often weird life forms” that can escape and “don’t want to go back to their test tubes.” Consider the “new bacteria that researchers are creating to break down plant matter into ethanol. But what if such engineered bacteria escape into Nature? Could they turn *all* plant life into ethanol?”

These and other fearmongering examples are laughably ludicrous, but we should not be laughing. This is the beginning of a siege against biotechnology launched by a

group who would rather see the entire technology shut down than carried on in a thoughtful careful manner. When they say “The industry says some of these experiments may save lives, but so far there are few successes,” they are repeating the words of the animal rights activists and the creationists. Medical researchers and science teachers cannot laugh at the strength of these opposition movements, and neither can we as researchers in biotechnology. This movement cannot be ignored because the arguments seem plausible: power-mad, money-hungry eggheads from the east coast are performing experiments that are at once absurd and dangerous. They will tell the big lie with examples that seem to spring directly from *Jurassic Park* or *Frankenstein*, and little by little, the lie will become fixed in our thought processes. Then, when you point with pride to your career, someone will ask you who gave you the right “to take over Nature’s work” to “play God in the 21st century?”

With this growing backlash against science and technology, we have got to become advocates, not just for our profession, but for all of science. The difficulty of challenging this sort of movement, is that its practitioners learn their “facts” from a wide range of areas. Most scientists have detailed knowledge of one area, and know less and less about topics that lie farther and farther outside their fields of expertise. This puts scientists at a disadvantage to combat broad areas of misinformation. You may be able to convince someone of specific errors, but can end up stumped outside

your field of interest. We need to study the teachings of these people who would prevent us from pursuing our careers, and would keep the solutions to real problems from being developed. We need to take them seriously and face up to the challenge of educating as many people as we can. Lies and half-truths cannot stand up to the bright lights of truth, but we need to be as dedicated to spreading the truth as our opponents of spreading lies. Above all, we cannot appear arrogant or uninterested in the face of these fears. We must take them seriously.

I strongly urge you to educate yourself about the Turning Point Project. Call them at 1-800-249-8712; write them at 310 D St. NE, Washington, DC 20002; check out their web site at www.turnpoint.org. Consider the organizations that make up this coalition. If you are involved with them, let them know that you are unhappy with their support of this program, and that you cannot support their worthy efforts in other areas if they continue with this coalition.

(Please forward any comments directly to the author at ppienkos@aol.com)

MEMBERSHIP OF DIVISION O*

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Full Primary Members	1,238	1,209	1,130	1,112	1,097	1,062	1,066	1,014	940	889 ¹

¹As of May 27, 1999.

*Editor's comments: The Division O members are encouraged to invite their colleagues and other ASM members to join Division O. We need to reverse the trend of lowered membership of the last few years. There are plenty of microbiologists engaged primarily in fermentation and biotechnology research or processes. Additionally, others should be requested to assign Division O as their choice for secondary membership.

DIVISION O MEETING DETAILS

COLLOQUIUM

MICROBIOLOGY AND BIOTECHNOLOGY:

HOPE VS. HYSTERIA

(COSPONSORED BY DIVISION W)

CONVENERS: NORMAN P. WILLETT, Temple University
School of Medicine, Philadelphia, PA

FRANK X. BIONDO, C.W. Post-Long Island University, Oyster
Bay, NY

DEEPAK BHATNAGAR, USDA/ARS/Southern Regional
Research Center, New Orleans, LA

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The Changing Face of Industrial Microbiology

ARNOLD DEMAIN, Massachusetts Institute of Technology,
Cambridge, MA

Edible Vaccines: From Concepts to Clinical Trails

CHARLES ARNTZEN, Boyce Thompson Institute, Ithaca, NY

Is the Threat of Bioterrorism Real?

D. A. HENDERSON, Johns Hopkins Center for Civilian
Biodefense Studies, Baltimore, MD

Thinking Past Genomics

KAREN KETCHUM, The Institute of Genomic Research,
Rockville, MD

Biotechnology: Ethics, Benefits & Pitfalls

DANIEL KOSHLAND, University of California, Berkeley, CA

DIVISION O SYMPOSIUM

REGULATION OF GENE CLUSTERS IN TOXIGENIC FUNGI

CONVENERS: G. A. PAYNE, North Carolina State University,
Raleigh, NC

DEEPAK BHATNAGAR, USDA/ARS/Southern Regional
Research Center, New Orleans, LA

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Opening Remarks

Molecular Regulation of Aflatoxin Biosynthesis in *Aspergillus* spp.

DEEPAK BHATNAGAR, USDA/ARS/Southern Regional
Research Center, New Orleans, LA

Signaling Pathways Connecting Secondary Metabolism and Development in *Aspergillus*

NANCY P. KELLER, Texas A&M University, College Station, TX

Differential Expression Analysis as an Approach to Understanding the Regulation of Aflatoxin Biosynthesis

GARY A. PAYNE, North Carolina State University, Raleigh, NC

Mycotoxin Biosynthesis in *Fusarium*

ROBERT H. PROCTOR, NCAUR ARS USDA, Peoria, IL

Microarrays and applications to secondary metabolism studies in *Fusarium*

MARIAN BEREMAND, Texas A&M University, College Station, TX

Closing Remarks

DIVISION O LECTURE

FLEMING'S FUNGUS AND OTHER MICROBIAL SUPERSTARS

JOAN W. BENNETT, Tulane University, New Orleans, LA

Introduction

DEEPAK BHATNAGAR, Division O Chair

DIVISION O SYMPOSIUM

TRENDS IN FUNGAL TECHNOLOGY FOR COMMERCIAL APPLICATIONS

CONVENER: JAN S. TKACZ, Merck Research Laboratories,
Rahway, NJ

Opening Remarks

Therapeutic Agents from Fungi

JAN S. TKACZ, Merck Research Laboratories, Rahway, NJ

Discovery of Novel Fungal Enzymes by Molecular Screening

LENE LANGE, Bagsvaerd, DENMARK

Commercial Mushrooms: Strain Development

RICHARD W. KERRIGAN, Sylvan Spawn Research, Kittanning, PA

Myco-protein, a meat analogue from *Fusarium venenatum*

ANTHONY TRINCI, University of Manchester, Manchester, ENGLAND

Entomopathogenic Fungi as Biological Control Agents for Agriculture

STEPHEN WRAIGHT, USDA/ARS/U. S. Plant Soil Science & Nutrition Laboratory, Ithaca, NY

Closing Remarks

COLLOQUIUM

BIOLOGICAL CONTROL: A PROVEN TECHNOLOGY FOR THE NEW MILLENNIUM (COSPONSORED WITH DIVISION P)

CONVENERS: GREGORY R. SIRAGUSA, *U.S. Meat Animal Research Service, Clay Center, NE*
JEFFREY W. CARY, *USDA/ARS/Southern Regional Research Center, New Orleans, LA*

...

Probiotics for Human Enteric Disease Therapy

JOSE SAAVEDRA, *Johns Hopkins Medical Institutes, Baltimore, MD*

Therapeutic Bacteriophage as a Natural Alternative to Antibiotics

ELIZABETH KUTTER, *Evergreen State College, Olympia, WA*

H-Mutant Phage Prevention of Harmful Plant Diseases

LEE JACKSON, *Agri Phi, Inc., Logan, UT*

Use of Biocontrol by Farmer Communities to Reduce Aflatoxin Contamination

PETER COTTY, *USDA/ARS/Southern Regional Research Center, New Orleans, LA*

Experiences with Normal Intestinal Microflora to Competitively Exclude Salmonellae in Poultry

STAN BAILEY, *USDA/ARS/Richard Russell Research Center, Athens, GA*

DIVISION O SYMPOSIUM

METABOLIC ENGINEERING: BIOCATALYSIS AT THE CROSSROAD

CONVENERS: PHILIP T. PIENKOS, *Energy BioSystems Corp., The Woodlands, TX*
GREGG WHITED, *Genencor International, Inc., Palo Alto, CA*

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Construction of a Recombinant *E. coli* for ethanol production

LONNIE O'NEAL INGRAM, *University of Florida, Gainesville, FL*

Strategies for Metabolic Engineering of *Clostridium acetobutylicum*

GEORGE BENNETT, *Rice University, Houston, TX*

Expansion of the Substrate Range for PCB Degradation

W. REINEKE, *Wuppertal, Germany*

Renewable Biocatalysis: Metabolic Pathway Engineering for the Production of 1,3-propanediol from glucose

GREGG WHITED, *Genencor International, Inc., Palo Alto, CA*

Building a Biocatalyst for the Oxidation of Hydrophobic Molecules

PHILIP PIENKOS, *Energy BioSystems Corp., The Woodlands, TX*

DIVISION O SYMPOSIUM

(PENDING FINAL APPROVAL)

GENOMICS, POST-GENOMICS AND BIOTECHNOLOGY

CONVENER: JOAN W. BENNETT, *Tulane University, New Orleans, LA*

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Fungal Natural Products Drug Discovery in the Genomic Era

ZHIQIANG AN, *Merck Research Labs, Rahway, NJ*

Using Genomics to Speed Up Drug Discovery

BETH D. DIDOMENICO, *Schering-Plough Research Institute, Kenilworth, NJ*

The Impact of Genomics on Understanding Microbial Evolution and Physiology

KAREN NELSON, *The Institute of Genomic Research, Rockville, MD*

The Human and Mouse Genome Projects: A View from the Trenches

BRUCE ROE, *University of Oklahoma, Norman, OK*

Small Genomes and Big Questions: Politics, Money, and Ethics in the Postgenomic Era

JOAN W. BENNETT, *Tulane University, New Orleans, LA*