SEPTEMBER 2003

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# ASBMB Today

Constituent Society of FASEB

AMERICAN SOCIETY FOR BIOCHEMISTRY AND MOLECULAR BIOLOGY

## ALSO IN THIS ISSUE



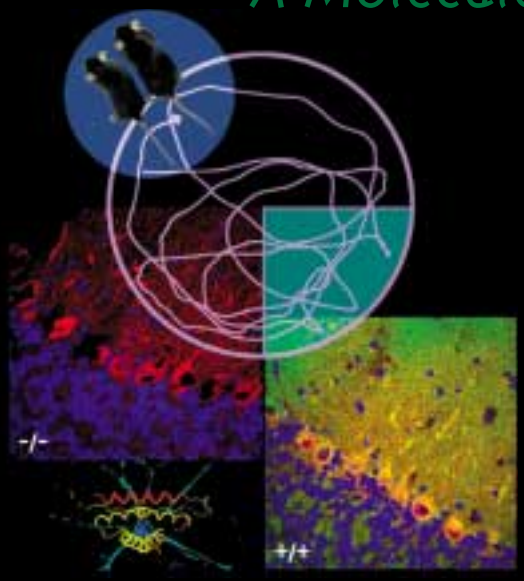
# First Annual Herbert Tabor/ *Journal of Biological Chemistry* Lectureship Recipient




*"A Molecular Exploration of the Cell"*

# IUBMB/ASBMB 2004

## *"A Molecular Exploration of the Cell"*



**June 12 – 16**

**Boston, MA**

**American Society for Biochemistry and Molecular Biology Annual Meeting and 8th IUBMB Conference**

Proteomics and Bioinformatics ■ Chemical Biology ■ Molecular Recognition ■ Cellular Biochemistry

## Opening Lecture

*First Annual Herbert Tabor*/Journal of Biological Chemistry *Lectureship*
**Robert J. Lefkowitz**, *HHMI, Duke University Medical Center*

## Organized by:

John D. Scott, HHMI, *Vollum Institute;* Alexandra C. Newton, *UCSD;* Julio Celis, *Danish Cancer Society*, and the 2004 ASBMB Program Planning Committee

**Meeting I: Molecular Recognition and Catalysis**
Organizer: Jack E. Dixon, *UCSD*

**Meeting II: Cellular Organization and Dynamics**
Organizer: Harald A. Stenmark, *Norwegian Rad. Hosp.*

**Meeting III: Genomics, Proteomics and Bioinformatics**
Organizers: Charlie Boone, *Univ. of Toronto* and Michael Snyder, *Yale Univ.*

**Meeting IV: Integration of Signaling Mechanisms**
Organizer: Kjetil Tasken, *Univ. of Oslo, Norway*

**Meeting V: Molecular and Cellular Biology of Lipids**
Organizer: Dennis Vance, *Univ. of Alberta*

**Meeting VI: Protein Structure, Catalysis and Dynamics**
Organizer: Susan Taylor, *UCSD*

**Meeting VII: Protein Modifications and Turnover**
Organizer: William J. Lennarz, *SUNY at Stony Brook*

**Meeting VIII: Regulation of Gene Expression and Chromosome Transactions**
Organizer: Joan W. Conaway, *Stowers Inst. for Med. Res.*

**Meeting IX: Signaling Pathways in Disease**
Organizers: Alexandra Newton, *UCSD* and John D. Scott, *HHMI, Vollum Inst.*

**Meeting X: The Future of Education and Professional Development in the Molecular Life Sciences**
Organizer: J. Ellis Bell, *Univ. of Richmond*

**For further information:**

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*9650 Rockville Pike*
*Bethesda, MD 20814*
*Tel: 301-634-7145*
*Fax: 301-634-7126*
*Email: asbmb@asbmb.faseb.org*
*http://www.asbmb.org/meetings*

**Abstract Deadline: February 4, 2004**

www.asbmb.org

# ASBMB Today

AMERICAN SOCIETY FOR BIOCHEMISTRY AND MOLECULAR BIOLOGY

SEPTEMBER 2003,
Volume 2, Issue 6

## features



ON THE COVER:




BRONZE AWARD WINNER 2003

## departments



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**Comments**

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# Committee Selected for Executive Officer Search

Drs. Bettie Sue Masters, President, and Judith Bond, President-Elect of ASBMB, have completed the constitution of the Search Committee for Executive Officer of the ASBMB in replacing Mr. Charles C. ("Chuck") Hancock, Jr., who has announced his retirement at the end of this calendar year. As indicated in Dr. Masters' letter to the membership on July 8th, we shall be losing a "linchpin of our Society" due to his dynamic, highly motivated and dedicated service. This makes the task of a search for his replacement even more challenging.

This committee will be chaired by Dr. Vernon Schramm, Professor and Ruth Merns Chair of the Department of Biochemistry of the Albert Einstein College of Medicine, Co-Program Chair of the ASBMB 2003 meeting in San Diego, and Chair of the Division of Biological Chemistry of the American Chemical Society. Dr. Schramm brings a dedication to the goals of our Society and a balanced view of the future to this important task. His committee members are:

Dr. Judith Bond, President-Elect of ASBMB, Professor and Chair, Department of Biochemistry and Molecular Biology, Pennsylvania State University College of Medicine, Hershey, PA

Dr. Joan Conaway, Senior Scientist, Stowers Institute for Medical Research, Kansas City, MO

Dr. Carl Frieden, Professor and Chair, Department of Biochemistry and Molecular Biophysics, Washington University School of Medicine, St. Louis, MO

Dr. Richard W. Hanson, Professor, Department of Biochemistry, Case Western Reserve University School of Medicine, Cleveland, OH

Dr. Claudia Kent, Co-Program Chair, ASBMB 2003 meeting, Former Professor (Retired), Department of Biological Chemistry, University of Michigan, Ann Arbor, MI. Current Address: La Jolla, CA

Dr. Kenneth Neet, Treasurer and Chair of the Finance Committee of ASBMB, Professor and Chair, Department of Biochemistry and Molecular Biology, Finch University of the Health Sciences, Chicago Medical School, Chicago, IL

***Mr. Charles C. ("Chuck") Hancock, Jr., has announced his retirement at the end of this calendar year.***

Dr. Philip Ortiz, Chair, Minority Affairs Committee of ASBMB, Area Coordinator, Mathematics, Science and Technology, Center for Distance Learning, Empire State College, Saratoga Springs, NY

Ex Officio/Non-Voting: Dr. Robert D. Wells, President of the Federation of American Societies for Experimental Biology, Past-President of ASBMB, Director, Center for Genome Research, Institute of Biosciences and Technology, Texas A&M University, Houston, TX

Drs. Masters and Bond believe that this committee will bring the right balance of experience, energy, and vision to the challenge we face in making this very important decision in the life of the ASBMB.

# The ASBMB Centennial: Planning Now for 2006

The American Society for Biochemistry and Molecular Biology (ASBMB) will enter its Centennial Year in 2006, and in 2005 *The Journal of Biological Chemistry* (*JBC*) will mark its hundredth year of publication.

The ASBMB Council is planning now to honor these two remarkable achievements with an outstanding Centennial Celebration at the ASBMB Annual Meeting in conjunction with EB2006 in San Francisco. For this historic event, we are planning a festival that will feature not just the celebration of a prestigious and honorable history but a look forward to the future of the biomedical discipline that we represent.

Special publications being planned will, in words and pictures, tell the history of ASBMB and *The JBC*, including Classics, Reflections, scientific landmarks and the many contributions to science that have been made by ASBMB members.

The meeting itself will feature multimedia showcasing the contributions and future developments of ASBMB and its journals, including making available to the public at no charge 100 years of *JBC* content searchable online. The Society's contributions to education and professional development, public and legislative affairs, and scientific awards will also be highlighted at the meeting. The 2006 meeting will also feature lectures and commentary by scientific luminaries, displays and demonstrations of both historic instruments and current state-of-the-art instrumentation, and workshops focusing on the proteomics era and the future of biochemistry and molecular biology. On the lighter side, social activities and a variety of musical entertainment for all interests—from classical to pop and rock—are being planned.

This gala Centennial Celebration will require an infusion of funding, financed partially through a modest surcharge of $10 per Regular member and $5 per Associate member per year for the next 3 years. Membership funds will be supplemented with donations from foundations and industry. These revenue sources will allow us to finance our activities without overly burdening the resources of ASBMB, at a time when we are embarking on the publication of three new journals, *Molecular and Cellular Proteomics, Journal of Lipid Research*, and *Biochemistry and Molecular Biology Education* (published for the International Union of Biochemistry and Molecular Biology), as well as increasing our public affairs, scientific recognition awards, and educational and professional development activities.

Please plan to join us in San Francisco for this special celebration of 100 years of accomplishment and the promise of the future for the American Society for Biochemistry and Molecular Biology.

## Education and Professional Development 2002-2003 ASBMB Graduation Survey

The ASBMB Education and Professional Development Committee mailed in August the fifth annual graduation survey to Biochemistry and Molecular Biology Department Chairpersons. Respondents may either mail the survey to the Society or complete the form online in the Education section of the ASBMB website. The results of this survey will be published in the *ASBMB Today* and placed on the Society's website.

The data will enable the Committee to more fully serve our members by providing up-to-date demographics and showing trends over time. Additionally, the data will be of help to research universities in identifying recruiting areas that they may not have previously identified.

The deadline for return of the survey will be September 26. Please visit the Education section of the ASBMB website, www.asbmb.org, to see if your department is currently on our "List of Schools" that offer Biochemistry and Molecular Biology degrees. You may also view a list of the respondents to last year's survey. Survey results for the past four years are available online. The results for 2001-2002 were also published in the March 2003 issue of *ASBMB Today*.

The Society uses this information to provide to the public a list of departments that we know offer Biochemistry or Molecular Biology degrees which may be found in the List of Schools section of the ASBMB Education site. This year, as a service to departments returning the survey, ASBMB will provide a link on their educational page to your institution or department home page. If you would like to participate in this service, please provide the appropriate URL in the space provided on the survey.

# Robert J. Cousins Wins Bristol-Myers Squibb/Mead Johnson Award

## Recognized for Pioneering Contributions to Understanding Function and Metabolism of Zinc as an Essential Nutrient in Human Health

Robert J. Cousins, Boston Family Professor of Nutrition at the University of Florida, Gainesville, was named winner of the Twenty-third Annual Bristol-Myers Squibb/Mead Johnson Award for Distinguished Achievement in Nutrition Research for his major contributions to micronutrient research, specifically his wide-ranging and continuing focus on the metabolism and function of zinc in the body, including its critical role in the immune response system.

During a distinguished career that has spanned more than three decades, Dr. Cousins, an ASBMB member, and his colleagues have elucidated novel zinc-regulated genes that have been found to be essential for the regulation of a host of processes in the body.

His earliest efforts in the field, beginning in the 1970s, focused on zinc metabolism as regulated by hormones and immune mediators related to stress and infection, and transcriptional regulation studies that set the stage for Dr. Cousins to formulate a new and groundbreaking understanding of zinc's role in gene expression and protein function.

He was also the first, in the late 1970s, to elucidate the presence of intestinal metallothionein, a protein involved in the regulation and kinetics of the intestinal absorption of dietary zinc, while also discovering its vital role in cellular zinc metabolism, its relationship to zinc deficiency and the consequences that can have on the body. In his studies, he was the first to demonstrate that a dietary trace mineral could actually influence the transcriptional regulation of gene expression. His laboratory continues to study the role of such zinc-binding proteins and the factors controlling their synthesis and degradation. Among the applications of his work has been the development of micro-level gene expression assays that offer new tools for assessing a person's micronutrient status in field and clinical settings.

*Robert J. Cousins, winner of the twenty-third Annual Bristol-Myers Squibb/Mead Johnson Award*

The subsequent discovery and understanding by Dr. Cousins of the zinc-binding properties of another protein—cysteine-rich intestinal protein or CRIP—has led to a more complete appreciation of how zinc behaves in intestinal and immune cells. CRIP is now understood to have a role in immune defense against infection.

Most recently, the discovery by Dr. Cousins that zinc deficiencies can actually induce the expression of an intestinal hormone called uroguanylin is a breakthrough toward realizing the probable role that zinc deficiencies may play in zinc-responsive diarrheal diseases common in young children, particularly in the developing world. Today, using nutritional genomics, he continues to explore zinc status and transport, and zinc's regulatory role in the immune system.

"Even as he has made these many important contributions to understanding more about micronutrients like zinc, Dr. Cousins has also remained in the forefront in the field of nutritional genomics, applying state-of-the-art tools to a variety of important and relevant questions of nutritional research," says Robert A. Burns, Research Fellow, Nutrition Science, Global Research and Development, Mead Johnson Nutritionals, a subsidiary of Bristol-Myers Squibb. "For example, he has utilized genomic approaches to understand the metabolic consequences of deficiencies or excesses of zinc in the body. And, while so many of his fundamental discoveries continue to be of great scientific interest, they also have enormous implications for human health, particularly as we have come to understand the role of zinc deficiency in early childhood morbidity and mortality in the developing world. As technologies have advanced, Dr. Cousins has made creative and innovative use of those technologies for the benefit of science and most importantly, for the benefit of humankind."

Dr. Cousins received a B.A. from the University of Vermont in 1963 and his Ph.D. in nutritional biochemistry from the University of Connecticut in 1968.

He began his academic career as an assistant professor of nutrition at Rutgers University in 1971 and was named to his current post at the University of Florida in 1982. Since 1987, he has also served as director of the Center for Nutritional Sciences at the University of Florida.

His many honors have included: the Mead Johnson Award for research in nutrition in 1979 and the Osborne and Mendel Award in 1989, both from the American Institute of Nutrition; a Merit Award from the National Institute of Diabetes and Digestive and Kidney Diseases; and the USDA Secretary's Honor Award for Superior Service in Research in 2000. In 2000, Dr. Cousins was also elected to the National Academy of Sciences. The author of more than 160 papers, he has also served as an editor or on the editorial committees and boards of a number of major journals including the Annual Review of Nutrition, the Journal of Nutrition and the FASEB Journal. His professional service includes serving as president of the Federation of American Societies for Experimental Biology, the major coalition of biomedical research societies.

The Bristol-Myers Squibb Unrestricted Biomedical Research Grants Program, under which the Distinguished Achievement Award is presented, was initiated in 1977. It marked its 25th anniversary in 2002, reaching a milestone of $100 million in no-strings-attached funding in six biomedical research areas: cancer, cardiovascular disease, infectious disease, metabolic disease, neuroscience and nutrition. The recipient is selected by peer review. The award, a $50,000 cash prize and a silver commemorative medallion, is given annually in each of the six therapeutic areas. Dr. Cousins will officially receive the nutrition award at the annual Bristol-Myers Squibb Distinguished Achievement Award dinner to be held in New York City on October 16, 2003.

Bristol-Myers Squibb is a global pharmaceutical and related health care products company whose mission is to extend and enhance human life. Mead Johnson is a world leader in nutrition, recognized for developing and marketing quality products that meet the nutritional and lifestyle needs of infants, children and adults of all ages.

# Harvard's R. John Collier Wins Bristol-Myers Squibb Award

## Recognized for Historic Discoveries of How Bacteria Cause Disease— Affecting Vaccine Design and New Therapeutic Development

R. John Collier, Maude and Lillian Presley Professor of Microbiology and Molecular Genetics at the Harvard Medical School, was named winner of the Thirteenth Annual Bristol-Myers Squibb Award for Distinguished Achievement in Infectious Diseases Research for his major contributions to our understanding of the molecular mechanisms by which bacteria cause disease. His historic discoveries have influenced the design of vaccines and toxin-based anticancer agents and have recently led to novel therapeutic strategies against anthrax in the war against bioterrorism.

For nearly 40 years, Dr. Collier, an ASBMB member, and his colleagues have been at the forefront in providing the scientific community with a growing understanding of the mechanisms of action of bacterial toxins. Working initially with diphtheria toxin, he was the first to demonstrate that a toxin could enter human cells and inactivate an intracellular target molecule. Specifically he showed how the diphtheria toxin interfered with protein synthesis in the cell by inactivating an intracellular target called elongation factor-2. This revolutionary discovery led to the more expansive conclusion that most major bacterial toxins act by modifying intracellular targets.

Dr. Collier then went further, by elucidating the fundamental structures of toxins and how they function inside a cell. Intracellularly acting toxins were found to consist of two units, A and B, which together contribute to cell damage. In this A-B paradigm, the B subunit allows for cell binding and forms a pathway for the A subunit to cross a membrane and enter the cell interior, where it gains access to its target. There, the A subunit modifies its target molecule, causing death of the cell or, in some cases, a toxic disruption of an important cellular function. As a result of these early discoveries, similar studies were undertaken with other toxins. In addition, for the first time in the field of toxinology, Dr. Collier's team elucidated the three-dimensional structures of toxins, eventually pioneering the use of crystallographic structural analysis in the design of bacterial vaccines. Subsequently, Dr. Collier has gone on to offer scientists new insights into different mechanisms by which channels or pores are formed in cellular membranes, allowing for the translocation of bacterial toxins into cellular compartments.

On a practical level, this pioneering research has contributed to the development of vaccines, including pertussis (whooping cough), because his identification of active sites on toxins has allowed them to be detoxified and then used as vaccines. In addition, the design of immunotoxins to specifically destroy certain cancer cells is a direct result of Dr. Collier's work. And most recently, as a result of work begun years before by his laboratory to investigate the toxin of the anthrax bacteria, new therapeutic strategies to defeat anthrax are now being developed.

"Dr. Collier's outstanding contributions to the field of infectious disease research began with his early work on diphtheria toxin, in the process helping us understand that what he discovered about diphtheria is applicable to most bacterial toxins," said Richard Colonno, Vice President, Infectious Disease Drug Discovery, Bristol-Myers Squibb. "While his science has been insightful, elegant and indeed, in many ways extraordinary and groundbreaking, the practical applications of his work have been just as impressive and critical. They range from discoveries that have led to the development of vaccines, to the creation of immunotoxins to fight cancer, and now, to pioneering work on the anthrax toxin that could lead to new therapeutic approaches in the war against bioterrorism. He has understood the public health promise and implications of his basic scientific breakthroughs and has been in the forefront of finding practical and meaningful applications of his work. We're proud to be able to recognize his achievements on behalf of the scientific and medical community and on behalf of all those individual patients who have been helped as a result of those discoveries."

*Dr. R. John Collier*

Dr. Collier received his B.A. from Rice University in 1959 and his Ph.D. in biology from Harvard University in 1964. He held teaching positions at the University of California, Los Angeles, beginning in 1966 before joining Harvard Medical School in 1984, taking up his current position in 1989. At Harvard, he has also served as Faculty Dean for Graduate Education,

*Continued on page 11*

INVITING NOMINATIONS FOR THE

# *FASEB Excellence in Science Lecture and Award 2005*

NOMINATION FORM

## Selection Criteria and Eligibility

Sponsored by Eli Lilly and Company to recognize outstanding achievement by women in biological science. All women who are members of one or more of the societies of FASEB will be eligible for nomination. Nominations recognize a woman whose career achievements have contributed significantly to further our understanding of a particular discipline by excellence in research.

## Nomination Procedures

*Please use this form as a checklist, include as a cover sheet for your packet, and provide **all** of the following information:*

- ❑ Nominations may be made only by a member of a FASEB Society. Self-nominations are not accepted.
- ❑ 16 copies and original nomination letter, setting forth in detail:
  - the contribution(s) to the field that represents the nominee's outstanding achievement in science
  - leadership and mentorship
  - evidence of national recognition
  - honors and awards
  - synopsis of selected bibliography
- ❑ 16 copies of the full curriculum vitae including all publications.
- ❑ 16 copies of no more than 5 reprints.
- ❑ 16 copies of *each* additional letter of support. Recommendations from former trainees are encouraged.
- ❑ **Incomplete or late packets will be returned to the nominator.**

## Length of Candidacy

Nominations may be updated and resubmitted for a three-year period following the procedures listed above.

## Deadline

Nomination packets including all letters of reference for the 2005 Excellence in Science Award must be received no later than **March 1, 2004**.

## Mail Complete Nominations Packets to:

Ms. Tia B. Poole
FASEB Excellence in Science Award
9650 Rockville Pike
Bethesda, MD 20814-3998
Telephone: 301.634.7090
E-mail: tpoole@faseb.org

## NOMINEE:

FIRST M.I. LAST

TITLE

ORGANIZATION

ADDRESS

CITY STATE ZIP

TELEPHONE EMAIL

## NOMINATOR:

FIRST M.I. LAST

TITLE

ORGANIZATION

ADDRESS

CITY STATE ZIP

TELEPHONE E-MAIL

## Award Presentation

The awardee will present an Excellence in Science Lecture. The award will be presented at an annual meeting of a FASEB member society. The award includes a $10,000 unrestricted research grant, funded by Eli Lilly and Company, travel expenses, complimentary registration at the meeting, and a plaque in recognition of the award.

*TO VIEW A LIST OF PREVIOUS AWARDEES PLEASE VISIT OUR WEBSITE: WWW.FASEB.ORG*

# IOM Proposes NIH Organizational Changes

By Peter Farnham, Public Affairs Officer

Merge the National Institute on Drug Abuse with the National Institute on Alcohol Abuse and Alcoholism.

- Merge the National Institute of General Medical Sciences with the National Human Genome Research Institute.
- Congress should fund a new program for special projects to be run out of the NIH director's office.
- NIH-sponsored clinical research should be consolidated.
- The special status of the National Cancer Institute should be reconsidered.
- Directors of NIH institutes and centers should be appointed to no more than five-year terms, and authority to hire and fire them should be switched from the secretary of HHS to the NIH director.

These are among the numerous recommendations found in a new report written by a committee under the purview of the National Research Council and Institute of Medicine (IOM) of the National Academies. The report was released July 29.

The report appears at a time when NIH is coming under increasing congressional scrutiny (see last month's *ASBMB Today* for a discussion of this problem) and may attract more attention than usual (an earlier IOM report on NIH's organizational structure, issued in 1984, was never acted upon). Congress requested this study because NIH has become vastly larger and more complex in recent decades, and it wanted expert advice on whether NIH was becoming too fragmented and unwieldy. Another concern was whether NIH's current structure can accommodate the increasing pace of scientific advances.

The report did not recommend wholesale consolidation of institutes and centers. However, the committee did not favor a static organization. "Despite our conclusion that widespread consolidation of the institutes and centers would be unwise now, we do not expect NIH's organizational structure to remain frozen," said Committee Chair Harold T. Shapiro, President Emeritus and Professor of Economics and Public Affairs, Princeton University. "We are convinced that many of the goals that might be achieved through large-scale consolidation could be achieved more rapidly and effectively through other organizational mechanisms." These might include increasing the authority of the NIH director and giving him more flexibility to make organizational changes.

The committee supported a merger between the drug- and alcohol-abuse institutes because the missions of the two organizations are nearly the same; also, there is a strong link between alcoholism and the use of illicit drugs, and many of the treatment options are similar. And since the National Human Genome Research Institute has successfully completed its main mission, it makes sense for it to merge with the National Institute of General Medical Sciences, which has a lead role in funding basic biomedical research.

Much of today's most important research requires the collaboration of experts from many disciplines. To help achieve the necessary coordination, the NIH director should develop major "trans-NIH" research initiatives through periodic NIH-wide strategic planning. Also, a "special projects" program should be established in the Director's office to fund risky cutting-edge research. Congress should provide $100 million in new funding for this program the first year, with the annual budget eventually growing to as much as $1 billion.

The committee expressed concern about efforts by HHS to consolidate or centralize management and administrative functions throughout the department as part of the "One HHS" initiative. The committee fears that some attempts to centralize or even outsource administrative tasks fail to appreciate how closely some of these functions, such as aspects of grants management, are tied to the scientific enterprise. Any consolidation efforts should be considered cautiously and only after careful study of circumstances unique to NIH.

The committee also recommended that appointments to the NIH's advisory committees should be based solely on a candidate's scientific or clinical expertise, or his or her involvement in relevant issues. Also, a substantial proportion of each institute's advisory council should consist of people whose primary source of research support is derived from a different institute or center, or from outside NIH.

*The full report can be purchased or read online at: http://www.nap.edu/catalog/10779.html?onpi_newsdoc072903*

# Lipids Get Spotlight in New NIGMS 'Glue Grant'

While genes and proteins have long held starring roles in biomedical research, lipids—fats and oils—often have a more direct effect on human health. A new NIH grant puts lipids at center stage in an ambitious scientific project that promises to shed light on heart disease, arthritis and other major illnesses. The five-year grant will fund the Lipid MAPS Consortium, a large collaborative effort led by the University of California, San Diego. NIH anticipates total funding of about $35 million on the project, starting with $6.3 million in the first year.

"Lipids are the most important biomolecules because they are the ultimate controllers and regulators of our bodily processes," said ASBMB member Edward Dennis, Professor of Chemistry and Biochemistry at the University of California, San Diego, and principal investigator of the Lipid MAPS Consortium.

The new award is a "glue grant," so named because it enables large-scale biomedical research projects by bringing diverse groups of scientists together. The National Institute of General Medical Sciences conceived of glue grants after consultations with leaders in the scientific community who emphasized the importance of confronting intractable biological problems with the expertise of large, multifaceted groups of scientists.

"Today's large, complex biomedical problems demand more intellectual and physical resources than a single laboratory or small group of laboratories can offer," said NIH Director Elias Zerhouni. "By funding scientists from diverse fields and bringing them together, this project dramatically increases the likelihood of a strong return on our research investment. We expect to significantly improve our understanding of the role of lipids in many serious diseases."

The Lipid MAPS Consortium will seek to identify and measure the amounts of all lipids within a cell. This will give scientists a picture of how lipids interact with each other and with the inner structures of cells at varying times and locations.

Imbalances in lipids cause or play a role in diseases that affect millions of people worldwide. High cholesterol has been implicated in cardiovascular disease, which killed about 950,000 Americans in 2002, according to the American Heart Association. Lipids produced by immune system cells are involved in inflammatory diseases such as rheumatoid arthritis, sepsis, asthma and inflammatory bowel disease. Lipids also play a role in Alzheimer's disease and cancer.

The Lipid MAPS Consortium is divided into six focus areas. The "lipidomics" focus area will investigate six major groupings of lipids. Other scientific focus areas will cover informatics, cell biology, lipid detection and quantitation, and lipid synthesis and characterization. More than 30 researchers at 16 universities and two corporations will be involved.

For more information on the Lipid MAPS Consortium research plan, see: http://www.lipidmaps.org

# NIH Will Repay Researchers' Loans

The National Institutes of Health (NIH) Loan Repayment Programs offer up to $35,000 per year to repay student loans of scientists, physicians, dentists, and other health professionals willing to commit to a career in clinical, pediatric, health disparities or contraception and infertility research. Applicants must have doctoral-level degrees and commit to spend at least 50% of their time for two years conducting qualified research.

Online application was to open September 1 and closes December 31, 2003. See www.lrp.nih.gov for program information and to apply online.

### NIH Loan Repayment Program

NIH will also repay lenders for the extant principal, interest, and related expenses of qualified U.S. Government (federal, state, local), academic institutions, and commercial educational loans obtained by participants for the following:

1. Undergraduate, graduate, and health professional school tuition expenses;
2. Other reasonable expenses required by the school(s) atended, including fees, books, supplies, educational equipment and materials, and laboratory expenses; and
3. Reasonable living expenses, including the cost of room and board, transportation and commuting costs, and other living expenses as determined by the Secretary.

More detailed information is available on the NIH website at http://www.lrp.nih.gov/about/extramural/loaninfo.htm

# Differentiation of Hematopoietic Stem Cells

By Lisa Samols

Emery Bresnick, Professor of Pharmacology at the University of Wisconsin Medical School and an ASBMB member, has begun to clear the path to what he calls one of the "Holy Grails" of biomedical research, self-renewable adult stem cells. His contribution to this quest is an understanding of how hematopoietic stem cells and multipotent hematopoietic progenitors differentiate into all types of blood cells, published in a paper in the July 11, 2003, issue of *Proceedings of the National Academy of Sciences Online*. The other authors of the paper are Jeffrey Grass and Meghan Boyer, Research Associates, Saumen Pal, Postdoctoral Fellow and Jing Wu, Graduate Student, all in the Department of Pharmacology at the University of Wisconsin Medical School; with the collaboration of Mitchell Weiss, Assistant Professor of Pediatrics at the Children's Hospital of Philadelphia.

Differentiation of hematopoietic stem cells and progenitors relies on two proteins of the GATA family, which Dr. Bresnick describes as "a family of proteins required for the development of many of our organs, which are conserved from worm to man." The six GATA proteins were known to have nearly identical DNA-binding domains, but extremely different functions. To investigate why the proteins do not regulate the same genes and elicit identical cellular responses, he focused on the two GATA proteins that had already been proven to control the differentiation of hematopoietic stem and progenitor cells, GATA-1 and GATA-2.

Previous research in the lab of ASBMB member Stuart Orkin, Professor and Chairman of Pediatric Oncology at the Dana Farber Cancer Institute and Harvard Medical School, had shown that GATA-2 is necessary for hematopoietic stem and progenitor cells to function and that GATA-1 is required for hematopoietic stem cells to differentiate into red blood cells, megakaryocytes and eosinophils. Dr. Orkin's lab also determined that GATA-2 is present in the stem cells at first, and then its production decreases as GATA-1 levels increase during differentiation. After differentiation, only GATA-1 is present in the blood cells. Dr. Bresnick and his colleagues continued the story from this point to discover why expression of the GATA-1 and GATA-2 genes differed between the undifferentiated and fully differentiated blood cells.

***Dr. Bresnick's work reveals new possibilities for generating large numbers of stem cells from just a few harvested adult stem cells.***

"We are interested in how chromatin domains assemble in stem cells versus progenitor cells versus differentiated cells," he says. "We asked, how does the gene get assembled into a form in which it can become active in hematopoietic stem cells and then reconfigured into a form in which it can become inactive?"

The answer lies in the specific six base pair sequences that are found all over the genome and recognized by GATA proteins. The Wisconsin researchers suspected that GATA-1 proteins were directly involved in the regulation of the expression of the GATA-2 gene. That is, once GATA-1 is produced, it binds to the GATA-2 gene in such a way that production of GATA-2 is shut off and differentiation can continue. On the GATA-2 gene, the researchers found more than 80 of the recognized sites, called motifs. However, further investigation showed that GATA-1 binds only to a region containing just four of the 80 motifs, all in one small area of approximately 3,000 base pairs upstream of the first of two promoters on the GATA-2 gene. Thirty minutes to one hour after GATA-1 binds to the GATA-2 gene, production of GATA-2 ceases, allowing differentiation to occur.

An additional surprise was the discovery that GATA-2 proteins act as their own enhancers. The proteins bind to the same region containing the four motifs that GATA-1 does and increases expression of the gene. Once

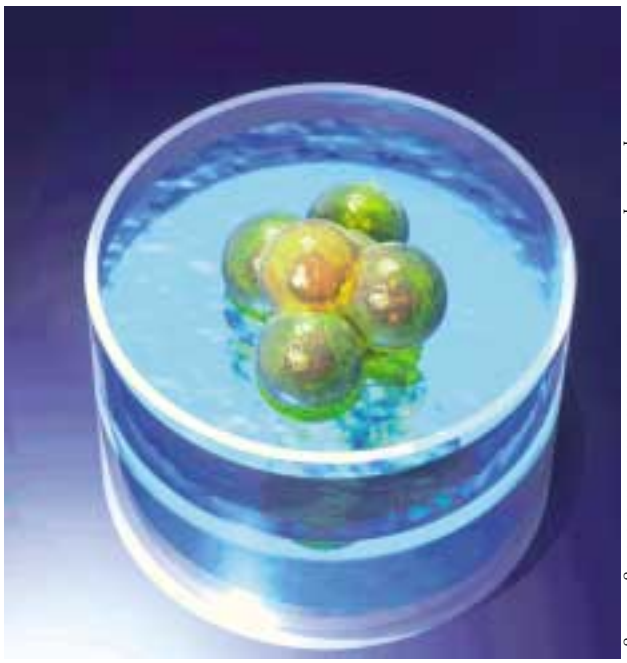
*From left to right are Jing Wu, Saumen Pal, Dr. Bresnick, Jeffrey Grass, Meghan Boyer.*

GATA-1 is produced, it displaces the GATA-2 proteins to silence the gene.

The clinical application of the research is a long way off, but Dr. Bresnick's work reveals new possibilities for generating large numbers of stem cells from just a few harvested adult stem cells. Given that GATA-2 keeps hematopoietic cells functioning and the presence of GATA-1 directly represses GATA-2, stimulating the cells to differentiate, increasing the strength of the GATA-2-dependent positive autoregulation or suppressing the expression or activity of GATA-1 could theoretically keep the cell in a stem cell state indefinitely, possibly resulting in expansion of stem cell numbers.

"The concentrations of the two highly related GATA factors, GATA-1 and GATA-2, determine the activity of the stem and progenitor cells. Thus, increasing the relative activity of GATA-2 versus GATA-1 might expand the stem cells or preserve them at their existing numbers, while suppressing differentiation, a process in which the stem cell is consumed," says Dr. Bresnick.

Though they may not be answered any time soon, this question as well as that of finding a molecule that could effectively shift the balance of GATA factors may lead to that "Holy Grail."



Conceptual computer artwork of a bundle of stem cells in culture. © Laguna Design

## Collier Wins continued

*Continued from page 6*

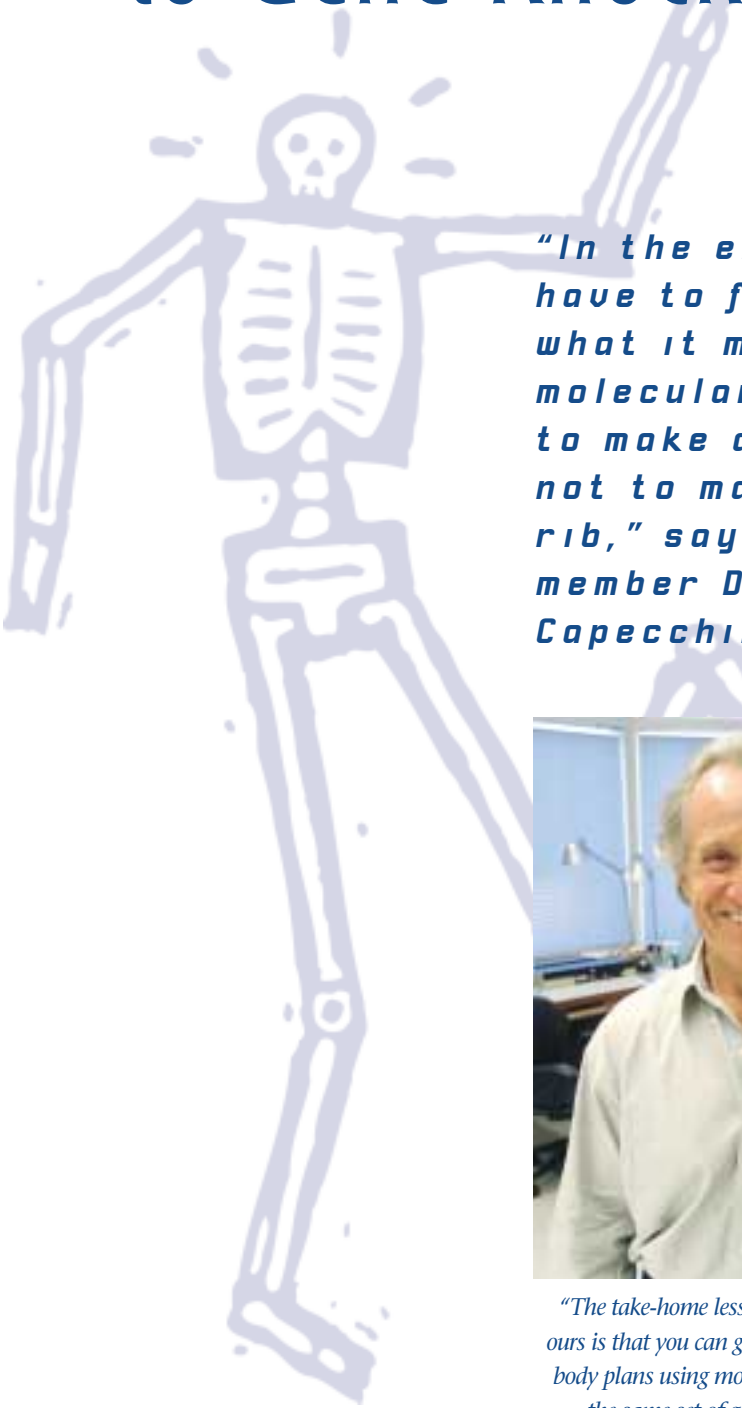
Chairman of the Division of Medical Science and Acting Head of the Department of Microbiology and Molecular Genetics.

He has been recognized for his many contributions with a number of honors including the Eli Lilly Award in Microbiology and Immunology in 1972, the Pierce Immunotoxin Award in 1988, the Paul Ehrlich Prize in 1990, the Selman A. Waksman Award in Microbiology from the National Academy of Sciences in 1999, and with his election to the National Academy of Sciences, the American Academy of Arts and Sciences and the American Academy of Microbiology. His work on anthrax and other toxins also has led to his membership on a number of distinguished panels exploring biowarfare and science, including an Advisory Panel for the Defense Advanced Research Projects Agency and the NIAID Blue Ribbon Panel on Bioterrorism.

The Bristol-Myers Squibb Unrestricted Biomedical Research Grants Program, under which the Distinguished Achievement Award is presented, was initiated in 1977. The recipient is selected by peer review. The award, a $50,000 cash prize and a silver commemorative medallion, is given annually in each of the six therapeutic areas. Dr. Collier will officially receive the infectious disease award at the annual Bristol-Myers Squibb Distinguished Achievement Award dinner in New York City on October 16

Bristol-Myers Squibb is a global pharmaceutical and related health care products company whose mission is to extend and enhance human life.

# New Approach to Gene Knockouts Reveals the



**"In the end, we have to figure out what it means in a molecular sense to make a rib or not to make a rib," says ASBMB member Dr. Mario Capecchi.**

*"The take-home lesson from research such as ours is that you can generate all these different body plans using moderately simple rules and the same set of genes, but just modulating them differently," says Dr. Mario Capecchi.*

Howard Hughes Medical Institute researchers are moving closer to understanding how the global pattern of the skeleton of mammals is formed during development. In a demanding series of experiments, the researchers knocked out entire sets of two families of genes suspected of playing a central role in establishing the pattern of the skeleton in the mammalian embryo.

Their findings regarding the "paralogous" gene families known as Hox10 and Hox11 establish that the genes play important roles in orchestrating the construction of the ribs, spine and limb bones. Paralogous genes are sets of genes that have overlapping function. They arose during evolution through gene duplication.

The studies on Hox10 and Hox11 were published in the July 18, 2003, issue of the journal *Science* by Mario R. Capecchi, HHMI Investigator and Professor in the Department of Human Gneetics at the University of Utah, and colleague Deneen M. Wellik.

According to Dr. Capecchi, the findings should also spur other scientists studying mammalian development to test the effects of knocking out multiple members of the Hox gene families. Knocking out multiple genes will enable scientists to "peel away" the layers of redundant gene function to more closely discern the true developmental roles of specific members of the Hox gene families.

The 13 sets of Hox genes, each with multiple members, have long been known to be "transcriptional regula-

# 'Master Planners' of the Skeleton

tors" that control the multitude of genes involved in embryonic development. However, he said, experiments in which one or another of the Hox genes were knocked out provided little information about the functions of individual Hox genes.

"It was confusing," noted Dr. Capecchi, referring to results from earlier gene knockouts of Hox10 and Hox11. "When individual genes were knocked out, the resulting animals might have an extra rib or vertebrae or be missing one. And sometimes one structure would transform to look like another or just be misshapen. Even if you inactivated five out of the six genes, you still got very small effects. So, while it was clear these genes were working in the region of the ribs and spine, it wasn't clear what they were doing."

The Capecchi/Wellik team attempted the difficult task of knocking out all of the Hox10 or Hox11 paralogous gene forms, or alleles. The experiments were particularly challenging because eliminating the genes profoundly affected the embryonic development and survival of the mice. Another complication was that many of the surviving animals were sterile. But when the scientists managed to produce knockout mice that survived to birth with the entire gene sets missing, the effects on evelopment were dramatic.

"When we eliminated all the Hox10 genes, we obtained animals that made ribs essentially all the way from the normal thoracic region down through the tail," reported Dr. Cappecchi. "What's interesting is that this is the body plan of most fish as well as the early tetrapods such as the dinosaurs. However, this plan resulted in an inflexible body, so mammals basically adapted the Hox genes to get rid of some of those ribs to increase flexibility and speed."

When the researchers knocked out the Hox11 genes, the animals' lower, or sacral, vertebrae assumed the identity of lumbar vertebrae (those between the sacral and the rib-supporting thoracic vertebrae) and no sacral vertebrae developed in the animal.

The researchers also found that knocking out the Hox10 or Hox11 genes affected the length of specific limb bones, demonstrating a role for those genes in patterning of limbs.

"All these results tell us that these genes control global patterning of the skeletal structures, as opposed to forming the structures rib by rib, for example," said Dr. Capecchi. "This understanding also suggests an evolutionary pathway by which vertebrates could evolve different patterns for different species."

A major challenge for researchers studying the genetic control of development will be to detect where the panoply of Hox genes are expressed in the growing embryo, he explained. "We've demonstrated that the expression patterns of these genes are fairly dynamic. So, when researchers are looking for expression of specific Hox genes in a given tissue, they might not see them because the genes are expressed only during certain periods of development." Multiple knockout studies such as the ones done on Hox10 and Hox11 may also yield valuable clues into how the genes affect one another, he added.

Future experiments by the researchers, as well as their colleagues studying other Hox genes, may involve knocking out all genes in the individual paralogous Hox gene sets and attempting to discern the roles of those gene sets from observing the alterations in development of the body plan.

"However, my guess is that nature won't be that kind to us," said Dr. Capecchi. "I suspect that sometimes development of a particular structure will involve using members of an entirely different paralogous family. So, our knockouts may have to be much broader than we now believe."

Another major challenge, he added, will be determining which genes the Hox genes target to control development. "In the end, we have to figure out what it means in a molecular sense to make a rib or not to make a rib," said Dr. Capecchi. However, he added that the research thus far has yielded important insights.

"Even among mammals, there are enormously different body shapes, from giraffes, to monkeys and humans, to mice," he noted. "The take-home lesson from research such as ours is that you can generate all these different body plans using moderately simple rules and the same set of genes, but just modulating them differently."

# Herbert Tabor Lectureship Recipient

*Dr. Robert Lefkowitz will be the recipient of the First Annual Herbert Tabor/Journal of Biological Chemistry Lectureship*

Robert Lefkowitz, James B. Duke Professor and Howard Hughes Medical Institute Investigator at Duke University Medical Center, will be the recipient of the First Annual Herbert Tabor/Journal of Biological Chemistry Lectureship, which will open the 2004 ASBMB Annual Meeting in Boston on Saturday, June 12. He was also honored recently with the 500,000-euro (about $560,000) Scientific Grand Prize of the Institut de France, that country's leading association of intellectual academies. That award is given each year to a "scientist who has made important contributions to cardiovascular physiology, biology, or medicine."

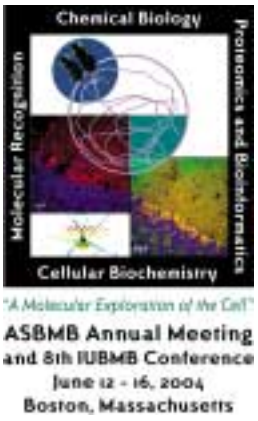
Starting with the 2004 meeting, the Herbert Tabor/*Journal of Biological Chemistry* Lecture will be the opening lecture of every ASBMB Annual Meeting. The award honors Dr. Tabor for his long service to the Society and to the *JBC*. Future recipients will be selected from among those whose names represent outstanding research in addition to service to the Society, including its publication efforts.

Dr. Lefkowitz, an ASBMB member, is known for his seminal research on "seven transmembrane spanning receptors," a group that constitutes by far the largest and most ubiquitous family of receptors in nature. These receptors—protein switches that nestle themselves in the cell membrane—include the beta adrenergic receptors that mediate the body's fight-or-flight response, as well as virtually all sensory receptors.

Seven transmembrane spanning receptors respond to external signals such as hormones, switching on machinery within the cell to respond to those signals. The beta adrenergic receptors, for example, respond to the hormone adrenaline, which acts on cells to increase heart rate, blood pressure, breathing and metabolic energy production.

Basic research on such receptors in the Lefkowitz laboratory is contributing to the development of a wide array of drugs to treat disorders including heart disease, high blood pressure, asthma and pain.

Said Dr. Lefkowitz of the Institut de France award, "I am thrilled and rather awestruck by the size of the award. And




# Also Honored by French Institute

I'm cognizant that the research that led to the award was made possible only by the fact that I was fortunate enough to lead a talented and dedicated group of fellows and students over the years.

"I'm also very excited about being the first Herbert Tabor/*Journal of Biological Chemistry* Lecture Award recipient at next year's annual meeting. I consider this a great honor indeed."

"I've spent my entire career at Duke and have enjoyed extraordinary support by the Howard Hughes Medical Institute," he added. "That support and the rich intellectual atmosphere at Duke have inspired my work and that of my colleagues in the laboratory."

Said Duke Medical School Dean Sandy Williams, "This latest in a long line of honors for Bob Lefkowitz is yet another fitting recognition of the profound impact his research has had on medical science and human health. What's more, the extraordinary number of young scientists he has trained has magnified that effect, to the incalculable benefit of our society. We are so proud that he has chosen to do his excellent scientific work at Duke and so inspired by his spirit of basic scientific inquiry."

Dr. Lefkowitz will receive the award, the Lefoulon Delalande Foundation Scientific Grand Prize 2003, in January 2004 in a ceremony at the Institut de France in Paris.

# Seven Membrane Spanning Receptors

by Robert J. Lefkowitz, M.D.

The superfamily of seven membrane spanning receptors, comprising more than 1,000 members in the human genome, constitute by far the largest, most versatile and most ubiquitous type of plasma membrane receptor. Moreover, they comprise the major target of current therapeutic drugs.

Drug receptors have fascinated biologists for more than a hundred years, but as recently as the 1970s, much skepticism persisted as to their existence as molecular entities. With the advent of radioligand binding, detergent solubilization, photoaffinity labeling, affinity chromatography and lipid reconstitution, the b1, b2, a1 and a2 adrenergic receptors were all purified 100-200,000 fold by the mid-80's. This led to cloning of the b2 AR (1986) unexpectedly revealing its seven transmembrane architecture and homology with rhodopsin.

Cloning of the family of adrenergic receptors and others confirmed the existence of a superfamily of seven membrane spanning receptors (7MSRs). Contemporaneously, a universal mechanism of 7MSR desensitization by G protein-coupled receptor kinases (GRKs) and b-arrestins was discovered. However, these proteins are increasingly appreciated as playing wider roles in 7MSR signaling and regulation. For example, b-arrestins facilitate clathrin mediated endocytosis by serving as adaptors which recruit elements of the endocytic machinery such as clathrin, AP2, NSF, and ARF6 among others, in a process which is controlled by b-arrestin ubiquitination by the E3 ligase, MDM2.

Moreover, for a rapidly expanding list of pathways, b-arrestins serve as adaptors or scaffolds which link the receptors to signaling systems such as MAP kinases, non-receptor tyrosine kinases and others. In the case of the Angiotensin II receptor, this arrestin-mediated signaling functions entirely independent of and parallel to G protein signaling. Thus, the b-arrestin-GRK system operates not only to desensitize G protein signaling but, like the G proteins themselves, also serves as an alternative signal transducer.

# ASBMB 2004 Meetings-Within-a-Meeting

Following on the success of the 2003 Annual Meeting format, the 2004 meeting will again feature a series of meetings-within-a-meeting, all of them focused on timely topics of major importance to our members. Following is the first in a series of *ASBMB Today* articles describing the content of each meeting-within-a-meeting.

*Meeting V Organizer Dennis Vance.*

## Meeting V: Molecular and Cellular Biology of Lipids

**Organizer: Dennis Vance,** *Professor, Department of Biochemistry, University of Alberta*

During the last decade Lipid Biochemistry has evolved from a subject that has been handicapped by the innate problems of membrane associated enzymes to a discipline greatly empowered by the modern techniques of molecular and cell biology. The theme of Molecular and Cellular Biology of Lipids at the 2004 ASBMB/IUBMB meeting in Boston will reflect that transition. The program will feature the use of gene-disrupted mice to address questions about the regulation of lipid biosynthesis and the function of various lipids and lipid metabolizing enzyme/proteins in the intact organism. A second focus of the meeting will be lipid signaling and its function.

## Symposium 1, Regulation of Lipid Biosynthesis

Chair of this symposium will be Dr. Vance, who will discuss Metabolic Insights From Murine Knockouts in Hepatic Phosphatidylcholine Biosynthesis.

Phosphatidylcholine is an essential molecule in most eukaryotic cells. This symposium will focus on mice in which each of 3 genes that are critical for phosphatidylcholine biosynthesis has been disrupted. Historically, phosphatidylcholine has been considered to be present only in a few bacteria. However, Dr. Geiger has discovered a new pathway in bacteria that reacts choline with CDP-diacylglycerol to form phosphatidylcholine. The discovery of phosphocholine substitution on cell surface components in certain bacteria has also emphasized a role for the CDP-choline pathway in eubacteria even though these bacteria do not make phosphatidylcholine.

Gene Expression and the Regulation of Phosphatidylcholine Biosynthesis
**Suzy Jackowski,** *St. Jude Children's Research Hospital*

Regulation of Membrane Lipid Biosynthesis in Eubacteria
**Otto Geiger,** *Universidad Nacional Autonoma de Mexico*

## Symposium 2, Lipids and Obesity

Lipid Synthesis Enzymes and Obesity
**Chair, Robert Farese, Jr.,** *Gladstone Research Laboratory*

Obesity and related diseases, such as diabetes, are fast becoming a major concern for worldwide public health. Fortunately, knowlege of the basic biology that underlies the regulation of body weight is growing rapidly. This symposium will focus on the relationship of lipid (or fat) metabolism and obesity. Dr. Robert Farese, Jr., will discuss recent insights into the enzymes that catalyze fat synthesis, some of which may be targets for drug therapies. Dr. Rudolf Zechner will discuss the other side of the coin — fat breakdown. He will share recent knowledge of the enzymes involved in hydrolyzing fat. Dr. Johan Auwerx will discuss developments in understanding of the nuclear hormone receptors that control processes such as fat synthesis and fat breakdown. A goal of this session will be to provide a better understanding of the cell biology of the adipocyte and how changes in fat cells influence energy metabolism of the organism.

Adipose Tissue Lipases and Obesity
**Rudolf Zechner,** *Karl Franzens University, Austria*

Metabolic control by nuclear receptors
**Johan Auwerx,** *University of Strasburg, France*

## Symposium 3, Cholesterol Homeostasis

Receptors for Lipoprotein Transport and Signal Transduction
**Chair, Wolfgang Schneider,** *University of Vienna, Austria*

Cholesterol homeostasis is maintained by the products of tightly regulated genes, among which receptors and transporters play indispensable roles. The session will focus on membrane-localized molecules for the cellular import and export, respectively, of lipoproteins and/or their lipid components, notably cholesterol. Molecular defects in any of these proteins lead to dramatic pathobiological phenotypes. The first example are mutations disrupting the function of members of the

# ASBMB Molecular and Cellular Biology of Lipids Meeting planned for IUBMB/ASBMB 2004 in Boston!

## ASBMB Annual Meeting and 8th IUBMB Conference
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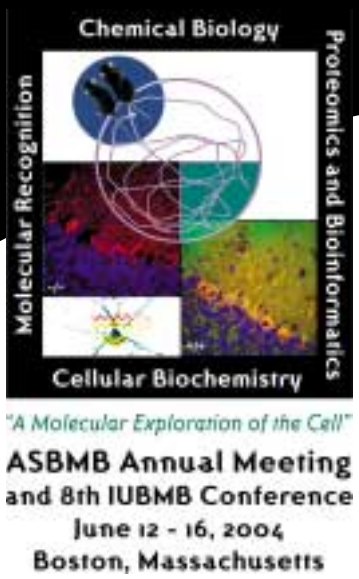


Organized by Dennis Vance, *University of Alberta*

### Regulation of Lipid Biosynthesis

Metabolic insights from murine knockouts in hepatic phosphatidylcholine biosynthesis
**Chair, Dennis Vance,** *Univ. of Alberta*

Gene expression and the regulation of phosphatidylcholine biosynthesis
**Suzanne Jackowski,** *St. Jude Children's Res. Hosp.*

Regulation of membrane lipid biosynthesis in eubacteria
**Otto Geiger,** *Univ. Nacional Autonoma de Mexico*

### Lipids and Obesity

Lipid synthesis enzymes and obesity
**Chair, Robert Farese, Jr.,** *Gladstone Res. Lab.*

Adipose tissue lipases and obesity
**Rudolf Zechner,** *Karl Franzens Univ., Austria*

Metabolic control by nuclear receptors
**Johan Auwerx,** *Univ. of Strasburg, France*

### Cholesterol Homeostasis

Receptors for lipoprotein transport and signal transduction
**Chair, Wolfgang Schneider,** *Univ. of Vienna, Austria*

ABCG5 and ABCG8: limiting cholesterol homeostasis
**Helen Hobbs,** *Univ. of Texas, Southwestern*

Characterization of the HDL receptor SR-BI and its influence on lipoprotein metabolism, red blood cell maturation, female fertility and coronary artery disease
**Monty Krieger,** *MIT*

### Sphingolipid Homeostasis

Sphingolipids: Metabolism at membrane-water interphases and its diseases
**Chair, Konrad Sandhoff,** *Univ. of Bonn, Germany*

Sphingolipids and cell growth control
**Joseph Nickels,** *Drexel Univ.*

Molecular machinery for intracellular ceramide trafficking
**Kentaro Hanada,** *Natl. Inst. of Infectious Dis., Tokyo, Japan*

### Phospholipases/Eicosanoids

Regulation of cytosolic phospholipase A2 alpha translocation
**Chair, Christina Leslie,** *Natl. Jewish Med. and Res. Ctr.*

Mammalian phospholipases $A_2$: deciphering their cellular functions using biochemical and genetic approaches
**Michael Gelb,** *Univ. of Washington*

Cyclooxygenase structure and catalysis
**William Smith,** *Univ. of Michigan*

### Phosphoinositides/Inositol Phosphates

Inositol signaling reactions
**Chair, Philip Majerus,** *Washington Univ.*

Role of lipid phosphatases in cell signaling
**Christina Mitchell,** *Monash Univ., Australia*

Phosphoinositide signaling in cell motility
**Richard Anderson,** *Univ. of Wisconsin*

### Obesity and Minority Populations

*sponsored by the ASBMB Minority Affairs Committee*
**Chair, Phillip A. Ortiz**, *SUNY, Empire State Col.*

Addressing the prevalence of obesity in minority populations with legislation
**Felix Ortiz**, *New York State Assemblyman, 51st District*

Adipose cell turnover and its role in insulin resistance
**Desmond G. Hunt**, *NIDDK/NIH*

"Rolling Store": an environmental approach to the prevention of weight gain in African American women
**Betty Monroe Kennedy**, *Pennington Biomed. Res. Ctr., Baton Rouge, LA*

Title TBD
**Kristie J. Lancaster**, *New York Univ.*

*Additional Speakers will be chosen from the abstracts submitted to the ASBMB Molecular and Cellular Biology of Lipids topic categories. Abstract deadline: 2/4/004*

**Travel Awards Available for Undergraduates, Graduates, Postdoctoral Fellows and Undergraduate Faculty**

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superfamily of low-density lipoprotein (LDL) receptors, which may cause severe hyperlipidaemias with associated premature atherogenesis, birth defects or lethality, female sterility, and abnormal brain development. Another family of membrane proteins with important functions in cholesterol homeostasis is that of ATP-Binding Cassette (ABC) transporters. Two of these have been found to be specified by adjacent genes, and their products cooperate so as to limit the intestinal absorption of dietary sterols; mutations in the genes predispose to sterol accumulation and atherosclerosis. The third player to be discussed is a receptor originally characterized as so-called scavenger receptor (SR) for high-density lipoproteins (HDL). The subtype B, Class I, receptor (SR-BI) is believed to influence lipoprotein metabolism, red blood cell maturation, female fertility, and atherogenicity by modulating the transport of HDL or lipid component(s) thereof.

ABCG5 and ABCG8: limiting cholesterol homeostasis

**Helen Hobbs,** *University of Texas, Southwestern*

Characterization of the HDL receptor SR-BI and its influence on lipoprotein metabolism, red blood cell maturation, female fertility and coronary artery disease

**Monty Krieger,** *Massachusetts Institute of Technology*

## Symposium 4, Sphingolipid Homeostasis

Sphingolipids: Metabolism at membrane-water interphases and its diseases

**Chair, Konrad Sandhoff,** *University of Bonn, Germany*

Sphingolipids and glycosphingolipids form a group of cell type specific membrane components which are the physiological surroundings of membrane proteins. They are involved in the regulation of membrane-bound receptors and signal transduction. Sphingolipid metabolism is distributed between different subcellular compartments. It controls the generation of primary and secondary messengers like sphingosine, sphingosine-1-phosphate, ceramide and ceramide-1-phosphate involved in cell growth and apoptosis, and that of microdomain forming membrane components such as sphingomyelin and cell type specific neutral glycosphingolipids and gangliosides.

Dr. Sandhoff will begin this session with an overview on mammalian sphingolipid metabolism and the function of sphingolipids as revealed by analysis of knock out animals and human diseases.

Joseph Nickels of Drexel University will present recent findings on the homeostasis of sphingolipid and sterol metabolism involved in the regulation of cell growth, and Kentaro Hanada will present new findings on the intracellular trafficking of ceramide and its functions.

Sphingolipids and Cell Growth Control

**Joseph Nickels,** *Drexel University*

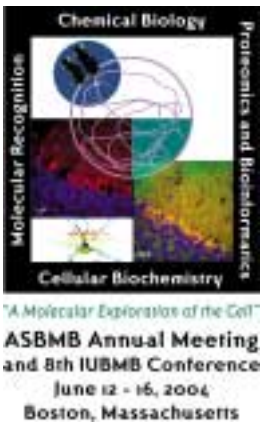
Molecular Machinery for Intracellular Ceramide Trafficking

**Kentaro Hanada,** *National Institute of Infectious Diseases, Tokyo, Japan*

## Symposium 5, Phospholipases Eicosanoids

Regulation of Cytosolic Chospholipase A2 Alpha Translocation

**Chair, Christina Leslie,** *National Jewish Medical and Research Center*




Mammalian Phospholipases A2: Deciphering Their Cellular Functions Using Biochemical and Genetic Approaches

**Michael Gelb,** *University of Washington*

Cyclooxygenase Structure and Catalysis

**William Smith,** *University of Michigan*

## Symposium 6, Phosphoinositides Inositol Phosphates

**Chair: Philip Majerus,** *Washington University*

Inositol Signaling Reactions

The phosphatidylinositol signaling system, notes Dr. Majerus, is a robust and complex system that participates in essentially all intracellular functions including response to agonists, cell motility, vesicular trafficking, cell proliferation and differentiation. There are 8 different inositol lipids that are signaling molecules and over 50 water soluble inositol phosphates. Mutations in genes encoding enzymes of inositol phosphate metabolism cause an increasing array of diverse diseases including Lowe syndrome, myotonic myopathy, Charcot-Marie-Tooth neurodegeneration, the Weeble mouse neurodegeneration, etc.

Knowledge of the pathways and processes that are controlled by the inositol signals are expanding rapidly and will also be discussed at the session.

Role of Lipid Phosphatases in Cell Signaling

**Christina Mitchell,** *Monash University, Australia*

Phosphoinositide Signaling in Cell Motility

**Richard Anderson,** *University of Wisconsin*

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## Symposia & Chairs

**Membrane Biomechanics and Mechano-Sensitive Channels**
*Sergei Sukharev*, University of Maryland

**Structural Views Into Ligand & Voltage Channel Gating**
*Francisco Bezanilla*, University of California, Los Angeles

**Signaling Through Phospholipids and their Metabolites**
*Don Hilgemann*, University of Texas Southwest Medical Center

**The Structure of Coupled Transport**
*Ernest M. Wright*, University of California, Los Angeles

**Membrane Protein Folding In Vivo and In Vitro**
*J. Antoinette Killian*, University of Utrecht

**Membrane Protein Structural Dynamics**
*Albert Beth*, Vanderbilt University

**Protein Misfolding and Amyloidogenesis**
*Robert Griffin*, Massachusetts Institute of Technology

**Flexibility and Allostery in Signaling Proteins**
*Susan Taylor*, University of California, San Diego

**RNA Structure and Processing**
*Kathleen Hall*, Washington University

**Multi-Protein Nucleic Acid Complexes**
*John Bushweller*, University of Virginia

**Non-Classical Molecular Motors**
*Steven Chu*, Stanford University

**Structural Dynamics of Myosin**
*David Thomas*, University of Minnesota

**Structural Basis of Viral Pathogenesis**
*Michael Rossman*, Purdue University

**Visualizing Cells And Organelles**
*Wolfgang Baumeister*, Max Planck Institute for Biochemistry, Martinsried

**Functional Neuroimaging**
*Kamil Ugurbil*, University of Minnesota

**Protein Aggregation and Disease Pathogenesis**
*Paul Axelsen*, University of Pennsylvania

**How Hearing Happens: The Role of Molecular Motors and Ion Channels in Adaptation and Amplification by Hair Cells**
*James A. Hudspeth*, Rockefeller University

**Awards Symposium**
*Yale Goldman*, University of Pennsylvania, Society President

**Theoretical Cell Biophysics**
*Ken Dill*, University of California, San Francisco

**New and Notable**
*Tim Cross*, Florida State University, and *Paul Axelsen*, University of Pennsylvania

**Forces and Dynamics in the Cytoskeleton**
*Paul Janmey*, University of Pennsylvania

## Workshops & Chairs

**Membranes on Solid Supports: Scientific and Nano/Technological Applications**
*Lukas Tamm*, University of Virginia Health Science Center

**Applied Biocomputations**
*James Andrew Mccammon*, University of California, San Diego

**New Technology In Site-Directed Spin Labeling**
*Christen Altenbach*, University of California, Los Angeles

**Polyunsaturated Lipid Membranes**
*Burton Litman*, National Institutes of Health, *Kevin Keough*, Memorial University of Newfoundland

**RNAi**
*Brian Cullen*, Duke University

## National Lecturer

*Roderick MacKinnon*
*Rockefeller University, Howard Hughes Medical Institute*

MONDAY, FEBRUARY 16, 8:00 PM

**Atomic Basis of Ion Channel Function**

# NIH 2004 Funding Picture Not Pretty—But Hope Remains

By Peter Farnham, Public Affairs Officer

Members of the House of Representatives began their annual summer recess at the end of July, and headed home after having approved a 2004 budget for the National Institutes of Health that contains only a 2.5% increase, $681 million more than fiscal year 2003. The House action closely mirrors the President's proposed budget for NIH, released in February. The House appropriation for NIH is about $27.66 billion.

In the Senate, the NIH appropriation has progressed only through the Appropriations Committee and will not reach the Senate floor until early September. However, the news here is little better than in the House. The Senate Appropriations Committee has approved a funding increase for NIH of only 3.7%, about $1 billion, for a total of just under $28 billion. Thus, unless something dramatic happens, the best the NIH can expect by way of an increase this year is the Senate figure. ASBMB and most of the biomedical research community is supporting an increase for NIH this year of 10%.

*Representatives Chris Bell (D-TX), right, and Lois Capps (D-CA) have circulated a "dear colleague" letter to their House colleagues calling for increases at NIH in the range of 8%-10%.*

Fortunately, Arlen Specter along with Democrats Tim Harkin and Diane Feinstein is expected to offer an amendment during floor debate in September that would add an additional $1.5 billion to NIH above the committee-approved figure, giving the agency a total increase this year of $2.5 billion, or about 9%. This increase generally mirrors a non-binding resolution introduced by Senator Specter that the Senate approved earlier this year. This resolution, which would increase the NIH budget by 8.5% for each of the next five years, passed 96-1. Of course, no money was involved; it was strictly a statement of Senate support for NIH.

In addition, support for the Senate improving on the House mark is coming from an unusual place—the House! In mid-July, Representatives Chris Bell (D-TX) and Lois Capps (D-CA) began circulating a "dear colleague" letter to their House colleagues calling for increases at NIH in the range of 8%-10%. Once a large number of signatures have been collected, the letter will be sent to the chairs and ranking members of the House and Senate appropriations subcommittees that fund NIH—Senators Specter and Harkin, and Representatives Ralph Regula (R-OH) and David Obey (D-WI). By mid-August, Representatives Bell and Capps had collected 64 signatures, and intended to spend the rest of August collecting additional signatures. The letter will be delivered in September.

***The Senate Appropriations Committee has approved a funding increase for NIH of only 3.7%. ASBMB is supporting a total appropriation for NIH this year of 10%.***

*Senator Diane Feinstein (D-CA) is expected to offer an amendment during Senate floor debate in September that would add an additional $1.3 billion to NIH*

It would be very helpful for all ASBMB members to contact their representatives in the next few weeks about signing onto this letter. The more signatures that can be added to the letter, the more impact it will have. All representatives can be reached through the House website (http://www.house.gov) and they can also be reached by phone through the capitol switchboard at 202/224-3121. You might check the ASBMB homepage to see which members of the House have signed the dear colleague letter already. This information is posted under "What's New."

# NSF Appropriations—House Mark of 6.2% Not Bad for a Tough Year

The House passed the 2004 VA/HUD appropriations bill on July 25 and gave the National Science Foundation a 6.2% increase. Under the House-approved spending plan, the NSF would be funded at $5.689 billion. Within this proposed increase, research would grow by almost $250 million (More details are available at the NSF website, at http://www.nsf.gov).

*"This bill signals continuing support for NSF and its mission," according to House Science Committee Chairman Sherwood Boehlert (R-NY).*

Following the bill's passage, House Science Committee Chairman Sherwood Boehlert (R-NY) said:

"The passage of today's bill is another feather in the cap for the scientific community. I am pleased that the House continues to recognize the vital role NSF plays in our nation's scientific enterprise. This bill provided NSF with its largest budget ever - $5.689 billion, which is $329.1 million or 6.2% over FY '03. I will continue to work...to find additional resources for NSF as this bill moves through the process. But in this constrained budget, this bill signals continuing support for NSF and its mission."

The bill has not yet begun to move in the Senate.

The House report for the VA/HUD bill has not been released yet, but *ASBMB Today* has learned of language in the report regarding the recent effort at the VA's Office of Research and Development to "defund" 18 VA research grants. The language "urges" VA Secretary Principi to "submit an explanation of [VA's] research priorities for medical and prosthetic research, including any changes in relative priority of basic and clinical research in a report due 90 days after enactment. The report should also explain any changes in the peer review system used to evaluate research proposals within the Medical Research Service."

# ASBMB Welcomes New Ph.D.s

ASBMB extends its congratulations to these individuals who recently received their Ph.D. degrees. In recognition of their achievement, ASBMB is presenting them with a free one-year membership in the Society. The new Ph.D.s are listed below with the institution from which they received their degree.

**Jonathon P. Audia**
University of South Alabama College of Medicine

**Elizabeth Bull***
NCI, NIH

**Deborah Edwards**
Tulane University

**Eric Shiozaki**
Brigham Young University

** Previous Associate member who met the requirements for a free one-year membership.*

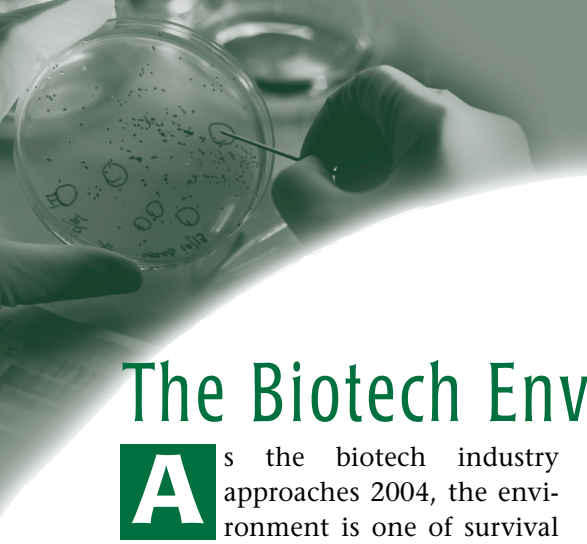
# FASEB President Wells Meets with NSF Director

FASEB President Bob Wells met on July 2 with National Science Foundation Director Rita Colwell at the NSF offices in Arlington, VA.. He was accompanied by Dr. Elsa Reichmanis, President of the American Chemical Society. The meeting with Dr. Colwell was to demonstrate FASEB's continuing support for the NSF, and for Dr. Wells to renew his acquaintanceship with her.

*Dr. Robert Wells*

Dr. Wells said, "It was wonderful to meet with Dr. Colwell to discuss issues related to the National Science Foundation. The NSF funds a broad range of scientific programs related to the interests of ASBMB members. As a long time NSF grantee, I am pleased that FASEB has identified this important agency as a priority for its advocacy. NSF's research and education initiatives occupy a unique niche in science. I am also delighted that Dr. Elsa Reichmanis, President of the American Chemical Society, was present at this visit. On behalf of FASEB, I look forward to continuing our joint efforts with ACS."

Dr. Wells was an NSF grantee for over 25 years, and in April 2001, while serving as ASBMB's president, he testified in the House of Representatives in favor of a 15 percent increase for NSF.



by John D. Thompson, Editor

# The Biotech Environment: Survival and Success

As the biotech industry approaches 2004, the environment is one of survival and success according to Ernst & Young's report, *Resilience: America's Biotechnology Report 2003*. There always have been more companies struggling to survive than building on successes, but the report finds tghat the difference in 2002 and 2003 is the widening gap between the haves and have-nots.

This century started with a bang in 2000 and many companies benefited from the celebration of great expectations from remarkable scientific advancements, such as the mapping of the human genome. However, the Nasdaq Biotech Index was down in March 2003 more than 60% from October 2000, and the AMEX Pharmaceutical Index had dropped nearly 40% since January 2001.

The initial public offering (IPO) and follow-on markets for biotech stocks have been slumping since the end of 2000, with fewer than 10 IPOs in 2001 and 2002 compared with nearly 60 in 2000. The total market capitalization of about 300 U.S. biotech companies was a staggering $353 billion in 2000, more than 150% over the previous year, but by the end of 2002 the industry had lost $170 billion in market value.

The most popular form of public market financing over the past two years has been convertible debt, much of it sold when stock prices were considerably higher. This debt is coming due over the next several years and if stocks remain depressed, loss-making companies will face the need to repay hundreds of millions of dollars in cash, rather than equity.

### Venture Financing Strong

One bright spot has been venture capital funding, which has remained strong for emerging biotech companies since 2000. Private companies have experienced decreased valuations, but venture capital is available for those with drugs in clinical development and technologies that have proven product development capabilities.

Cash reserves, however, are dwindling.The Ernst & Young Survival Index shows an increase in 2002 over 2001 in the percentage of companies with less than two years of cash. That could be critical if the capital markets remain closed beyond 2003.

### Product Setbacks

In addition to the general market downturn, Recombinant Capital, a San Francisco consulting firm, reported that at least 30 medicines failed in Phase II or Phase III studies in 2002. Still, there are many success stories. The industry's product sales and revenues in grew in 2002, the 14th consecutive annual increase. The Biotechnology Industry Organization reported 35 product approvals in 2002 by the U.S. Food and Drug Administration (FDA) compared with 24 in 2001. The figures include approvals of existing drugs for new indications. The number of first-time I drug approvals, however, decreased. The number of publicly traded U.S. companies declined by about seven percent, from 342 to 318, in 2002 due to aggressive merger and acquisition (M&A) activity and a higher incidence of bankruptcies. Bio World reported about 200 M&As in the biotech industry worldwide in 2001 and 2002. The M&A activity is expected to continue according to Ernst & Young which considers this a positive sign for a sector that has long been described as overcrowded and redundant.

### On the Brighter Side

The total number of privately held companies increased slightly based on strong venture capital support for new technologies. In addition, the number of employees increased about one percent from 193,000 to nearly 195,000.

Biotech's top companies made significant progress in 2002. Amgen expects worldwide product sales to more than double between 2002 and the end of 2005, and projects annual sales growth in the 30% range with adjusted earnings growth at about 25% over the next three years.

## UK's BioBank Going to University of Manchester

The University of Manchester has been named as the headquarters for BioBank, a new national genetics database project in the UK. BioBank is an $80 million project funded by the Wellcome Trust, the UK government and the Medical Research Council to gather genetic, medical, and lifestyle data on 500,000 Britons, data that could prove invaluable in correlating DNA variations with common diseases. Volunteers chosen at random will be asked to donate DNA, and answer a detailed questionnaire on their health and lifestyle. Their health will be followed for decades to help discover the roles of genes and environment in developing cancer, heart disease, and other illnesses.

## California Universities Team With Nonprofit to Develop Drugs

The PharmaSTART consortium, a group of California universities and a nonprofit research institute, SRI International, has been formed to help the universities conduct the early testing of molecules usually performed by nonacademic institutions, such as biotech and pharmaceutical companies.

To help its partners carry out early testing of new molecules, SRI will work with researchers at Stanford University and the Universities of California in San Francisco and San Diego (UCSD) to develop a strategy to determine if a drug is worth testing in humans, according to Glenn Rice, Vice President of SRI's Biosciences Division. He anticipates that if molecules pass early benchmarks, they may become more attractive to traditional sources of funding, whose deep pockets could provide the money needed to get them approved for human use.

Many industry observers have noted that funding of early tests has dried up of late, particularly for drugs with little likelihood of a quick return. Commenting on this trend, Floyd Bloom, Chair of the Neuropharmacology Department at Scripps Research Institute and also of the American Association for the Advancement of Science, told *The Scientist,* "The major drug companies don't want to even start a trial if, at the end of that, they're not going to have a huge seller, blockbuster size."

However, Bill Greene, a principal at life sciences investor MPM Capital, told *The Scientist* that not all big pharma money is being diverted from early research, and particularly promising drugs, or those that have the potential to treat many people, continue to receive early testing funds from traditional investors. "As in many other things, there's always room at the top," Greene noted.

ASBMB member Jerrold Olefsky, Professor of Medicine at UCSD and a member of the PharmaSTART steering committee, acknowledged that money is always a problem but said that he is not concerned. He noted that potential financial backers may be more excited to fund a project in which three of the nation's top universities are working together. "I have no doubt that the funding is out there," Dr. Olefsky said.

## Genzyme to Buy SangStat for $600 Million in Cash

Genzyme Corp. has agreed to buy SangStat Medical Corp. for about $600 million in cash to gain products used to treat organ-transplant patients. The purchase is seen as a step by CEO Henri Termeer to move Genzyme, which now focuses on rare diseases, into broader markets to spur profit. The acquisition allows Cambridge, Massachusetts-based Genzyme to compete in a $3 billion market for medicines that prevent the body from rejecting a transplanted organ.

SangStat's biggest product is Thymoglobulin, which has U.S. approval for treatment of patients whose bodies are rejecting donor kidneys. The medicine had worldwide sales of $77.4 million last year and will complement Genzyme's Renagel treatment for kidney disease, Genzyme said.

Genzyme plans to research new uses for the product, such as in patients getting liver or bone marrow transplants.

SangStat also co-markets a transplant drug called Gengraf with Abbott Laboratories. The medicine works by suppressing the body's immune system to keep it from rejecting an organ.

Transplant medications will probably generate sales of about $3.2 billion this year, climbing to $3.9 billion next year, according to estimates by Lehman Brothers Holdings Inc.

## Fewer Americans Dying Of Heart Disease, But Blacks Lag Behind

While America as a whole is moving in the right direction with respect to heart disease, differences between black and white Americans persist when it comes to cardiovascular health, according to a new Pfizer Inc/National Medical Association study covering the period 1992 to 2000.

A greater percentage of black Americans under the age of 60 are dying from heart disease and stroke than their white counterparts, reports Pfizer Facts: Racial Differences in Cardiovascular Health. The newly released data shows that age-adjusted death rates from cardiovascular disease remain 29% higher for blacks than whites, and age-adjusted stroke deaths remain 40% higher, despite an overall decrease in heart disease and stroke deaths for both groups.

# Calendar of Scientific Meetings

## SEPTEMBER 2003

### NMR in Molecular Biology
### EuroConference on Structural Genomics: From Gene to Structure as viewed by NMR

**September 5–10** • Obernai (near Strasbourg), France
Contact: Dr. Josip Hendekovic or Anne-Sophie Gablin
Ph: + 33 388 76 71 35; Fx: + 33 388 36 69 87
Website: http://www.esf.org/esf_euresco
Please quote 2003–14 in any correspondence

### Sixth Conference on Protein Expression in Animal Cells

**September 7–11** • Mont-Tremblant, QC, Canada
Contact: Marc Aucoin, Technical Officer
Biotechnology Research Institute; Email: 6thPEACe@nrc.ca
Website: http://www.bri.nrc.ca/6thPEACe

### American Society for Bone and Mineral Research (ASBMR) 25th Annual Meeting and Anniversary Celebration

**September 19–23** • Minneapolis, Minnesota, U.S.A.
Late-Breaking Abstract Submission Deadline is July 15, 2003.
Ph: 202-367-1161; Email: asbmr@dc.sba.com; www.asbmr.org

### Third International Conference on the Pathobiology of Proteoglycans

**September 20–25** • Parma, Italy
Contacts: Roberto Perris, Chair and Ariane De Agostini, Co-chair
Clinique de Stérilité de d'Endocrinologie gynécologique,
Hôpital Cantonal Universitaire de Genève
Ph: 41-22 / 382.43.46; Fx: 41-22 / 347.59.79
Email: Ariane.Deagostini@medecine.unige.ch
Website: http://www.assb.biol.unipr.it/PG2003

## OCTOBER 2003

### OARSI's 2003 World Congress on Osteoarthritis

**October 12–15** • Palais am Funkturm, Berlin
Contact: OARSI Headquarters; Ph: 202-367-1177; Fx: 202-367-2177
Email: oarsi@oarsi.org; Website: http://www.oarsi.org

### AAPS Workshop on Method Validation and Measurement of Biomarkers in Nonclinical and Clinical Samples in Drug Development

Cosponsored with Clinical Ligand Assay Society
**October 24–25** • Salt Lake City, Utah
Contact: AAPS Meetings Department
Ph: 703-243-2800; Fx: 703-243-9532; Email: meetings@aaps.org
Website: http://www.aapspharmaceutica.com/meetings

### AAPS Annual Meeting and Exposition

**October 26–30** • Salt Lake City, Utah
Contact: AAPS Meetings Department
Ph: 703-243-2800; Fx: 703-243-9532; Email: meetings@aaps.org
Website: http://www.aapspharmaceutica.com/meetings

### Cytokines, Signalling & Diseases

**Oct. 26–30** • Cairns, Australia
Event Host: International Society for Interferon and Cytokine Research; Website: http://www.cytokines2003.conf.au/

### American Association of Pharmaceutical Scientists Annual Meeting and Exposition

**October 26–30** • Salt Lake City
Ph: 703-243-2800; Fx: 703-243-9650; Email: aaps@aaps.org
Website: http://www.aapspharmaceutica.com/meetings/annualmeet/am03/index.asp

## NOVEMBER 2003

### Biomedical Information Science and Technology Initiative (BISTI) 2003 Symposium
### Digital Biology: The Emerging Paradigm

**November 6–7** • Natcher Conference Center, NIH, Bethesda, MD
Contact: Saundra Bromberg, Capital Consulting Corporation
Ph: 301-468-6004, ext. 406
Email: sbromberg@md.capconcorp.com.

## DECEMBER 2003

### American Society for Cell Biology 43rd Annual Meeting

**December 13–17** • San Francisco, California
Late Abstract Submission/Revision Deadline: October 14, 2003
Ph: 301-347-9300; Fx: 301-347-9310
Website: http://www.ascb.org/meetings/am2003/main03mtg.htm

## FEBRUARY 2004

### Biophysical Society 48th Annual Meeting

**February 14–18** • Baltimore, Maryland
Abstract Deadline: October 5, 2003
Early Registration Deadline: December 12, 2003
Ph: 301-634-7114; Fx: 301-634-7133
Website: http://www.biophysics.org/annmtg/site-index.htm

### 50th Anniversary Gordon Conference on Isotopes in Biological and Chemical Sciences

**February 15–20** • Ventura, California
Chair: David N. Silverman, Vice Chair: Charles L. Perrin
Email: silvrmn@ufl.edu
Website: http://www.grc.org/programs/2004/isotopes.htm

### The 1st Gordon Research Conference on The Biology of 14-3-3 Proteins

**February 22–27** • Ventura, California
Chairs: Haian Fu & David Klein, Vice-Chair: Alastair Aitken
Email: hfu@emory.edu
Website: http://www.grc.org/programs/2004/14-3-3.htm

## APRIL 2004

### Experimental Biology 2004

**April 17–21** • Washington, DC
Deadline for Submission of Abstracts: November 12, 2003
Website: http://www.faseb.org/meetings/eb2004/

## JUNE 2004

### American Society for Biochemistry and Molecular Biology Annual Meeting and 8th IUBMB Conference

**June 12–16** • Boston, Massachusetts
Contact: Kelly Gull; Ph: 301-634-7145; Fx: 301-634-7126
Email: kgull@asbmb.faseb.org; Website: www.asbmb.org/meetings

## AUGUST 2004

### 12th International Conference on Second Messengers and Phospoproteins

**August 3–7** • Montreal, Canada
Contact: smp2004@eventsintl.com
Website: http://www.secondmessengers2004.ca

## NOVEMBER 2004

### 4th International Congress on Autoimmunity

**November 3–7** • Budapest, Hungary
Deadline for Receipt of Abstracts: June 20, 2004
Contact: 4th International Congress on Autoimmunity Kenes International—Global Congress Organisers and Association Management Services
17 Rue du Cendrier, PO Box 1726
CH-1211 Geneva 1, SWITZERLAND
Ph: +41 22 908 0488; Fx: +41 22 732 2850
Email: autoim04@kenes.com
Website: www.kenes.com/autoim2004

## JULY 2005

### 30th FEBS Congress — 9th IUBMB Conference, 2005 The Protein World; Proteins and Peptides: Structure, Function and Organization; Science is Fun: A Conference for Your Creativity

**July 2–5** • Budapest, Hungary
Contact: Ms. Franciska Morlin, Chemol Travel Congress Dept.
H-1366 Budapest, P.O.Box 28, Hungary
Ph:+36-1-266-7032, Fx: +36-1-266-7033
Email: incoming@chemoltravel.hu; www.febs-iubmb-2005.com

## Department Heads Take Note:

# *ASBMB Offers Free Membership to New Ph.D.s*

**ASBMB is now offering a free one-year Associate membership to all students who have, within the past year, earned a Ph.D. degree in the molecular life sciences or related areas.**

**ASBMB implemented this program as a way to recognize the significant accomplishment of earning the Ph.D., and to provide new Ph.D.s with something tangible and of economic value. Membership in ASBMB brings with it a free subscription to the online versions of the *Journal of Biological Chemistry* and *Molecular and Cellular Proteomics,* as well as subscriptions to *The Scientist* and the Society's magazine, *ASBMB Today*, discounts on other publications, and a host of other benefits.**

**The Society is asking department chairs to provide ASBMB with the names and addresses of each new Ph.D. recipient from their institutions. Upon receipt of this information, we will write the new Ph.D.s to congratulate them on their accomplishment and offer the free one-year membership in ASBMB. Names and addresses of the new Ph.D.s should be sent to:**

Kathie Cullins
Membership and Subscriptions Manager
American Society for Biochemistry
& Molecular Biology
9650 Rockville Pike
Bethesda, MD 20814
Email: asbmb@asbmb.faseb.org

This is an ongoing project; please advise us whenever a student in your department earns the Ph.D., so that we can make this free membership offer to him or her.

# Q: WHAT IS BLACK, WHITE, AND READ ALL OVER?



# A: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