FEBRUARY 2006

www.asbmb.org

ASBMB Today

Constituent Society of FASEB

AMERICAN SOCIETY FOR BIOCHEMISTRY AND MOLECULAR BIOLOGY

After Dover, Now What?

page 4

After Katrina: Wanderings of a Biochemist

page 12

Held in conjunction with EB2006

Molecular Structure

Genome Dynamics

Cell Signaling

ASBMB 100 YEARS Chemistry of Life

Membrane Biogenesis

Custom Antibodies Your Way!

Choose the protocol that is right for you!

The Pinnacle – Affinity Purified Antibodies – 90% Success Rate!

Peptide Sequencing Included for 100% Guaranteed Peptide Fidelity.

2 rabbit protocol, epitope design, PhD technical support, 5 immunizations, 5 bleeds/rabbit (~ 200ml serum), peptide synthesis (up to 20mer), HPLC purified to ~85%, ***MS Check™ peptide sequencing by CID MS/MS***, 5+mg peptide to customer, ELISA, evaluation period, affinity purification, and more..... ~~$1895~~

$1675

Special pricing through March 31, 2006

Custom Phosphospecific Ab's as low as – **$2495**

Standard

80 day, 2 rabbit protocol - 5 immunizations, 5 bleeds/rabbit (~ 200ml serum), ELISA, customer supplied peptide/protein - **$795**

Options: Peptide synthesis u HPLC purified peptide u HPLC and MS analysis u ***MS Check™ peptide sequencing by CID MS/MS*** Affinity purification u Animal extensions

QwikScreen™

65 day, 2 rabbit protocol - 4 immunizations, 3 bleeds/rabbit (~100ml serum), customer supplied peptide/protein - **$595**

Options: Peptide synthesis, immunograde u MS analysis Conjugation to carrier u ELISA u Animal extensions

Phosphospecific Antibody Experts u Phosphorylation Site Localization
Complete Mass Spectrometry Services u Custom Peptides mg to grams, purities to >97%

21st CENTURY BIOCHEMICALS

Let our enthusiasm for science work for **you!**

www.21stcenturybio.com

33 Locke Drive, Marlboro, MA 01752
P: 508.303.8222 *Toll-free:* 877.217.8238
F: 508.303.8333 **E:** info@21stcenturybio.com

Prices good through 3/31/06, shipping/handling not included.

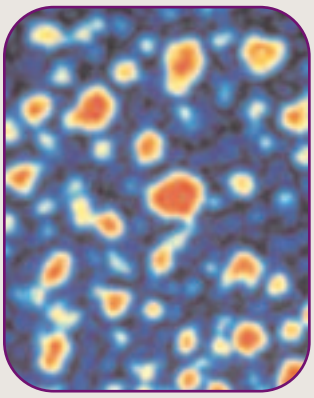
www.asbmb.org

ASBMB Today

AMERICAN SOCIETY FOR BIOCHEMISTRY AND MOLECULAR BIOLOGY

FEBRUARY 2006,
Volume 4, Issue 11

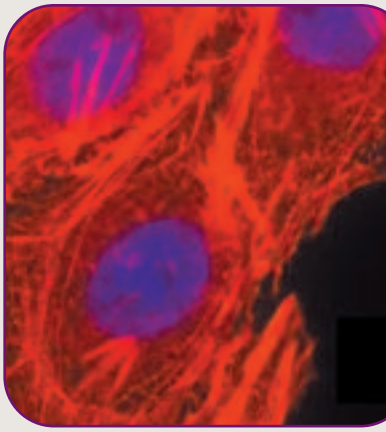
features



ON THE COVER:

Ribosomes translating mRNA strand to produce proteins.

9



16

2004 APEX® AWARDS FOR PUBLICATION EXCELLENCE

AWARDS OF EXCELLENCE:
MOST IMPROVED MAGAZINE
COLUMNS & EDITORIALS
DESIGN & LAYOUT

EXCEL AWARDS

BRONZE AWARD WINNER 2003

departments

ASBMB Today
is a monthly publication
of The American Society for
Biochemistry and Molecular Biology

Comments

Please direct any comments or questions concerning *ASBMB Today* to:
John D. Thompson
Editor, *ASBMB Today*
9650 Rockville Pike
Bethesda, MD 20814-3996
Phone: 301-634-7145; Fax: 301-634-7126
E-mail: jthompson@asbmb.org

For information on advertising contact FASEB AdNet at 800-433-2732 ext. 7157 or 301-634-7157, or email adnet@faseb.org.

'Attack' on Minority Programs?

ASBMB welcomes letters regarding matters that are of concern to the scientific community and to the nation at large, as well as comments concerning articles that have appeared in ASBMB Today. Letters must be suitable for publication and we reserve the right to edit all letters. Letters do not necessarily reflect the opinion of ASBMB.

To the Editor:

The most recent news regarding the attack on minority-targeted programs in academia comes from "Middle America" where the Justice Department is challenging minority programs at SIU-Carbondale, two of which are internal while a third one is funded by NSF. The basis for this action is the University of Michigan decisions of 2001. Although those decisions both supported and opposed affirmative action programs at the University, the Justice Department, in response to the actions of the Center for Equal Opportunity, which has been most proactive in opposing programs that address the very important problem of under representation of minorities in the sciences, chose to take this recent action. The programs designated by the federal government as well as other agencies to target groups that have been excluded in the past has been a most effective way of remedying this problem.

The reaction of the University is that they will discuss their programs with the Justice Department; however Illinois Senator Obama believes that this action is much more politically motivated as evidenced by his comments that stated that "This action may be a bid for the administration to distract public attention from Bush's sagging popularity and also may be the use of 'wedge issues' as a way to help themselves politically."

For those that have worked tirelessly to address the gross under representation of minorities in the sciences, this recent action has serious consequences, not only short term, i.e. what happens at Carbondale, but also long term in that it is likely that if the programs are eliminated, especially the NSF one, this will only set the stage for an attack of other such programs funded by other agencies, e.g. NIH, which funds a number of these programs. When this action is coupled with a 40% decrease in gender and racial discrimination prosecutions by the Civil Rights Division of the Justice Department since 2001, characterized by Senator Ted Kennedy as "the enforcement of civil rights over the past five years has been negligent", the movement away from the support of these programs that address the under representation of minorities as well as other inequities that continue to exist in academia, science and society, is clear.

The long term effect of eliminating such programs is two-fold. First, the effect is on the scientific work force of the future since when one considers the changing demographics of the US population, it is critical to train individuals representing the increasing ethnic groups. Unfortunately, even with these programs in place, the numbers have not increased as significantly as needed. Second, one of the most important issues facing the U.S. is that of minority health disparities. Not only do the reasons for these disparities need to be more intensely investigated and identified, but also training of individuals from those groups most affected is important. Scientists play the key role in addressing this issue most effectively.

Thus, we as scientists must take a proactive stance in supporting and defending these programs, through letters to Congresspersons, through advocacy as members of professional

Continued next page

Dr. Judith Bond

Academic Scientists:
An Endangered Species in North America

Population biologists have learned that a species is faced with extinction when its population and diversity drop below a critical level. A crisis for the survival of a species may be precipitated by conditions that sharply reduce the population or by changes in the environment that no longer allow the species to thrive. The species has the alternatives of adapting to the new conditions, seeking new environs or restoring the environment, or dieing.

Academic scientists in North America are facing challenges today that many predict will make them extinct. The talented individuals attracted to scientific careers in the aftermath of World War II and later Sputnik are now retiring. Faculty members at all ranks are struggling to initiate or sustain productive research programs, and trainees are watching and questioning whether they want to enter this environment. A talented replacement reservoir exists in the ranks of faculty, postdoctoral workers and graduate students, but the outlook for their survival in academia in North America is bleak. The average age for a first NIH RO1 is 42 years old and the prospects for a competitive renewal are poor. The funding levels for research are the lowest they have been in years. Many of our new scientists are now returning to their country of origin to find supportive environments, where there are now vibrant scientific opportunities, such as in China.

Today's scientists in North America are undergoing adaptation to survive if not thrive in the new climate. Diversity has become central to the survival of the academic scientific community. More scientists are partnering with colleagues in other disciplines to apply expertise to key unsolved problems in biology, chemistry and physics. Other individuals are scurrying to respond to Requests for Applications (RFAs) and Requests for Proposals (RFPs), and are joining large multi-investigator consortia to fit into fundable projects. However, adaptation alone is not sufficient to sustain the academic scientist, and will, to a significant extent, stifle the creativity that has been the hallmark of American science.

At a meeting of the Chairs of Biochemistry Departments, the Association of Medical and Graduate Departments of Biochemistry (AMGDB) in January 2006, it was agreed that the time has come to direct a significant effort to establishing an environment that enabled North American scientists to emerge as world leaders. The Chairs believe that the RO1 grant mechanism (investigator-initiated research proposals) has been critical to the success of American scientists in the world arena. Support of individual scientists through mechanisms such as the RO1 grant is essential to embolden the younger scientist to challenge the ideas, interpretations and conduct of established scientists. We are entering a time of crisis for maintaining fundamental research in American universities thereby calling for some intervention if American science is to continue as a world leader.

It was suggested by Tom Blumenthal, Chair of Biochemistry and Molecular Genetics at the University of Colorado, and supported by others, that the survival of academic scientists in North America needs an investment in the top 20% of the innovative research scientists across the disciplines by federal agencies such as the NIH, NSF, DOE, etc. Thus, a proposal is emerging to call for a commitment that RO1 proposals in the top 20th percentile rating at the NIH be funded whenever the investigator has no other federally funded research support. This will ensure preservation of a critical mass of peer-reviewed research and investigators. The investment must encompass new, mid-career and senior investigators in order to assure the uninterrupted leadership and creativity of North American scientists engaged in exploratory research. The academic scientific community has not only responded to the national investment in research in the past but has also served as the exemplary international training ground for innovation.

Stay tuned to hear more about proposals such as the one developing from the Chairs of academic biochemistry departments. We will need widespread support from the scientific community to effect positive changes and ensure the survival of the academic scientist.

Judith S. Bond
President, ASBMB

---

societies, such as ASBMB, through actions as faculty members, such as on search committees, admitting students and other professionals into our educational programs as well as training minority scientists in our laboratories, and just plain "getting more involved". Without these actions, previous advances made in addressing this issue will be negated as reacting to others who are proactive is a losing proposition. This is a battle that we cannot afford to lose.

Dr. Thomas Landefeld
California State Univ-Dominguez Hills
Dept of Biology

by Peter Farnham, CAE, ASBMB Public Affairs Officer

After Dover—Now What?

On December 20, the scientific community continued its unbroken string of victories in federal court over the issue of teaching alternatives to evolution in science classrooms. The U.S. District Court for the Middle District of Pennsylvania resoundingly rejected as unconstitutional the attempt by the Dover, Pennsylvania, school board to require science teachers to read a statement at the beginning of 9th grade biology class promoting alternatives to evolution, such as intelligent design (see the sidebar for the exact text of the statement).

Judge John E. Jones III's 139-page opinion was scathing in its criticism of the idea of intelligent design (ID), and seemed to be an attempt to put to rest the legal issues surrounding teaching the idea of ID as a viable scientific alternative to the theory of evolution. Among other comments, Judge Jones ruled that "ID is nothing less than the progeny of creationism."

Unfortunately, the decision, as powerfully written as it was, is unlikely to accomplish the goal of eliminating ID from the science classroom. "It's nice to have an early win," said Francis Slakey, Associate Director of Public Affairs with the American Physical Society, "but this war is far from over."

Dr. Ken Miller, Brown University, is a prominent advocate for evolution; he testified as an expert witness in the Dover case last fall. Miller notes that "the Dover battle was an important skirmish, but it would be a mistake for the scientific community to take refuge in that decision, as important as it is, and pretend that the war is over. The larger war for public opinion goes on. And that's the battle that really matters."

Several fronts are being opened up in the fight over evolution this year. First, a major public relations campaign has been launched by ID supporters. The Discovery Institute, the organization behind the ID movement, has embarked on a public relations campaign with the help of a firm with a successful record of working for high profile, conservative causes. They have placed articles and opinion pieces in major newspapers and have made appearances on national news programs. The Discovery Institute's adoption of a strategic public relations campaign is cause for alarm and underscores the importance of taking fast action to counter the ID movement. "When we know that opponents of evolution are spending about $4.5 million per year on public relations," the APS's Slakey told *ASBMB Today,* "we are in for one heck of a campaign."

In the coming months and years, Slakey also expects ID backers to reassess their strategy, stop efforts in the northeast, and begin to focus more in heavily "red" states, those that are mostly right-of-center politically. "Both sides are looking for a court case," he added. "I don't expect Dover to be appealed, so that's probably over. For us to celebrate a victory is fine, but we need to stay vigilant."

The El Tejon Case . . .

A second front just opened in El Tejon, California, when on January 10, Americans United for Separation of Church and State (AUSCS) filed a lawsuit in federal court to stop the school district from allowing a course to be taught that promotes a religious perspective about the origins of life.

On New Year's Day, the district approved an elective called "Philosophy of Design" that advocates ID and other concepts of creationism. AUSCS, representing 11 parents of students in the district, on January 4 sent a letter to the school board advising that teaching a particular religious viewpoint in a public school class violates the constitutional separation of church and state. School officials refused to discontinue the course. AUSCS therefore filed for a temporary restraining order to end the class.

"This is a clear case of government promotion of religion," said Reverend Barry Lynn, Executive Director of AUSCS, "and it violates the U.S. Constitution. Public schools serve children of many faiths and none, and the curriculum should never single out a particular religious viewpoint for preferential treatment."

The "Philosophy of Design" course description, given to students in early December, stated that it would "take a close look at evolution as a theory and will discuss the scientific, biological, and Biblical aspects that suggest why Darwin's philosophy is not rock solid….*Physical and chemical evidence will be presented suggesting the earth is thousands of years old, not billions"* (emphasis added).

In its complaint, AUSCS noted that teacher Sharon Lemburg proposed the

Fight over Evolution Likely to Continue

course for overtly religious reasons. For example, Lemburg's syllabus notes that ID is "gaining momentum," and listed 24 videos for potential use, all but one of them produced by religious organizations and centered on attacking evolution and advancing ID. One video, called "Chemicals to Living Cells: Fantasy or Science," is produced by a Christian ministry called Answers in Genesis.

Dr. Eugenie Scott, Executive Director of the National Center for Science Education, believes that in the short term, the scientific community can expect more cases like that in El Tejon, but that these will gradually fade away. "This was a real bottom up incident," she told *ASBMB Today,* "where a teacher just decided to start teaching a class. The class was not required by the school district. It is very clear from the syllabus that she does not distinguish between ID, creation science, or biblical creationism."

"Teach the Controversy"

Both Scott and Miller believe that the ID movement is learning from its mistakes. Scott thinks that as opponents of evolution continue their efforts, they will begin to avoid terms like "intelligent design." The reason is that the term implies the presence of a designer—an agent—and opponents need "an agentless alternative to evolution. If you have an agent, that's God, and that gets you in trouble in court." Instead, Scott expects anti-evolutionists to focus on the various unanswered questions in evolution, and insist that because there is some argument about details, this is proof of ID. They will also argue that the existence of the concept of ID means there is a scientific debate going on, and that students need to be taught about the controversy.

"'Teach the controversy' is a brilliant phrase," Scott notes. "It taps into basic American social values such as fairness. But fairness is irrelevant when it comes to science. The phrase 'teach the controversy' isn't referring to teaching students that there is a social controversy going on; instead, it advocates that ID and evolution be presented as equally valid alternatives. This is miseducating high school science students, who ought to be taught the consensus view of science. If they are going to be taught critical thinking skills—and they should be—these skills ought to be taught involving subjects that actually have some controversy surrounding them."

Brown's Ken Miller agrees with this analysis. "The opponents of evolution have realized that calling what they wish to teach 'intelligent design' is going to be caught on the same problems and the same constitutional premises as creation science was. Therefore, they say 'No, we don't want to teach intelligent design. All we want to do is open up the teaching of evolution to alternate theories, to criticism, to teach the evidence against evolution. But since intelligent design is empty and has nothing in it except arguments against evolution, that amounts to the same thing."

Miller notes, "What the ID movement is doing, and doing quite brilliantly, is winning hearts and minds around the country with this argument that all we really want to do is promote freedom of thought and open inquiry. And that maneuvers science and scientists into the nasty position of being the suppressors of open inquiry and free thought."

What can you do?

To fight this, Miller thinks the scientific community has to bring to the public the message that "the process of science is open, and it works." ASBMB is working to do just that by participating in a recently established FASEB Subcommittee on Evolution, which is developing strategies for ways to join the fight over this key scientific issue. ASBMB is also sponsoring a symposium at the April 2006 annual meeting in San Francisco on "Teaching Evolution Under Threat from Alternative Views."

However, these activities are no substitute for local action from individual ASBMB members. ASBMB members can write letters to the editor of their local papers, and talk to teachers, school board and city council members in their communities. They can accept speaking invitations to Rotary Club and Chamber of Commerce luncheons. Above all, they should pay careful attention to what is being taught in biology class in their local schools.

The bottom line for 2006 and beyond, then, is that scientists can rightfully celebrate the victory in Dover, but should be prepared for a continuing series of battles as the ID movement learns, develops ever more sophisticated arguments to advance its agenda—and evolves.

FASEB Report Makes Case for Federal Investment in Scientific Research

Although it is shaping up to be a grim year for federal spending, the annual FASEB Federal Funding Recommendations Report for FY2007, strikes an optimistic tone as it makes the case for federal investment in scientific research. *Federal Funding for Biomedical and Related Life Sciences Research, FY2007*, was approved by the FASEB Board of Directors at their December 8 biannual meeting. The FASEB Board discussed the careful balance between making a realistic funding recommendation given the reality of conflicting federal priorities and maintaining credibility as an advocacy organization representing the funding needs of biomedical research scientists. Ultimately, the Board decided there was a legitimate case to be made, based on scientific opportunities, to recommend increases for the six agencies described in the report: National Institutes of Health; National Science Foundation; Department of Veterans Affairs; Department of Energy; Department of Agriculture; and National Aeronautics and Space Administration.

"The Board was particularly concerned about the impact of stagnant or reduced funding levels on new investigators," says FASEB President Bistrian. "They will be the first victims of these cuts." This year each chapter focused on the benefits federally funded research is having on people's daily lives and health, from advances in medicine to preparation for pandemic influenza to natural disaster relief. "It is an election year and the public expects their Congressional Representatives to make the right decisions when choosing priorities," adds FASEB Director of Legislative Relations, Jon Retzlaff. "FASEB's Federal Funding Report arms these legislators with information about how NIH and its support of biomedical research improves lives and reduces the burden of disease. We plan to aggressively request that Congress make NIH and the other federal science agencies a priority once again." According to Retzlaff, the report will serve as the basis for FASEB testimony before Congress, and will be delivered to key appropriators and other members of the House and Senate.

The FASEB report is developed each year by committees of scientists representing the 22 member societies, often in consultation with experts from the relevant federal agencies or other advocacy groups. The recommendations are released to the public at a press conference with the FASEB President, this year scheduled on January 20. The FASEB report may be read in its entirety at http://opa.faseb.org, and a summary of the recommendations for FY 2007 follows:

National Institutes of Health

FASEB recommends that the National Institutes of Health receive $30 billion in FY 2007, an increase of 5 percent ($1.43 billion) over the level for the previous fiscal year ($28.57 billion).

National Science Foundation

FASEB recommends an appropriation of $6.4 billion for the National Science Foundation in FY 2007. This appropriation should be the start of a long-term, steadily increasing national investment in the agency, which was the goal of the NSF Doubling Act of 2002.

Department of Veterans Affairs

FASEB recommends funding the VA Medical and Prosthetics Research Program at least at the $460 million level in FY 2007.

Department of Energy

In keeping with the "Energy Policy Act of 2005," FASEB recommends an appropriation of $4.15 billion for the Department of Energy's Office of Science in FY 2007.

Department of Agriculture

FASEB strongly supports funding the National Research Initiative Competitive Grants Program in FY 2007 at the $214 million dollar level recommended in the House passed appropriations bill; this would be an important step forward in reaching its initial authorization level of $500 million.

National Aeronautics and Space Administration

FASEB recommends that NASA restore funding for basic life sciences research, increase funding for "countermeasures research" needed for human space travel, and that more funding be allocated to investigator initiated, peer reviewed life sciences research in FY2007.

Take a journey

with The Journal of Biological Chemistry (JBC) and explore all the exciting and important discoveries that biochemists have made in the world of science!

Above photograph (by Sam Vandivert, ©The Rockefeller University) shows Stanford Moore (left) and William H. Stein (right) in front of the original amino acid analyzer in 1965.

Classic Articles

In our Classic Articles you can explore original reprinted articles dating back to 1905. When completed, this series will contain over 300 original papers by the legends in biochemistry: including **Folin, Van Slyke, the Coris, Doisy, McCollum, Hastings, Lowry, Kornberg, Kennedy, Brown, Goldstein,** and many more!

Reflections

JBC Reflections were created as a celebration of JBC's 100th Birthday! We have invited premier biochemists to write about their contributions that have helped mark the many advances in biochemistry and molecular biology since 1905.

It is our hope that Classic Articles & Reflections will, in small part, share some of the personal experiences and history of biochemistry.

ASBMB & jbc 100 YEARS
Chemistry of Life

Visit us at: www.jbc.org

City of Hope Announces $2.5 Million Endowment

A $2.5 million gift from Ruth B. Lanman will help City of Hope researchers improve the understanding and management of serious metabolic diseases, including diabetes and atherosclerosis. The newly established Ruth B. and Robert K. Lanman endowed chair in gene regulation and drug discovery will support multidisciplinary studies into the molecular and cellular processes of metabolic diseases, an expanding field of research at City of Hope. Barry Forman,* Director, Department of Gene Regulation and Drug Discovery, City of Hope, is the first scientist to hold the endowed chair.

Dr. Barry Forman

"The commitment of the Lanman family allows City of Hope to better understand the control and prevention of metabolic diseases, including diabetes," said Michael A. Friedman, President and CEO, City of Hope. "We are pleased to be able to honor Dr. Forman by naming him as the first holder of this endowed chair."

Forman's work with nuclear receptors proved compelling to Lanman and her family, and his work with "orphan" nuclear receptors was of particular interest to them. Forman believes these receptors, whose functions are still largely undiscovered, may prove to be the missing links in helping to understand diabetes, cholesterol regulation, obesity and the metabolic syndrome.

"The work of Barry Forman and City of Hope holds tremendous potential for millions of people," said Lanman. "Our family values the opportunity to partner with City of Hope by supporting research into such diseases and conditions as type 2 diabetes, obesity, atherosclerosis and other diseases."

Forman is noted for research aimed at understanding and treating cholesterol-related illnesses. His laboratory uncovered the molecular mechanism underlying the body's main method for destroying cholesterol, research that could lead to the development of new drug therapies for patients with abnormally high cholesterol levels.

He is credited with identifying new hormones and signaling mechanisms involved in diabetes and cholesterol metabolism. In one such investigation, he identified signaling molecules that promote fat cell formation and affect insulin resistance in patients with type 2 diabetes. Therapies based on this work are now used to treat millions of people with diabetes.

The recipient of the 2005 New Investigator Award from the American Society for Biochemistry and Molecular Biology and AMGEN, Forman is a frequently published author, with studies in top peer-reviewed journals including Nature, Nature Medicine, Molecular and Cellular Biology, Cell Metabolism and The Journal of Organic Chemistry.

** ASBMBmember.*

Purdue Dean Headed to Hawaii

John M. Pezzuto,* Dean of Purdue University's College of Pharmacy, Nursing and Health Sciences, is leaving to take a position at the University of Hawaii. He will assume his new duties as founding dean of the University of Hawaii at Hilo's College of Pharmacy on June 1.

Pezzuto currently serves as dean of the College of Pharmacy, Nursing and Health Sciences and holds the rank of professor of medicinal chemistry and molecular pharmacology at Purdue University, where he has been since 2002.

"I'm very pleased that we were able to attract such a high caliber candidate for this important position," said UH Hilo Chancellor Rose Tseng. "Dr. Pezzuto's extensive experience as an administrator and researcher will enable him to hit the ground running in creating this new college."

Active in research, his current interests include natural products as inhibitors of chemical carcinogenesis, biological evaluation of potential cancer chemotherapeutic agents, biospecific isolation of chemotherapeutic agents from plant materials, evaluation of test agents for cancer preventative and therapeutic activity employing animal models.

The UH Hilo College of Pharmacy will offer a four-year program of study leading to the Doctor of Pharmacy degree. The school will become the first College of Pharmacy at a public institution in Hawaii and the Pacific islands region, and is being designed to meet the comprehensive pharmacy education needs of Hawaii and the U.S.- affiliated Pacific islands. As the founding dean, Dr. Pezzuto will oversee fund raising and curriculum development for the new college, as well as the necessary approvals by accreditation authorities.

** ASBMB member.*

Fat Overload Kills Mammalian Cells; Key Culprit Identified

Investigating the harmful health effects of excess fat, researchers at Washington University School of Medicine in St. Louis have identified a protein that triggers death in mammalian cells overloaded with saturated fat.

When the researchers halted production of this protein, called EF1A-1, the cells were able to thrive in ordinarily damaging amounts of the saturated fat palmitate, a fat abundant in Western diets. At the same concentration of palmitate, normal cells still producing EF1A-1 rapidly died. The study will be published in the February 2006 issue of *Molecular Biology of the Cell*.

"When lipids (fats) accumulate in tissues other than adipose tissue, cellular dysfunction or cell death results," says senior author Jean Schaffer,* M.D., associate professor of medicine and of molecular biology and pharmacology. "For example, preliminary studies on animals suggest that the accumulation of fat in the pancreas contributes to the development of diabetes, and accumulation of lipids in skeletal muscle of leads to insulin resistance."

Other studies have linked the genesis of heart failure to fat-induced cell dysfunction and cell death in the heart.

"As physicians our primary focus in diabetic patients is on glucose control," says Schaffer, a member of the Center for Cardiovascular Research at the School of Medicine and a cardiologist at Barnes-Jewish Hospital. "But it appears we should also be more aggressive with respect to lowering lipids such as triglycerides and fatty acids."

With the discovery of EF1A-1's role, this study is the first to identify a critical step in the pathway that leads from high cellular fat to cell death, according to Schaffer. EF1A-1 is an extremely abundant protein with several diverse functions within cells, including protein synthesis and maintenance of the cytoskeleton, the cell's internal support structure.

In mammalian cells grown in culture, the researchers saw that EF1A-1 and the fat palmitate work hand in hand: the presence of EF1A-1 dictated sensitivity to palmitate-induced cell death, and palmitate caused a rapid increase of the amount of EF1A-1 produced.

Schaffer's laboratory earlier had developed a transgenic mouse that accumulates fat in its heart muscle cells resulting in the death of cells, heart failure and premature death. They found that EF1A-1 was increased nearly threefold in the hearts of these animals.

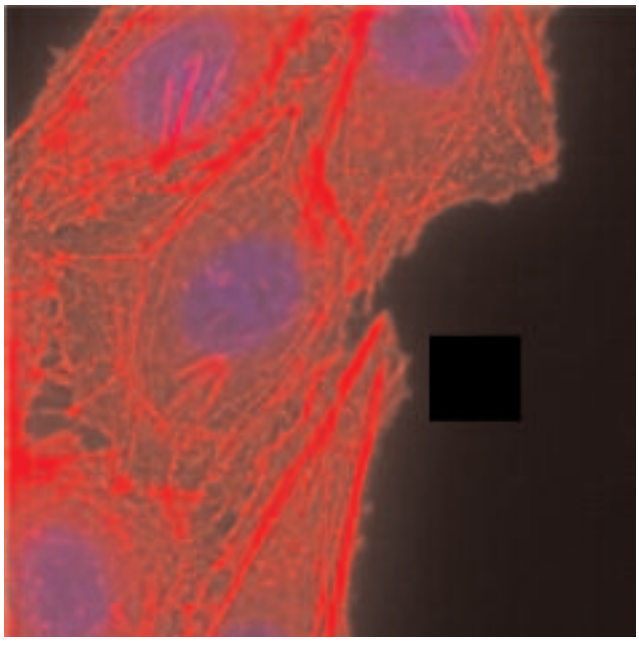
Removal of EF1A-1 protected cells from palmitate-induced death, and its absence allowed cells to withstand assault by highly reactive oxygen molecules. According to study authors, this indicates that EF1A-1 probably contributes to cell death from oxidative stress, which is known to stem from high lipid levels. Cytoskeletal changes seen in cells missing EF1A-1 suggested to the researchers that EF1A-1's cytoskeletal role also is important in cell death resulting from fat overload.

"Cells have a lot of mechanisms for incorporating fatty acids into storage forms, for metabolizing them or for using them in cellular membranes," Schaffer says. "But saturated fats like palmitate are poorly stored in the tiny fat droplets normally found in most cells and therefore are more likely to enter into pathways that lead to cell death such as the one in which EF1A-1 is involved."

In the process of identifying the role of EF1A-1, the lab members uncovered other proteins implicated in the toxicity of excess fats. They are now investigating each to find out what part it plays.

Future investigations by Schaffer's research team will study the EF1A-1 protein to see whether fatty molecules directly alter the protein, or if they cause it to relocate within the cell.

** ASBMB member.*



The internal "skeleton" (in red) of cells is altered by exposure to high fat.

Mutation that Protects Against HIV May Raise Risk of West Nile Virus Illness

People who lack a cell surface protein called CCR5 are highly resistant to infection by HIV but may be at increased risk of developing West Nile Virus (WNV) illness when exposed to the mosquito-borne virus, report researchers from the National Institute of Allergy and Infectious Diseases (NIAID). The study, by Dr. Philip M. Murphy and colleagues, appeared online January 17 in *The Journal of Experimental Medicine*. The findings may have cautionary implications for physicians who are treating HIV-positive individuals with experimental CCR5-blocking drugs, say the scientists.

"This is the first genetic risk factor to be identified for West Nile virus infection," said NIH Director Elias A. Zerhouni. "While infection does not always lead to illness, the virus can sometimes cause serious problems and, according to the Centers for Disease Control and Prevention, there were 102 deaths in the United States from West Nile virus infection in 2005."

"A decade ago, a number of research groups, including Dr. Murphy's, determined that CCR5 is the primary co-receptor used by HIV to infect cells," noted NIAID Director Anthony S. Fauci. "Their work laid the foundation for the development of CCR5-blocking drugs, which are designed to slow the spread of HIV from cell to cell."

Most people inherit two normal copies (one from each parent) of the gene that codes for CCR5 protein. About one percent of North American whites, however, have a mutation in both copies and thus do not produce any CCR5. These individuals have the good fortune of being highly resistant to HIV infection and otherwise seemed to suffer no ill effects from the absence of this receptor protein, scientists noted. But new research suggests that lacking CCR5 may not be an unalloyed good after all.

In 2005, Dr. Murphy and his coworkers developed a mouse model to clarify the roles of various immune system cells in responding to WNV infection. They discovered that while most wild-type mice survived WNV infection, mice genetically engineered to lack CCR5 receptors suffered rapid and uniformly fatal infection by the virus. Further investigation showed that CCR5 promoted the movement of several classes of immune system cells into the brain and central nervous system, which appeared to protect normal mice from the encephalitis (brain inflammation) characteristic of serious WNV infection.

> ***"According to the Centers for Disease Control and Prevention, there were 102 deaths in the United States from West Nile virus infection in 2005."***
>
> ***—NIH Director Elias A. Zerhouni***

"We wanted to know if humans lacking CCR5 might be at greater risk of the more serious complications of WNV infection," said Murphy. The researchers examined human blood and cerebrospinal fluid samples from 417 laboratory-confirmed cases of WNV infection that occurred in Arizona and Colorado in 2003 and 2004. Of these, 395 were suitable for genetic testing for the presence or absence of the HIV-protective mutation.

Murphy and his colleagues determined that 4.5 percent of 247 WNV-positive samples from Arizona were from patients who had two copies of the CCR5 mutation. In contrast, a control group of 145 WNV-negative blood samples showed 0.7 percent were from people who had two copies of the CCR5 mutation—a number in line with the expected 0.8 to 1 percent range believed to be present in all North American whites. Next, the researchers analyzed the WNV-positive samples from Colorado and determined that 4.1 percent of the entire set of 148 samples came from individuals homozygous for the CCR5 mutation. Among those Coloradans who provided WNV-positive samples and who self-reported their race as white, the percentage of homozygous individuals was 8.3.

The absence of normal CCR5 genes is a strong genetic risk factor for developing symptomatic cases of WNV infection, the researchers conclude. "The findings may have important clinical implications for physicians who treat people with HIV," noted Dr. Murphy. For example, he says, it may be prudent for HIV-positive individuals who are taking experimental CCR5-blockers to strictly limit mosquito exposure.

Soy Products' Component Causes Reproductive Problems in Laboratory Mice

Genistein, a major component of soy, has been found to disrupt the development of the ovaries in newborn female mice that were given the product. This study adds to a growing body of literature demonstrating the potentially adverse consequences of genistein on the reproductive system.

The results of this study were published in the January issue of Biology of Reproduction.

"We knew genistein was linked to reproductive problems later in life, but we wanted to find out when the damage occurs," said Retha R. Newbold, a developmental endocrinologist at NIEHS and an author on the study. "The study showed that genistein caused alterations to the ovaries during early development, which is partly responsible for the reproductive problems found in adult mice."

Female mice were injected with three different doses of genistein during their first five days of life. The genistein given to the mice was comparable to what human infants might receive in a soy-based formula, which is approximately 6-9 mg/kg per day. The researchers examined the effects on days two through siz.

The researchers found effects at all levels. Mice treated with the high dose (Gen 50 mg/kg) were infertile and mice treated with lower doses were subfertile, meaning they had fewer pups in each litter, and fewer pregnancies. Mice receiving the highest level of genistein, 50 mg/kg per day, had a high percentage of egg cells that remain in clusters, unable to separate and therefore develop abnormally. The researchers explain that oocytes that remain in clusters are less likely to become fertilized based on previous research. The largest difference between the genistein treated and normal mice was found at six days of age where 57 percent of the egg cells in the non-treated ovaries were single or unclustered; and only 36 percent in the genistein treated group were single.

Wanderings of a Biochemist
(with apologies to Fritz Lippman)

By Dr. Iris Lindberg

Scientists are not supposed to lose their laboratories due to natural disasters. In fact, I can't think of a single person I know who has had that happen to them—aside from my colleagues in New Orleans. But on August 29, after Hurricane Katrina, I lost my lab, and today, over four months later, I still don't know when I will have it back. I had no official access at all for six weeks, and now I can visit it, but I can't work in it. But what do I do with myself without a laboratory? Biochemists need laboratories to be biochemists.

Therefore I have become a nomad scientist, looking for laboratories. In October, I went to work at Albert Einstein College of Medicine with my technician, in the laboratory of a generous friend of mine, Lloyd Fricker. We went there to try to produce a small portion of the proteins we lost in our freezers, to get back to where we were August 28; we could not actually do experiments. One of the hardest things about the whole experience of losing one's laboratory is the total absence of new data. It is the only reason to BE a scientist, to continuously learn new things about the universe while testing your predictions. As most of us know, there is something so incredibly intoxicating about this process that it keeps us working long, long hours. However, without any new data to sustain us, it is much harder to work those long hours. We are dispirited—but we persevere. Possibly later this month we will again have data.

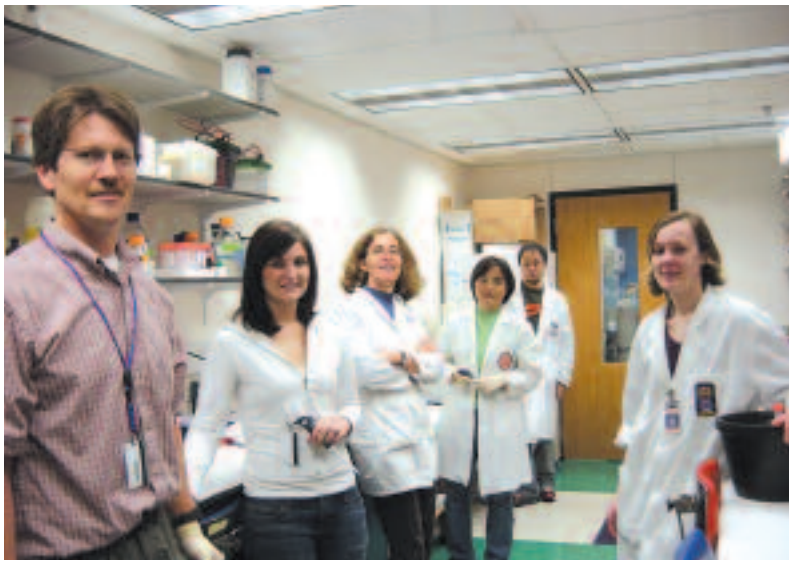
In fact we are now just about finished setting up yet another temporary lab: this time it's a mini-lab, 225 sq ft (down from the original 1400 sq ft) in our newest host institution, Children's Hospital, which has taken in seventy LSUHSC researchers to their original sixty. We must be a burden, and yet our host Seth Pincus and his staff are incredibly hospitable as they teach us where the dry ice is, the mail room, etc., etc. We love Children's Hospital; it's an island of tranquility in the surreal bipartite city that New Orleans has become. We love the excellent, cheap cafeteria, and the proximity to the river and Audubon park. (We also enjoy the fact that this building, unlike ours, does not have a strange odor.)

It is hard to describe what going back to the old lab is like. Every freezer and refrigerator is empty; all of our moldy samples are gone, tossed into waste boxes. Throwing them out was a 20-year trip through memory lane. The building is uninhabited, eerie, reminiscent of the large sections of New Orleans that are now also totally unpeopled.

Although there is now electricity, the elevators have not been inspected and are therefore turned off, and we must walk our materials out of the building down five flights of stairs to our cars. But we need these things, so several times a week we truck them out to Children's.

Setting up a temporary mini-lab lab is difficult. You want most of the things you are used to having, but you don't want to spend a lot of money on things you already have, and bench real estate is incredibly valuable, so you make compromises, jury-rig. And should we use reagents that have been sitting at 85 F in

Continued on next page



Dr. Lindberg's mini-lab with two recently arrived colleagues from LSUHC who are starting back to work in New Orleans and are growing some bacteria in our lab (the building that has opened has no autoclaves due to no steam). From left to right the people in the mini-lab are my departmental colleague Dave Worthylake and his technician Jessica Ricks (visitors-guests displaced to the guest displaced!), Iris Lindberg, Sang-Nam Lee, Akihiko Ozawa, and Sena Dinkins (Another colleague, Rachel Sanders was off duty and unavailable for this photo.). Dave is an independent faculty member who just got back into town and will probably try to work temporarily in the one LSUHSC building which has opened (on the 17th of January, the Clinical Sciences Building became the first research building to open, just on the top floors) but since there are no autoclaves functioning there yet, Dave needs to grow bacteria with us.

Instruments Were More Valuable than Biochemists

By Marshall Phillips, Assoc. Editor, Journal of Agricultural and Food Chemistry, President, Strategic Bioconnections

As part of our Centennial Celebration, we recently asked members to contribute reminiscences of their early thoughts about becoming a scientist, their experience as postdocs, their first paper published, their first lecture at an ASBMB Meeting, the friendships and connections they formed with other ASBMB members, their impressions of the first ASBMB meeting they attended, and anything else they thought pertinent. Here is another contribution. We believe you will find it interesting, and we look forward to receiving and publishing more reminiscences. Please send to them to editor@asbmb.org.

This is a story about the "pecking order" of chemists in university settings in the mid-1960s in the USA.

We all knew the mathematicians were at the top of the order of science. The physicists thought they should be on top, and maybe they were correct.

Let us look into the chemistry building of 40 years ago.

Near the top of the building, in clean cool quarters, were the physical chemists. They had an aura signifying the top of the chemistry order. They seemed to have some link to Godliness, because students were known to pray in order to pass physical chemistry.

Continued from previous page

a humid climate for three months—some cost hundreds of dollars each, and so far there has been no financial help guaranteed from NIH or FEMA to cover our enormous losses of time and resources. Meanwhile the grant clock is ticking; it has never stopped.

So wish us displaced New Orleans scientists luck as we struggle through this nomad period of our lives. Also, can you spot us a few percentage points when our grant renewals cross your desks? It's been a very hard year for us, and it will take a very long time to recover from Katrina.

** ASBMB member*

The organic chemists present in large numbers were an odoriferous bunch with a great eagerness for recognition of their success in synthesizing chemicals that would enhance our culture and revolutionize our way of life. They had close access to the news media and proudly announced that the organic chemicals they made would soon treat, cure and prevent all of the medical maladies of human health.

The organic chemists also turned out new pesticides and herbicides which appeared to be of great value for American agriculture. The news media knew that it was the farmers who demanded crop protection chemicals, applied these organic chemicals into the soil. Some of these agrochemicals remained for long periods in the soil and surface water, and in some places are still in the ground water today. The media reported that in farm country an increase in child birth defects occurred and seemed to be caused by these agrochemicals. No, the chemists did not put the chemicals in the ground, but there was, and still is a public perception that these chemicals are "bad" and hence, "bad" chemists are to blame.

The inorganic chemists and analytical chemists were a quiet lot. They did not make "waves," and went about their business without fanfare since grants from the NIH and NSF were scarce. Good positions were soon available when the students graduated.

During this time in the chemistry departments where were the biochemists??

I will tell you.

Dr. Marshall Phillips

The biochemists were down in the basement of the chemistry building over in the corner where the pipes dripped and the faucets leaked. The quarters were less than desirable since the temperature of the rooms was either too hot or too cold.

But the instruments in the chemistry building were in climate-controlled rooms.

Did this mean that the instruments were more valuable than the lowly biochemists?

Lowly biochemists?

A revolution was on the way. Twenty years later the biochemists were garnering significant grant money from, NIH, NSF, USDA, EPA, FDA and great money (and recognition) was arriving from agricultural commodity trade groups.

Thus, the "pecking order' of chemists changed, and the moral to be noted:

Always be kind to the people in the basement; you many meet the same people when they move into *your* quarters.

How the Neuron Sprouts its Branches

Neurobiologists have gained new insights into how neurons control growth of the intricate tracery of branches called dendrites that enable them to connect with their neighbors. Dendritic connections are the basic receiving stations by which neurons form the signaling networks that constitute the brain's circuitry.

Such basic insights into neuronal growth will help researchers better understand brain develop in children, as well as aid efforts to restore neuronal connections lost to injury, stroke or neurodegenerative disease, said the researchers.

In a paper published in the December 8, 2005, issue of *Neuron*, Howard Hughes Medical Institute Investigator Michael Ehlers* and his colleagues reported that structures called "Golgi outposts" play a central role as distribution points for proteins that form the building blocks of the growing dendrites.

Besides Ehlers, who is at Duke University Medical Center, other co-authors were April Horton in Ehlers' laboratory; Richard Weinberg* of the University of North Carolina at Chapel Hill.; Bence Rácz in Weinberg's laboratory; and Eric Monson and Anna Lin of Duke's Department of Physics. The research was sponsored by the National Institutes of Health.

The Golgi apparatus is a cellular warehouse responsible for receiving, sorting and shipping cargoes of newly synthesized molecules needed for cell growth and function. Until the new findings, researchers believed that only a central Golgi apparatus played a role in such distribution, said Ehlers.

"In most mammalian cells, the Golgi has a very stereotyped structure, a stacked system that resides near the cell nucleus in the middle of the cell," he said. "But mammalian neurons in the brain are huge, with a surface area about ten thousand times that of the average cell. So, it was an entirely open question where all the membrane components came from to generate the complex surface of growing dendrites. And we thought these remote structures we had discovered in dendrites called Golgi outposts might play a role."

Dr. Michael Ehlers

The researchers studied the dendritic growth process in pyramidal neurons, which grow a single long "apical" dendrite and many shorter ones. To explore the role of Golgi outposts, they used imaging of living rat brain cells grown in culture, as well as electron microscopy of rat brain tissue.

These studies revealed that the Golgi outposts tended to appear in longer dendrites and also that those Golgi in the main cell body tended to orient toward longer dendrites. And importantly, said Ehlers, the studies in cell culture revealed that the Golgi orientation preceded the preferential growth of long dendrites.

"This finding showed us that we weren't just seeing a correlation between Golgi and longer dendrites," said Ehlers. "Initially, when these growing dendrites are all essentially uniform in length, they grow at about the same rate. But later, after the Golgi orient toward one dendrite, it takes off and grows dynamically to become the longest dendrite." The researchers also used tracer molecules to track the molecular cargo secreted by the Golgi, said Ehlers.

"We saw very clearly that this cargo that originates in the Golgi gets directed towards the one longest dendrite in a highly preferential way," he said. "As cargo comes out of the Golgi, it does not go randomly to the cell surface." Ehlers and his colleagues also found that the Golgi outposts appeared to locate themselves at dendritic branch points.

"This finding is important because a fundamental problem that neurons must solve is how to sort appropriate cargo molecules in the right amounts down different dendritic branches," said Ehlers. "After all, different dendritic branches can have different functional properties, molecular composition and electrical properties. So, when a cargo reaches a branch point, it's like a highway intersection, and the cargo needs to be directed. We've found that these dendritic Golgi outposts are located at the strategic points to do just that. And I believe this is the first such specific organelle identified at a dendritic branch point positioned to perform this fundamental neuronal function."

Finally, the researchers disrupted the orientation, or "polarity," of the Golgi — thus causing them to move into all the dendrites — without disrupting their function. They found that disrupting the polarity caused all the dendrites to grow at the same rate.

Further studies, said Ehlers, will explore how Golgi outposts arise, how they arrive at dendritic branch points and what cargo they distribute. The researchers also will seek to understand how molecules are selected for import to the distant reaches of the dendrites and which will be locally synthesized in the dendrites. Such studies could give important insights into the machinery of neuronal growth and how it is controlled, he said.

Continued on next page

NYU's Seeman Named Winner of 2005 World Technology Award

New York University Chemist Nadrian Seeman* has been named winner of the 2005 World Technology Award for Biotechnology by the World Technology Network (WTN), a global peer-elected association of the world's leading science and technology innovators. Seeman was named the recipient after the organization stripped the initial winner, Dr. Woo Suk Hwang, of the honor last week. Hwang was awarded the honor in November 2005 at a gala ceremony at San Francisco City Hall for his research on stem cells and human cloning—research that has since been found to be falsified.

"The WTN is deeply troubled by Dr. Hwang's actions," Clark added. "Given the findings announced by the Seoul National University investigative panel, along with the other recent revelations, we have no choice but to withdraw this award."

Seeman and his colleagues at NYU have developed the field of DNA nanotechnology, which has grown so that it is now pursued by numerous labs around the world. The systems they have produced enable the specific organization of a variety of other chemical species, relevant to nanoelectronics, photonics and drug design. They have also built machines that work on the nano-scale, such as a device that allows for the translation of DNA sequences, thereby serving as a factory for assembling the building blocks of new materials. The invention has the potential to develop new synthetic fibers, advance the encryption of information, and improve DNA-based computation. The device, developed with NYU Chemistry graduate student Shiping Liao, emulates the process by which RNA replicas of DNA sequences are translated to create protein sequences.

In addition, Seeman was cited by 'Nanotech Briefs' last fall as one of the first annual 'Nano50', leaders in Nanotechnology. The work honors him as an innovator in the category of bio/medical research.

Seeman received a MERIT award last fall from the National Institute of General Medical Sciences, part of (NIH. MERIT is an acronym standing for "Method to Extend Research in Time," and its recipients are given awards lasting eight to ten years (NIH grants typically last three to five years). Fewer than 5% of NIH grants are MERIT awards, and they are meant to recognize excellence in research over an extended period of time. Seeman's award comes after more than 20 years of work on the biophysics of branched molecules.

Dr. Nadrian Seeman

Seeman's MERIT award will fund his research program, "Physical Chemistry of Recombinational Intermediates," which explores the use of DNA nanotechnology to answer biological questions related to the structural processes involved in genetic recombination.

** ASBMB member*

Continued from previous page

"Understanding this machinery has clinical relevance because many disorders of brain development in children manifest abnormal dendritic structures," said Ehlers. "Also, it turns out that most neurodegenerative diseases, such as Parkinson's and Alzheimer's, are disorders of protein processing. But we know very little about how and where integral membrane proteins are synthesized and processed by neurons."

** ASBMB member.*

ASBMB Member Honored by National Academy

Sabeeha Merchant is one of 15 scientists selected by The National Academy of Sciences (NAS) to receive awards honoring their outstanding scientific achievements. The awards will be presented on April 23 at a ceremony in Washington, D.C., during the Academy's 143rd annual meeting.

Merchant, Professor of Biochemistry in the Department of Chemistry and Biochemistry and Molecular Biology at the University of California, Los Angeles, will receive the Gilbert Morgan Smith Medal. The medal and a prize of $20,000 is awarded every three years for excellence in published research on marine or freshwater algae. Merchant was chosen "for her pioneering discoveries in the assembly of metalloenzymes and the regulated biogenesis of major complexes of the photosynthetic apparatus in green algae." The medal was established by a bequest of Helen P. Smith in memory of her husband and has been presented since 1979.

The National Academy of Sciences is a private, nonprofit honorific society of distinguished scholars engaged in scientific and engineering research, dedicated to the furtherance of science and technology and to their use for the general welfare. Since 1863, the National Academy of Sciences has served to "investigate, examine, experiment, and report upon any subject of science or art" whenever called upon to do so by any department of the government.

Aspirin May Cripple Cancer Cells

In a study published in the December 9, 2005 issue of *The Journal of Biological Chemistry*, researchers at the University of Pittsburgh, report that Aspirin, combined with a promising new cancer therapy known as tumor necrosis factor-related apoptosis-inducing ligand (TRAIL), can induce cancer cells previously resistant to TRAIL therapy to self-destruct.

The investigators say that if these findings hold up in larger studies, Aspirin could become a routine therapy for helping to prevent the recurrence of many aggressive cancers, such as prostate and colon cancers.

"When cancers recur after initial therapy, they tend to be extremely aggressive and patient prognosis is poor," said Yong J. Lee, at the University of Pittsburgh School of Medicine, and lead author of the study. " If we could find ways to prevent these secondary cancers from occurring, we could save many lives. Aspirin is a low-cost medicine that, in our studies, appears to have great potential for helping to prevent such cancer recurrences."

TRAIL is a protein that is expressed by cells of the immune system. Numerous studies have shown that TRAIL induces programmed cell death, or apoptosis, in cancer cells while having little or no effect in normal healthy cells.

Apoptosis is one of several mechanisms by which damaged cells self-destruct and is the body's way of ensuring that only healthy cells reproduce. Most often, apoptosis eliminates rogue cells with damaged DNA or cells growing too quickly, but it also eliminates normal cells that have simply become obsolete as an organism grows and develops. Because cancer cells have lost their ability to undergo apoptosis, they continue to reproduce and spread their damaged progeny throughout the body. In recent years, researchers have gained an increasingly sophisticated understanding of the mechanisms of apoptosis, which has led to the development of a number of therapies targeted to repairing or bypassing damaged apoptotic processes in cancer cells. TRAIL is one of the more promising of these agents, and a synthesized form of TRAIL has been shown in cell cultures and animal models to induce apoptosis alone and in combination with other drugs.

Unfortunately, studies have found that not all cancers are sensitive to TRAIL. In fact, many tumor cells are completely resistant to TRAIL's effects, creating an intensive search for compounds that can overcome this resistance.

Based on other studies showing that Aspirin can prevent the formation of tumors caused by ultraviolet radiation and carcinogens, Lee and his coworkers decided to test the ability of this compound to increase the sensitivity of TRAIL-resistant cancer cells to apoptosis.

To do this, they treated human prostate cancer cells with Aspirin and then treated the cells with a combination of TRAIL and/or Aspirin. Cancer cells treated with either Aspirin or TRAIL alone showed little or no cell death. However, pretreatment of the TRAIL-resistant cancer cells with Aspirin promoted cell death when TRAIL was added.

To determine whether TRAIL was indeed inducing apoptosis in the Aspirin-sensitized cells or killing the cells through some other mechanism, Lee and his coworkers looked for molecular signs of apoptosis.

In the cancer cells pretreated with Aspirin followed by TRAIL, there was significant cleavage, or cutting up, of a compound known as poly (ADP-ribose) polymerase, or PARP. PARP cleavage, a hallmark feature of apoptosis, did not occur in normal cells nor in cancer cells treated with Aspirin alone.

Interestingly, the investigators discovered that, for PARP cleavage to occur, it was necessary to pretreat cancer cells with Aspirin at least 12 hours before the administration of TRAIL.

Lee and his colleagues also found that Aspirin treatment causes cancer cells to decrease their production of a cellular protein known as Bcl-2, which has been shown in numerous studies to protect healthy cells from premature apoptosis. Decreased Bcl-2 production was the result of suppression of the Bcl-2 gene.

Continued on page 20

ASBMB Annual Meeting and Centennial Celebration

San Francisco, California • April 1-5, 2006

Program Co-Chairs: George M. Carman, Rutgers University
Laurie S. Kaguni, Michigan State University

HURRY!!! **Late Breaking Abstract Submission Will Close February 8, 2006.** **HURRY!!!**

Preliminary Program

Molecular Structure

Macromolecular Structure and Dynamics
Andrej Sali, UCSF

Proteomics and Bioinformatics
Michael Snyder, Yale University
David S. Eisenberg, UCLA

Chemical Genetics and Drug Discovery
Chaitan Khosla, Stanford University
Kevan Shokat, UCSF

Glycobiology and Extracellular Matrix
Carlos B. Hirschberg, Boston University
Goldman School of Dental Medicine

Genome Dynamics

Genome Dynamics: Replication, Repair, and Recombination
Laurie S. Kaguni, Michigan State Univ.

Chromatin: Structure, Expression, and Regulation
Sharon R. Dent, University of
Texas M. D. Anderson Cancer Center

RNA: Structure, Metabolism, and Regulation
Alan D. Frankel, UCSF

Protein Synthesis, Folding and Turnover
William Merrick,
Case Western Reserve University

Cell Signaling

Metabolic Regulation
Richard W. Hanson,
Case Western Reserve University
Daryl K. Granner, Vanderbilt Univ.

Signaling in Growth and Development
Michael B. Yaffe, MIT

Signaling in Aging and Disease
Natalie G. Ahn,
University of Colorado at Boulder

Membrane Biogenesis

Biochemistry and Molecular Biology of Lipids
George M. Carman, Rutgers University
Christian R.H. Raetz, Duke University

Structure, Function, and Biogenesis of Cell Membranes
William Dowhan, University of
Texas-Houston Medical School

Minority Affairs Sponsored Symposia

Juliette Bell, Fayetteville State Univ.

Issues in Breast Cancer Among Minority Populations
K.V. Venkatachalam,
Nova Southeastern University

Minorities and the HIV/AIDS Epidemic
Juliette Bell,
Fayetteville State University

EPD/MAC Symposium – Undergraduate Student/Faculty Science
Joseph Provost,
Minnesota State University-Moorhead,
Mark A. Wallert,
Minnesota State University-Moorhead
and Phillip A. Ortiz,
Empire State College

EPD/MAC Symposium – Outreach and Public Education
Neena Grover, Colorado College

Public Affairs Advisory Committee Symposia

William R. Brinkley,
Baylor College of Medicine

Teaching the Science of Evolution Under the Threat of Alternative Views
William R. Brinkley, Ken Miller,
Don Johanson, Eugenie Scott, Ted Peters

Education and Professional Development:

Focus on the Future, Shape the Debate
J. Ellis Bell, Univ. of Richmond

Undergraduate Poster Session and Plenary Lecture: My Life in Science
Edmond H. Fischer, University of
Washington School of Medicine and
Edwin G. Krebs, University of
Washington School of Medicine

Current Themes in Molecular Evolution
Michael M. Cox,
University of Wisconsin – Madison

Plenary Lecture: Integrity and Independence of Scientific Thought
Elizabeth Blackburn, UCSF

Matching Expectations: Employers and Education in the Molecular Life Sciences
Joy A. McMillan,
Madison Area Technical College

The Classroom of the Future
J. Ellis Bell, Univ. of Richmond

Workshops

Mass Spectrometry and Proteomics
Al Burlingame, UCSF and
Sue Weintraub, UTHSC, San Antonio

Surface Plasmon Resonance and Proteomics
Eileen Lafer, UTHSC, San Antonio

How to Publish in the JBC
Presented by Associate Editors of JBC

Award Lectures

- **Herbert Tabor/Journal of Biological Chemistry Lectureship**
- **ASBMB-Amgen Award**
- **ASBMB Award for Exemplary Contributions to Education**
- **ASBMB-Merck Award**
- **Avanti Award in Lipids**
- **FASEB Excellence in Science Award**
- **Herbert A. Sober Lectureship**
- **Howard K. Schachman Public Service Award**
- **Schering-Plough Research Institute Award**
- **William C. Rose Award**

Centennial Special Events

- **Opening Centennial Celebration Reception**
- **ASBMB/JBC Birthday Bash, A Taste of San Francisco**
- **ASBMB 5k Fun Run**
- **An Evening with the San Francisco Symphony**

ASBMB Travel Awards

ASBMB Centennial Clara Benson Travel Fellowship Award

Graduate Minority Travel Award

Graduate or Postdoctoral Travel Award

Undergraduate Student Travel Award

Undergraduate Faculty Travel Award

Special Events

10th Annual Undergraduate Student Research Achievement Award Poster Competition, Saturday, April 1, 2006

ASBMB Graduate Student and Postdoctoral Travel Award Symposium, Saturday, April 1, 2006

ABRF/ASBMB Symposium

Minority Scientists Mixer

Women Scientists' Mentoring/ Networking Session and Reception

Graduate Student and Postdoctoral Mentoring/Networking Session and Reception

ASBMB Business Meeting

HURRY!!! **Late Breaking Abstract Submission Will Close February 8, 2006.** **HURRY!!!**

www.asbmb.org/meetings

by John D. Thompson, Editor

GE Healthcare, Photocure Partner for Optical Imaging of Bladder Cancer

GE Healthcare, a unit of General Electric Company and PhotoCure, a Norwegian pharmaceutical company, have announced a licensing agreement that grants GE Healthcare exclusive global rights outside of the U.S. and the Nordic region to market and distribute PhotoCure's product Hexvix (hexaminolevulinate), an optical molecular imaging agent for the diagnosis and monitoring of bladder cancer. PhotoCure will be responsible for manufacturing and Nordic distribution of the product. The agreement includes an exclusive option for GE Healthcare to market and distribute the product in the US.

Hexvix has received approval for the diagnosis of bladder cancer in a large number of European countries but is not yet approved by the U.S. Food and Drug Administration (FDA). However, if a New Drug Application submitted in June 2005 in the U.S. is approved, it would be the first optical molecular imaging agent of its kind available in the U.S.

Optical imaging is an imaging modality with the potential to provide new applications in the prevention and treatment of bladder cancer as well as other diseases. Optical imaging uses light to illuminate superficial tissue - such as bladder tissue. By combining this technology with an optical molecular imaging agent, tumors might be targeted more accurately. Optical imaging may enhance the diagnostic abilities of urologists and allow for improved patient care.

Globally, bladder cancer is ranked fourth and eighth in men and women respectively as the most common form of cancer causing mortality. It is expected that the incidence of bladder cancer will continue to increase along with the increase in industrialization, lifestyle factors, and an aging population.

Roche, SystemsX Collaborate in Diabetes Research

Roche and the Competence Center for Systems Physiology and Metabolic Diseases (CC-SPMD) of SystemsX, the Swiss Initiative in Systems Biology, have signed a three-year research partnership. Scientists from Roche and the CC-SPMD will participate in a joint research project entitled «Systems biology of the beta cell-application to type 2 diabetes progression». The project aims to identify novel pathways for drug development in diabetes as well as new biomarkers of beta cell failure for diagnostics. Beta cells which are located in the isles of Langerhans in the pancreas produce and release the insulin hormone, controlling the level of glucose in the blood. A team of more than 15 scientists at Roche and the CC-SPMD, including researchers from the Swiss Federal Institute of Technology in Zurich and theUniversity of Zurich, will collaborate and exchange research results. The project will be financed by Roche at a cost of 2.1 million Swiss francs ($ 2.6 US) a year for three years.

"This new, systems-oriented research approach, the integration of several disciplines and collaboration of outstanding scientists from academia and industry will allow us to obtain new insights into the dysregulation of beta cells and their impact on type 2 diabetes progression. We intend to translate this knowledge into innovative treatment options for patients," said René Imhof, Head of Pharma Research, Basel

Production of Paclitaxel and Taxane Intermediates

Exelixis Plant Sciences, Inc. (EPS), a wholly owned subsidiary of Exelixis, Inc. and Washington State University Research Foundation have announced a commercial license agreement covering patent rights

and biological materials for the production of paclitaxel and other taxane products from plant cell culture. Under the agreement, EPS willo use its cell factory and metabolic engineering programs to develop methods for the production of paclitaxel and taxane intermediates used to produce paclitaxel, docetaxel and other semi-synthetic taxanes for pharmaceutical applications. EPS and WSURF had previously agreed to a research license for these patent rights and biological materials under which EPS has advanced the development of its taxane cell factory program. The rights granted by WSURF under this are related to pioneering discoveries made in the laboratory of Dr. Rodney Croteau* in the Institute of Biological Chemistry at Washington State University.

Harvard Medical School and Lumera to Collaborate on New Protein Biochip

Lumera Corporation has entered into a collaborative agreement with Harvard Medical School (HMS) and the Harvard Institute of Proteomics, a division of HMS. Under the terms of the agreement, Lumera and HMS will develop a next generation silicon chip substrate that combines Lumera's NanoCapture technology with HMS's NAPPA methodology (nucleic acid programmable protein arrays). The resultant 10,000-spot very high density protein arrays are expected to significantly increase the speed of drug discovery and life science research.

"The 10,000-spot biochip is a very important step towards our ultimate goal of producing a whole proteome biochip," said Joshua LaBaer, Director of the Harvard Institute of Proteomics. "As we increase spot density, we are able to gather more data about proteins from a single experiment." Using current research methods and materials, array densities of up to about 800 spots are possible. However, the new Lumera array will help researchers to analyze high-throughput expression of over 10,000 discrete proteins, in biologically-active arrays built from available cDNA libraries.

Combined with Lumera's expertise in surface chemistry, the new biochip is expected to increase the sensitivity and throughput of the NAPPA technology by increasing the number of features on the array without sacrificing the amount of protein produced per feature. This avoids the cost and major technical difficulties involved in printing protein arrays one protein at a time.

Although financial terms were not disclosed, under this agreement, HMS and Lumera will share rights to jointly developed intellectual property.

Fox Foundation to Provide $4.2 Million for Development of Gene Therapy

The Michael J. Fox Foundation for Parkinson's Research (MJFF) plans to provide up to $4.2 million to a team led by RheoGene Inc. for the development of a gene therapy vector system with a regulatable "on switch" to treat Parkinson's disease. In collaboration with several academic institutions, RheoGene will use the award to develop, optimize and test its RheoSwitch Therapeutic System (RTS) technology through Phase I trials within four years. While Parkinson's disease is the first application, the work may have broad applicability to the safety and efficacy of gene therapies for many other diseasesl, and for their accelerated advancement into the clinic.

"This project has the potential to revolutionize the clinical application of gene therapy — not only for the millions of people with Parkinson's disease, but for countless numbers afflicted by other health ailments as well," said Deborah W. Brooks, MJFF president and CEO. "It is a natural fit with the Foundation's commitment to drive innovative technology that will have a significant impact on patients' lives."

The development of gene therapy as a widespread therapeutic technique has been hampered by the lack of any way to time or finely adjust doses or to "turn off" a gene once it has begun expressing a protein in the brain. The RheoGene team will use its RheoSwitch Therapeutic System to regulate both the level and timing of gene expression using an orally administered activator or "on switch." RTS is expected to provide a safety mechanism by allowing gene expression to be completely shut off in the event of adverse side effects.

$435 Million Nanoelectronics Research Institute Planned for Albany

A new $435 million Institute for Nanoelectronics Discovery and Exploration (INDEX),one of only two to be created in the nation, will be located at the Center of Excellence in Nanoelectronics at the University at Albany in New York state. As part of this effort a new 250,000 square foot building with a 100,000 square foot clean-room wing will be situated in the Albany Center of Excellence. A similar institute will be located in California's Silicon Valley.

The new INDEX Institute will partner leading university researchers from Harvard University, Yale University, Massachusetts Institute of Technology, Purdue University, Georgia Institute of Technology and Rensselaer Polytechnic Institute, with onsite corporate researchers from leading semiconductor companies such as Intel, Micron, AMD, IBM, Texas Instruments, and Freescale Semiconductor, Inc.

Total public and private funding for the project will reach $435 million, with New York State committing $80 million in matching funds to help establish the scientific, technical and manufacturing infrastructure, as well as train the educated workforce necessary to allow New York to compete globally in the field of nanotechnology. Extensive funding will also be provided by the Federal Government, semiconductor equipment manufacturers, and semiconductor material suppliers.

Dr. David Allmann, Educator, Biochemist, and Friend of CUSBA Program died on December 15, 2005

By Dr. Robert K. Yu, Institute of Molecular Medicine & Genetics, Medical College of Georgia

Dr. David Allmann, a member of ASBMB since 1971, received his Ph.D. in Biochemistry from Indiana University in 1964. He did postdoctoral work at the prestigious Institute for Enzyme Research at the University of Wisconsin and was an Assistant Professor of Biochemistry at Wisconsin before joining the Department of Biochemistry at Indiana University School of Medicine in 1970. He spent the remainder of his academic career, 35 years, at IU and was a Full Professor of Biochemistry and Molecular Biology.

As a research investigator, Dr. Allmann contributed significantly to our understanding of mitochondrial processes and the action of fluoride on cellular metabolism and signaling. Throughout his career, Dr. Allmann was a major contributor to the teaching of Dental, Medical and Graduate School students at Indiana University-Purdue University in Indianapolis. He was instrumental in developing problem-based learning courses for students in a variety of programs. He was widely recognized at IUPUI and the Statewide Centers for Medical Education as a leader in developing cases in problem-based learning and in assessment of student learning in this process. He served as the director of the Medical Biochemistry statewide examination at the School of Medicine and co-director of the lecture course in Medical Biochemistry. He contributed significantly to the recruitment and admission of graduate students in Biochemistry and Molecular Biology and a newly established Biotechnology Training Program. He was nationally recognized for his contributions and leadership to the recruitment of graduate students from China after the Cultural Revolution through the international CUSBEA exchange program (1982-89) and later the China-US Biochemistry Admisssions (CUSBA) Program (1995-2005). He made many trips to China to interview and recruit students to US biochemistry graduate programs and particularly the programs at IU School of Medicine. His personal efforts to help Chinese students adjust to American culture were widely appreciated by many students who are now successful professors and researchers in industry and universities today. He will be sorely missed.

Aspirin and Cancer continued ...

Continued from page 16

Furthermore, when the investigators induced prostate and colon cancer cells to produce excess amounts of the Bcl-2 protein in the cells, the cells were still resistant to TRAIL-induced apoptosis even when they were pretreated with aspirin.

According to Lee, this suggests that TRAIL induces apoptosis via cellular mitochondria, "Bcl-2 inhibits the release of a compound known as cytochrome c from mitochondria, an organelle in the cell that regulates energy production as well as cell death. Therefore, we suspected that TRAIL might be inducing cell death through mitochondria-mediated apoptosis. In this study we demonstrated that Aspirin can down-regulate Bcl-2 gene expression and consequently change the electrical potential of the mitochondrial membrane in cancer cells, thereby releasing cytochrome c and other apoptotic proteins."

Lee and his colleagues believe these findings could soon be applied in the clinical setting and result in the increased effectiveness of TRAIL for treating a number of aggressive cancers, particularly those that overexpress the human epidermal growth factor receptor 2 (HER-2/neu) gene.

This gene is amplified up to 30 percent in some human cancers, which leads to an increase in the expression of the HER-2/neu protein on the cell surface. Numerous studies suggest that a high concentration of the HER-2/neu protein on the surface of cancer cells makes them more aggressive and difficult to treat. In this study, Lee and coworkers demonstrated that the combination of Aspirin and TRAIL undercuts the effects of HER-2/neu overexpression.

"HER-2/neu overexpression in cancer cells, such as prostate and colon, is associated with a higher cell proliferation rate, faster metastases and greater tumor burden," explained Lee. "It is our hope that Aspirin and other agents we are currently testing can negate this effect and dramatically improve the prognosis of patients with these types of cancer."

For Your Lab/For Your Lab/For Your Lab

The information in For Your Lab has been provided by manufacturers and suppliers of laboratory equipment. For further information about any of these products listed contacts are listed at the bottom of each panel. When contacting any of these companies, please mention that you saw their product in *ASBMB Today*. Please note that a listing in *ASBMB Today* does not imply an endorsement by the American Society for Biochemistry and Molecular Biology or by any of its members or staff.

Manufacturers and suppliers, to include your products in For Your Lab contact Molly at adnet@faseb.org or 301-634-7157 (direct) or 1-800-433-2732 ext. 7157.

GENETEL LABORATORIES

Molecular Biology & Antibody Products and Services: High Quality + Low Prices

1) Taq DNA Polymerase (GenTaq) for PCR: $400/5,000U
2) DNA Gel Extraction or Mini Plasmid Prep kit: $35/kit of 50
3) PCR tubes: $20/bag of 1000; PCR Plates (96-well): $20/bag of 10
4) PCR Tube Strips with caps: $60/bag of 200 8-tube strips
5) Antibodies for signal transduction, phosphorylated proteins
6) Antibodies for neural sciences and obesity research
7) Antibodies against chromosome 21 proteins
8) Various secondary antibodies (conjugates)
9) Antibody production services $400/each
10) 96-well Immuno (ELISA) Plates: $14/bag of 10 plates
11) Microcentrifuge Tubes, Pipette Tips (Universal), Medical Exam Gloves etc

For more info, please call 877-248-4316, email us at info@genetel-lab.com or visit us at www.genetel-lab.com

ACS CHEMICAL BIOLOGY

The New Interface of Chemistry and Biology

CALL FOR PAPERS

ACS Chemical Biology is a new journal for a rapidly expanding area of research, fostering substantive collaboration between biologists and chemists. Results are published in which molecular reasoning has been used to probe questions through in vitro investigations, cell biological methods, organismal studies, or computational approaches. We welcome mechanistic studies on proteins, nucleic acids, sugars, lipids, and non-biological polymers. The journal serves a broad-based scientific community, exploring cellular function from both a chemical and biological perspective.

Submit your letter, article, or review today at www.acschemicalbiology.org

NOVUS BIOLOGICALS, INC

Antibodies Catalog

2006 release featuring antibodies for research on cancer, hypoxia, neuroscience, cell signaling, lipid metabolism, apoptosis, GPCRs, and other related fields. Additional features include antibody groups for epitope tags, loading controls, secondaries, positive controls, neuronal, cell type and structure markers. New antibody highlights: Rictor, LRRK2, FXR, LYVE1, beta actin, Aurora A, GPR30, NPC1, Notch1, Recoverin, VEGF, and VEGF Receptors.

For more information, call 1-888-506-6887 or 303-730-1950, email novus@novusbio.com, or visit www.novusbio.com.

21ST CENTURY BIOCHEMICALS

Custom Peptides and Antibodies with FREE PEPTIDE SEQUENCING!

Custom affinity purified polyclonal antibodies — $1,675 complete! 21st Century Biochemicals is the ONLY company that sequences every high purity peptide we make! This guarantees that your peptide is correct. Purities to >97%, mg to >100g, phospho, dye-labeled, cyclized peptides and much more. All of our peptides are manufactured in our Marlborough, MA facility by a staff with over 70 years of experience in chemistry, immunology, biochemistry, and cell biology.

For more info, please call 877.217.8238/508.303.8222, e-mail us at info@21stcenturybio.com or visit us at www.21stcenturybio.com

10 ASBMB Members Named To Institute of Medicine

The Institute of Medicine of the National Academies last month announced the names of 64 new members, raising its total active membership to 1,461.

This year marks the 35th anniversary of the Institute of Medicine, which was established in 1970 by the National Academy of Sciences to honor professional achievement in the health sciences and to serve as a national resource for independent analysis and recommendations on issues related to medicine, biomedical sciences, and health.

With their election, members make a commitment to involve themselves in the work of the Institute, which conducts studies and other activities addressing a wide range of issues in medical science, health services, public health, and health policy. Current studies include a project to recommend appropriate nutritional standards for foods sold in schools, an evaluation of the nation's system for ensuring the safety of prescription drugs after they have reached the market, and an assessment of and recommendations for improving emergency health care in the U.S.

ASBMB members elected to the Institute of Medicine were:

Peter C. Agre, Vice Chancellor, Science and Technology, and Professor of Cell Biology, Duke University, Durham, North Carolina.

Richard H. Goodman, Director and Senior Scientist, Vollum Institute, Oregon Health & Science University, Portland, Oregon

Warner C. Greene, Director and Senior Investigator, Gladstone Institute of Virology and Immunology, University of California, San Francisco.

Barbara B. Kahn, chief, division of endocrinology, diabetes, and metabolism, Beth Israel Deaconess Medical Center, and Professor of Medicine, Harvard Medical School, Boston.

Steven L. McKnight, Chair, Biochemistry Department, University of Texas Southwestern Medical Center, Dallas.

Carol L. Prives, Professor, Department of Biological Sciences, Columbia University, New York City.

Paul Schimmel, Hahn Professor, Skaggs Institute for Chemical Biology, Scripps Research Institute, La Jolla, California.

Dennis J. Selkoe, Co-Director, Center for Neurologic Diseases, Brigham and Women's Hospital, and Coates Professor of Neurologic Diseases, Department of Neurology, Harvard Medical School, Boston.

Gerald I. Shulman, Investigator, Howard Hughes Medical Institute, and Professor, Medicine and Cellular and Molecular Physiology, Yale University School of Medicine, New Haven, Connecticut.

Joan A. Steitz, Investigator, Howard Hughes Medical Institute, and Sterling Professor, Department of Molecular Biophysics and Biochemistry, Yale University, New Haven, Connecticut.

Sergio Jimenez Receives OARSI Science Award

Sergio A. Jimenez has received the 2005 Osteoarthritis Research Society International (OARSI) Basic Science Award. This award has been made on the basis of Dr. Jimenez's important contributions to osteoarthritis research during the last two decades and, particularly, for the study of regulation of cartilage gene expression by inflammatory cytokines.

The award was presented December 8 at the OARSI World Congress in Boston. Dr. Jimenez is the Dorrance H. Hamilton Professor of Medicine and the Director of the Division of Rheumatology at Thomas Jefferson University, Philadelphia.

DOES YOUR UNIVERSITY OR COMPANY SPONSOR SUMMER UNDERGRADUATE RESEARCH OPPORTUNITIES?

If so, please send information (links or other info) to Marilee Benore Parsons at mparsons@umich.edu. We will compile this information and post it on the ASBMB Undergraduate Affiliate Network (UAN) website. The link is via the Education page of ASBMB Website.

Career Opportunities

U.S. ARMY RESEARCH LABORATORY

Postdoctoral Fellowship

Postdoctoral positions are available in the Bio-Inspired Devices and Sensors Team in the Sensors and Electron Devices Directorate of the U.S. Army Research Laboratory, located in Adelphi, MD. These positions will involve the development of novel bioassays as well as micro- and molecular- biology-based devices for a broad range of defense applications. Ideal candidates will have a strong background and demonstrated ability to work at the forefront of interdisciplinary fields in biotechnology and the physical sciences. Experience with immunoassay development (e.g., lateral flow), biological and synthetic molecular recognition (e.g., biomimetics), protein and DNA-based nanostructures, and biological self-assembly (e.g., phage display), as well as general micro- and molecular-biological methods development is preferred. Additional skills of interest include: spectrochemical (fluorescence, Raman, etc.) and electrochemical methods of analysis, optical microscopy, and bio-integrated materials synthesis. Interested candidates should submit a CV along with at least 2 letters of reference to arlest@arl.army.mil. US citizenship is required for this position.

OKLAHOMA STATE UNIVERSITY

Two Tenure Track Positions in Biochemistry

The Department of Biochemistry and Molecular Biology at Oklahoma State University invites applications for two eleven-month tenure-track positions with emphasis on1)Protein structure and 2) Functional Genomics related to plant stress at the rank of Assistant Professor beginning as early as Spring 2006. Details regarding the department can be found at http://biochem4.okstate.edu/ Candidates should submit via US Mail to:

Dr. Earl D. Mitchell, Jr.
Biochemistry and Molecular Biology
Oklahoma State University
246 Noble Research Center
Stillwater OK 74078-3035

or via eMail (PDF attachments only) to earl.mitchell@okstate.edu following documents: 1) a complete CV, 2) a brief description of planned research (not to exceed 5 pages), and 3) a statement of teaching philosophy. In addition, candidates should arrange for 3 recommendation letters to be sent to the US Mail address or the eMail address given above.

OKLAHOMA STATE UNIVERSITY

Biochemistry and Molecular Biology Department Head and Professor

Qualifications: Doctoral degree in biochemistry, molecular biology or a closely related discipline and a record of outstanding scholarly achievements and professional activities in teaching and research.

Position description: Position provides leadership for educational and research programs and serves as liaison with administration in the Division of Agricultural Sciences and Natural Resources, the university, other departments, outside agencies and professional organizations. The position reports to the Vice President of Agricultural Programs. Visit http://biochem4.okstate.edu for more details.

Applications review begins: Jan. 16, 2006
Send applications to: Dr. Stanley Gilliland, Chair Department Head Search and Screen Committee Biochemistry and Molecular Biology, Food & Agricultural Products Center, 111 FAPC, Oklahoma State University, Stillwater, OK 74078-6055 (Telephone: 405-744-6071, Facsimile: 405-744-6313, E-mail: stan.gilliland@okstate.edu)

Oklahoma State Unviersity is an Affirmative Action/Equal Opportunity Employer committed to Multicultural Diversity

THE MONELL CHEMICAL SENSES CENTER

Postdoctoral Fellowship Position

A postdoctoral fellowship position is available immediately in human sensory perception. Position will focus on human chemosensory psychophysics in a funded project led by Dr. Paul Breslin of the Monell Chemical Senses Center. Successful applicant will have strong skills in psychophysical methodology, data management and analysis, and be able to manage and execute an independent research program within this project, as well as strong communication and writing skills.

The Monell Chemical Senses Center was founded in 1968 as the world's first non-profit scientific institute devoted exclusively to basic research on the chemical senses: taste, smell and chemical-somatosensation.

Interested candidates should send a cover letter describing interests and future goals, c.v. and three supporting letters of reference to Jane Saar, Psychophysics, Monell Chemical Senses Center, 3500 Market Street, Philadelphia, PA 19104-3308, tel. 215-573-5775, jsaar@monell.org.

The Monell Chemical Senses Center is an equal opportunity employer. Women and minorities are encouraged to apply.

Calendar of Scientific Meetings

FEBRUARY 2006

The 11th Annual Proteomics Symposium

February 3-5 • Erskine on the Beach, Lorne, Australia
Email: mp@asnevents.net.au
www.australasianproteomics.org.au/lorne.htm

The 31st Lorne Conference on Protein Structure and Function

February 5-9 • Erskine on the Beach, Lorne, Australia
email: mp@asnevents.net.au; www.lorneproteins.org/

Third International Conference on Ubiquitin, Ubiquitin-like Proteins, and Cancer

February 9-11 • The University of Texas M. D. Anderson Cancer Center, Houston, Texas
This meeting will celebrate the Nobel Prize awarded to Avram Hershko, Aaron Ciechanover, and Irwin Rose for their discovery of the ubiquitin pathway and the 10th anniversary of the discovery of SUMO/Sentrin and NEDD8
Application and Abstract Submission Deadline: Friday, November 11, 2005; For information contact: Amy Heaton
Program Manager, Department Of Cardiology
University of Texas M. D. Anderson Cancer Center
Tel: 713-745-6826; Fax: 713-745-1942
Website: www.sentrin.org

ABRF 2006—Integrating Science, Tools and Technologies with Systems Biology

February 11-14 • Long Beach, California
For Information: www.faseb.org/meetings/abrf2006

G Protein- Coupled Receptors: Evolving Concepts and New Techniques

February 12-16 • Keystone, Colorado
For information contact:
Ph.: 800-253-0685 / 970-262-1230
Email: info@keystonesymposia.org
http://www.keystonesymposia.org/Meetings/ViewMeetings.cfm?MeetingID=807

MARCH 2006

Gordon Research Conference (GRC) on New Antibacterial Discovery & Development

March 5-10 • Ventura Beach Marriott, Ventura, California
For Information: Email:trevor.trust@astrazeneca.com
Website: www.grc.org/programs/2006/antibact.htm

Funding U.S. Research: Challenges and Opportunities, arranged by the Coalition for Bridging the Sciences

Sponsored by Pittcon (The Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy)

March 11-17 • Orange County Convention Center, Orlando, FL
For complete program go to
www.appcluster05.com/app/homepage.cfm?appname=376&moduleid=855&linkid=4341
A special symposium, Funding U.S. Research: Challenges and Opportunities, will be held March 16 and will include speakers from the National Science Foundation and National Institute of Biomedical Imaging and Engineering, as well as academia, industry, and government.

DNA Structure, Genomic Rearrangements, and Human Disease

March 12-14 • Institute of Biosciences and Technology, Houston, Texas
Organizers: James R. Lupski, Baylor College of Medicine and Robert D. Wells, Institute of Biosciences and Technology
Keynote Lecturer: Dr. Evan Eichler, University of Washington, Seattle
This three-day symposium will focus on DNA structure and how atypical DNA conformations result in human genetic disease. More detailed information including program and registration information can be found on the ASBMB website, www.asbmb.org/meetings

RNAi2006: Advances in RNA Interference Research

March 22-23 • St. Anne's College, Oxford, UK
Conference Organizer: Muhammad Sohail
Biochemistry Department, University of Oxford
Tel: +44 1865 275225; Fax: +44 1865 275259
Email: muhammad.sohail@bioch.ox.ac.uk
Website: http://libpubmedia.co.uk/Conferences/RNAi2006HomeMay2005.htm

American Chemical Society 231st National Meeting

March 26 – 30 • Atlanta
Contact: Charmayne Marsh; Ph: 202-872-4445
Email: y_marsh@acs.org; Website: www.acs.org/meetings

Compartmentalization of Cyclic AMP Signalling

March 29-30 • King's College, Cambridge, UK
Contact: Meetings Office, Biochemical Society, 3rd Floor, Eagle House, 16 Proctor Street, London, WC1V 6NX
Email: meetings@biochemistry.org
Website: www.biochemistry.org/meetings

Biochemical Society Annual Symposium The Cell Biology of Inositol Lipids and Phosphates

March 29-31 • University of Birmingham, UK
Organizer: Michael Wakelam, University of Birmingham
Early registration deadline: February 28, 2006
For more information: www.biochemistry.org/meetings

APRIL 2006

American Society for Biochemistry and Molecular Biology Centennial Meeting in Conjunction with Experimental Biology 2006

April 1–5 • San Francisco
For information contact: www.asbmb.org/meetings
Email: meetings@asbmb.org
Ph: 301-634-7145; Website: www.asbmb.org/meetings

Recomb 2006 — The Tenth Annual International Conference on Research in Computational Molecular Biology

April 2-5 • Venice, Italy
For information contact:Email: info@veneziacongressi.com
Ph: +39 0415238995; Website: http://recomb06.dei.unipd.it/

Bio 2006 Chicago — Annual International Convention of the Biotechnology Industry Organization

April 8–12 • McCormick Place, Chicago, Illinois
Register on or before February 23 to take advantage of early discounted rate. For internet registration and wire payment instructions: www.bio.org
To register by mail: BIO c/o SunTrust Bank, P.O. Box 79532 Baltimore, MD 21279-0532
Note: Faxed forms are no longer accepted.

47th ENC Experimental Nuclear Magnetic Resonance

April 23-28 • Asilomar Conference Ctr., Pacific Grove, CA
Contact: ENC, 2019 Galisteo Street, Building I-1
Santa Fe, New Mexico 87505; Ph: 505-89-4573
Fx: 505-989-1073; Email: enc@enc-conference.org
Web page: http://www.enc-conference.org

MAY 2006

CSBMCB International Meeting on Membrane Proteins in Health and Disease

May 31- June 4 • Niagara-on-the-Lake, Ontario, Canada
This Canadian Society of Biochemistry, Molecular and Cellular Biology sponsored meeting, held in Canada's wine country close to Niagara Falls, will feature cutting-edge sessions on Structural Biology of Membrane Proteins, Regulating Membrane Permeability, Dynamics of Membrane Proteins, Transporters and Disease, Trafficking Defects in Membrane Proteins, and Assembly and Disassembly of Membrane Proteins. Meeting organizer: Dr. Reinhart Reithmeier
Email: r.reithmeier@utoronto.ca
Website: www.csbmcb.ca/e_index.html

JUNE 2006

20th IUBMB International Congress of Biochemistry and Molecular Biologi and 11th FAOBMB Congress

June 16 – 23 • Kyoto, Japan
Deadline for On-line Registration: May 18, 2006
Website: www.congre.co.jp/iubmb/registration.html

JULY 2006

Gordon Conference on Enzymes, Coenzymes & Metabolic Pathways

July 16 -21 • University of New England, Biddeford, Maine
For information contact: Email: grc@grc.org
Ph: 401-783-4011 ext 100; www.grc.uri.edu/06sched.htm#GRC

17th International Symposium on Plant Lipids

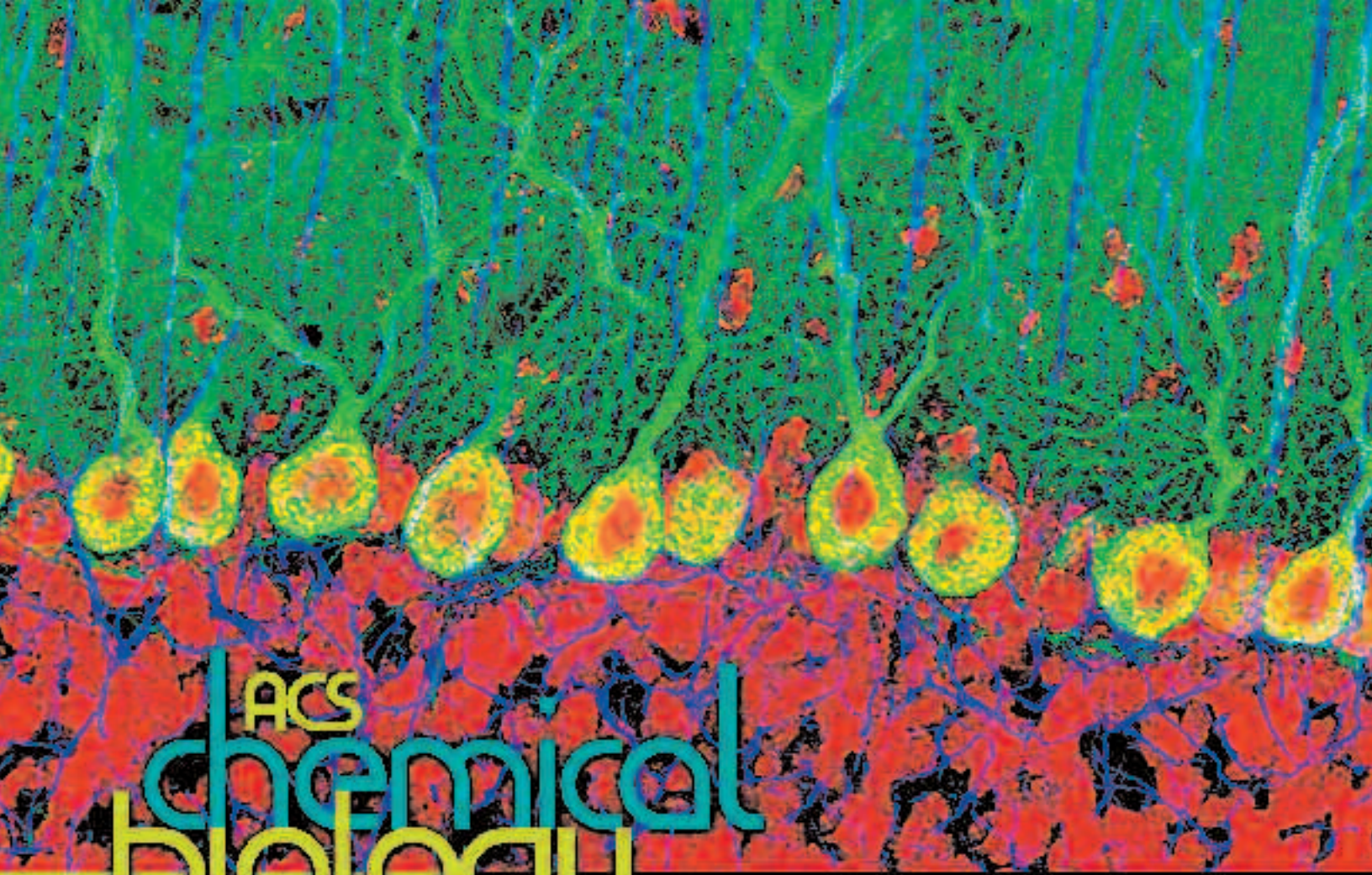
July 16-21 • Michigan State University Campus, East Lansing
Organizer: Christoph Benning
For registration information, preliminary program, instructions for submitting abstracts, and for information on financial aid available for young scientists to attend the meeting, go to: http://www.ispl2006.msu.edu/.
Members of underrepresented groups are especially encouraged to apply for financial aid.

Bioscience 2006: Bioscience for the 21st Century and Biochemical Journal Centenary Symposium

July 23-27 • Glasgow, UK
For more information: www.biochemistry.org/meetings

4th Annual Meeting of the International Society for Stem Cell Research

June 29-July 1 • Metro Toronto Convention Centre
Toronto, Ontario, Canada
For information on the ISSCR Annual Meeting, contact ISSCR Headquarters: Ph: 847-509-1944; By E-mail:
General Inquiries isscr@isscr.org
Conference Administrator: Deb Pederson dpederson@isscr.org
Press Inquiries: Heather Gagnon hgagnon@isscr.org
Conference Director: Liz Freyn lfreyn@isscr.org



ACS chemical biology

The New Interface of Chemistry and Biology

Call For Papers

Recommend
ACS Chemical Biology
to your library today.

Now accepting your original research and reviews at: www.acschemicalbiology.org

ACS Chemical Biology is a new journal for a rapidly expanding area of research, acting as a catalyst to foster substantive collaboration between biologists and chemists. Results will be published in which molecular reasoning has been used to probe questions through *in vitro* investigations, cell biological methods, organismal studies, or computational approaches. We welcome mechanistic studies on proteins, nucleic acids, sugars, lipids, and non-biological polymers. The journal serves a broad-based scientific community, exploring cellular function from both a chemical and biological perspective.

ACS PUBLICATIONS
HIGH QUALITY. HIGH IMPACT.

Note: there are no page or color charges associated with *ACS Chemical Biology*