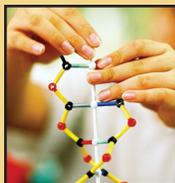


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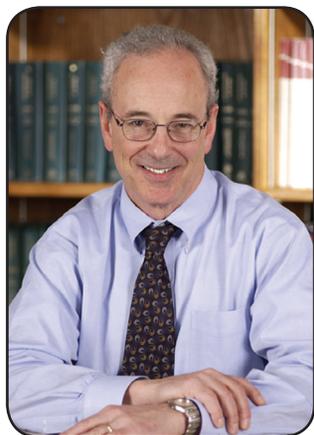


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# Department of Biological Chemistry NEWSLETTER 2006

## A Year of Progress...

*A letter from William L. Smith, Chair of the Department of Biological Chemistry*



Dear Friends and Colleagues,

I hope you will enjoy the new format of our newsletter this year. I also hope that you will take the time to keep us apprised of your activities—if you send me a note ([smithww@umich.edu](mailto:smithww@umich.edu)), I will make sure the relevant information makes it into the newsletter next year. I find one of the most enjoyable parts of our newsletter to be reading news from former students and fellows reporting about events in their lives. Remember that we are on the web (<http://www.biochem.med.umich.edu>); please visit our site.

The department has been actively engaged in interviewing prospective faculty over the past year—both junior and senior candidates. However, in the end we decided as a faculty not to extend any offers. We are planning to continue recruiting and will be looking in particular for senior investigators to fill both the Vincent Massey Endowed Professorship and the Anthony Lu Endowed Professorship. Dave Ballou is chairing the search for the Massey Professorship and the Advisory Committee is serving as the search committee for the Lu Professorship. We did benefit greatly by having Jim Bardwell, a new Howard Hughes Investigator, accept a position on our faculty.

Jim is now jointly appointed in Biological Chemistry and in Molecular, Cellular and Developmental Biology in LS&A.

The other major recruiting activity has been for graduate students. One source of students is the Program in Biomedical Sciences (PIBS). As noted last year, this is a joint recruiting program whereby students who join laboratories headed by faculty in the Department obtain degrees in Biological Chemistry. Another major source of new trainees is the new Chemical Biology Ph.D. program. Last fall the first entering class of seven joined the Chemical Biology Ph.D. program. Gary Glick and Bruce Palfe are the director and co-director of this program, which is off to an excellent start.

Another activity that has involved considerable effort is planning for the move. Merlis Nolan, our departmental administrator, has been particularly active in arranging for needed renovations and in developing plans for situating faculty in new laboratory and office space. We anticipate that eight faculty currently located in the "old" departmental space in Medical Science I will be moving to MSRB III. We expect over the next several years to occupy the third, fourth and fifth floors of this building, which features open laboratories and a considerable amount of shared space. This should improve our abilities as departmental members to interact with one another, which should in turn foster the research efforts of the department.

Many of you are aware that this is a reasonably "tight" time for NIH funding. The rapid increases in funding that the NIH experienced over the past five years as the NIH budget was doubled are no longer occurring. Indeed, the increase for this coming year was below the rate of inflation and with the large federal budget deficit, the consensus is that things will not improve soon. As senior faculty are expected to carry two grants and pay 50% of their salaries, this puts considerable fiscal pressure on everyone in the department. Although there had been some dips in our grant funding over the last year or so, we do seem to be swinging back in a positive direction. This should improve further as our junior faculty obtain grant funding. The medical school has been very forward looking in planning for bridging funds and in developing seed grant programs to foster "translational" research efforts. In the long term, this will be beneficial for the basic sciences at the University.

There are many other highlights and news events that occurred this year that I hope you will note. First, Hee Young Kim from NIAAA-NIH delivered the first William E. M. Lands Endowed Lecture in Nutritional Biochemistry in November. Dr. Kim is working to determine the basis for the nutritional essentiality of docosahexaenoic acid in the brain.

She finds that this fatty acid is preferentially incorporated into phosphatidylserine, which interacts with and regulates a kinase named Akt. Dr. Lands and his spouse Dr. Norberta Schoene were able to attend the lecture and the reception following the lecture. In May Dr. Edward Kravitz, a 1958 graduate of the department and Professor of Neurology at Harvard University delivered our Alumni Distinguished Lecture. The Department helped to sponsor a symposium on Cryo-Electron Microscopy, one of the new frontiers in structural biology, in October. Randy Kaufman, one of our Howard Hughes Medical Institute Investigators, has recently been named as a Warner-Lambert Endowed Professor. Dr. Minor J. Coon and Dr. Vincent Massey (posthumously) have been inducted into the University of Michigan Hall of Honor. Also, to be inducted are two of our graduates, Stanley Cohen and Marshall Nirenberg, both of whom are Nobel laureates and Howard Lewis who was also chair of the Department for 32 years until 1954. This induction will commemorate not only their outstanding scientific careers, but also their life-long contributions and dedication to the research community at large and the Department of Biological Chemistry.

Patricia Haines, who was a valuable member of the departmental staff for the past 12 years, retired in January, 2006. A new staff member, Kim Crawford has recently joined our department.

As you will read on the next pages, Professor Robert Greenberg died last spring. Bob continued to participate in departmental activities until shortly before his death, and we all certainly miss his presence.

On the personal side, I feel that it is important to report that Andrea and I were able to triple our grandchild population (to three) this year although it required relatively little effort on our part. You may also note from the picture that despite all the new grandchildren, I succeeded in not aging during the past year. I hope you all have been as fortunate.

Please accept my best wishes for the coming year.

Regards,



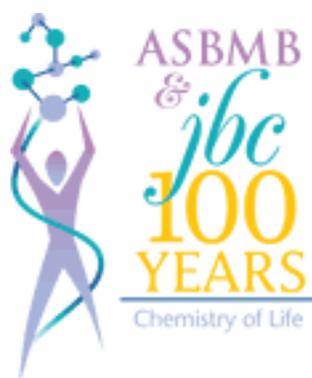
William L. Smith, Chair

## Join Us!

### *ASBMB Annual Meeting in San Francisco*

The University of Michigan, Department of Biological Chemistry is hosting a social hour at the annual ASBMB meeting in April 2006. The Department's friends and all present and past members are invited. It will be held on Sunday, April 2, 2006 from 6:00 – 8:00 p.m. in the San Francisco Marriott Hotel. The social hour reception will consist of a hosted bar service and hors d'oeuvres.

Information on this reception will be listed in the ASBMB program book and on the hotel bulletin board.



## BIOLOGICAL CHEMISTRY ADMINISTRATIVE STAFF

**William L. Smith, PhD**  
Chair

**Robert Fuller, PhD**  
Associate Chair

**Jackie Benson**  
Staff Support

**June Bialecki**  
Assistant to the Chair

**Julie DeFilippo**  
Grants Manager

**Bob Elliott**  
Equipment & Supplies Supervisor

**Beth Goodwin**  
Graduate Student Manager

**Mary Grapp**  
Finance Manager

**Sharon Hoffman**  
Human Resources Manager

**Kim Jordan**  
Staff Support

**Jonathan Kufahl**  
IT Manager

**Merlis Nolan**  
Department Administrator

**Sandra Ridella**  
JBC Support

**Bonnie Thomas**  
Computer Support

**Jessica Viskup**  
Multimedia Specialist

# Faculty Report

## *News from Faculty and their Labs*

**Jud Coon** is a member of the International Advisory Committee for the Symposium on Microsomes and Drug Oxidations to be held in Budapest in September.

**David Engelke**, who is Assistant Dean for Graduate and Postdoctoral Studies in the Medical School and Director of the Program in Biomedical Sciences, has been elected a Senior Member of the Michigan Society of Fellows.

**Carol Fierke** In addition to becoming the Chemistry Dept. Chair and being elected Chair-elect of the Biological Chemistry Division of the American Chemical Society (2005-2006), she was awarded the following two awards:

2005 UM Distinguished Faculty Achievement Award  
2005 Sarah Power Goddard Award, University of Michigan Women's Caucus

**Renny Franceschi** is the current Chair of the Skeletal Biology, Structure and Regeneration Study Section at the Center for Scientific Review at NIH.

**Rowena Matthews** Elected as a Fellow of the American Academy of Arts and Sciences.

**Ben Margolis**, Professor of Biological Chemistry and Professor of Medicine, has been appointed Associate Chair for Research in the latter department.

**Neil Marsh** last year was admitted as a Fellow of the Royal Society for Chemistry. This is the professional organization representing chemists in the U.K. Fellows are, according to the society's definition, "scientists who have demonstrated substantial career progression and seniority and maturity of experience in any field which involves or promotes the advancement or wider application of chemical science". The university news service also featured the work of his laboratory on benzylsuccinate synthase, an enzyme that degrades toluene, on the university web site. The work was of interest because toluene is an important environmental pollutant, and *T. aromatica*, the bacterium from which the enzyme was isolated, is one of the few organisms that can utilize toluene as a carbon source under anaerobic conditions.

**Jerry Menon** has been selected to receive this year's State of Michigan Scientist of the Year Award. The award is given as a part of Impression 5's Tribute to Science and Technology Award Program. With this selection, Jerry joins a group of distinguished past recipients that includes Jud Coon, Bernie Agranoff, Jack Dixon, and Bill Smith.

**Anita Payne**, former Professor in the Departments of Biological Chemistry and Obstetrics and Gynecology, has been associated with the Division of Reproductive Biology in the Department of Ob/Gyn at Stanford University since she retired from the U of M in 1995. At Stanford, until two years ago, she continued her research on the transcriptional regulation of tissue-specific expression of steroidogenic enzymes. Anita returns to Ann Arbor at least once a year to attend the "Anita H. Payne Lectureship" endowed by the Department of Obstetrics and Gynecology and sponsored by the Reproductive Sciences Program.

Since leaving Ann Arbor, she has received several awards based on her work while at Michigan. These include: in 1998, the Carl G. Hartman Award from the Society for the Study of Reproduction; the society's most prestigious award is given in recognition of a research career and scholarly activity in the field of reproductive biology. This was only the second time this award was given to a woman in the 30-year history of the Society. In 1999, she received the Women in Endocrinology Mentor Award, a group associated with the Endocrine Society that recognizes women or men who have made major contributions to mentoring young women students and faculty in the sciences. In 2004, Anita was the recipient of the Distinguished Service Award from the Society for the Study of Reproduction.

**Alan Price**, former faculty member in our Department, Assistant Dean for Research Development in the Medical School, and Assistant/Associate Vice President for Research in the University, moved to the National Institutes of Health in Bethesda in 1987 as Genetics Program Officer in the National Institute on Aging.

**Alan Price (continued)** He later transferred to the Office of Scientific Integrity in the Public Health Service as Senior Scientist and Assistant Director, and will soon retire from his present position as Associate Director for Investigative Oversight in that office. Alan and his wife are moving to Lago Vista, Texas outside Austin, where he plans to work as a consultant to universities and hospitals.

**Bill Smith** was selected to receive the prestigious William C. Rose award sponsored by ASBMB. The award recognizes "outstanding contributions to biochemical and molecular biological research and a demonstrated commitment to the training of younger scientists, as epitomized by the late Dr. Rose."

**Matthew Young's** research has been featured on the cover for the January 15, 2006 issue of *Cancer Research*.



## And the Award Goes to...

*Recognition of Special Achievements*

**Becky Haeusler**, a candidate in David Engelke's laboratory, has received the Rackham Pre-doctoral Fellowship Award. This award is one of Rackham's most prestigious fellowships and is awarded to candidates with outstanding research and who have achieved academic excellence. This award includes a stipend and candidacy tuition for 3 terms.

**Narinporn Pattaramanon** was selected to receive the Barbour Scholarship. The Barbour Scholarship program was established in 1914 at the University of Michigan to train young women in modern science, medicine, mathematics and other specialties critical to the development of their native lands. Selection is based upon demonstration of potential for contribution to the applicant's native country as well as academic record, statement of purpose, letters of recommendation and timely progress to the degree.

# Stories from the field...

## *Alumni News and Updates*

**Bob Blake** (Postdoc with Coon), Chair of Basic Pharmaceutical Sciences at Xavier University, and **Diane Blake** (Postdoc with Goldstein), Professor of Biochemistry at Tulane University, have described their alarming experiences during the Katrina hurricane. The bottom line is that they were very lucky and are fine and somewhat back at work. Both of their institutions were flooded on the first floors. Diane established a temporary lab at Southeastern Louisiana University in Hammond on the north shore of Lake Ponchartrain. Bob's research program is more instrument-intensive, and Xavier did not allow faculty back to retrieve equipment or materials until recently.

Bob decided to move temporarily to Boise, Idaho, thanks to a special grant from HHMI, and he has now returned to join Diane at SLU. They are in the process of repairing and replacing parts of their home. Diane notes that Bob had the bright idea of renting a cabin in Hattiesburg, Mississippi as Katrina approached New Orleans. Unfortunately, the hurricane went right over Hattiesburg, and the "cabin" was actually a mobile home, so she has decided that Bob is no longer allowed input into future Blake hurricane evacuations.

**Kuniyo Inouye** (Postdoc with Coon), Professor of Enzyme Chemistry in the Graduate School of Agriculture, Kyoto University, made scientific trips this past year to Seoul National University, to Tromsø, Norway, and in November to Quebec City for a proteolysis congress.

**Fred Guengerich** (Postdoc with Coon), Professor of Biochemistry and Director of the Center in Toxicology at Vanderbilt University, has accepted the post of Associate Editor of the *Journal of Biological Chemistry*. He will be a Lilly Lecturer at Eli Lilly this year.

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## Distinguished Graduate Lecturer- Dr. Edward A. Kravitz

### *"Genetic Manipulations in the Fruit Fly Fight Club"*



Dr. Kravitz worked with Armand Gaurino and received his Ph.D. from our department in 1958. Dr. Kravitz is the George Packer Berry Professor in the Department of Neurobiology at Harvard Medical School.

For many years the Kravitz laboratory had been examining the role of amine neurons in aggression using a lobster model system. Recently the laboratory shifted to the study of fighting behavior using the fruit fly, *Drosophila melanogaster*, as a model organism. Although not widely known, both male and female fruit flies do fight and males at least become territorial (establish dominance relationships). With the genome fully sequenced and with elegant methods available for the selective manipulation of genes in subsets of central nervous system neurons, behavioral studies of aggression in flies offer a powerful experimental system for identifying the fundamental mechanisms underlying this behavior. Experiments

underway in his laboratory are using the GAL4/US system to turn amine neurons on and off while flies are fighting, and are using differences in fighting behavior in nervous systems. In earlier studies, Kravitz and his colleagues (Kuffler, Potter, Otsuka, Iversen and Hall) were the first to demonstrate that GABA was a neurotransmitter, and with Tony Stretton was the first to demonstrate that an intracellular fluorescent dye could be successfully used to determine neuronal geometry. The Kravitz laboratory has published over 100 papers on these and related topics in first rank journals, and he maintains an active research program at Harvard Medical School.

# In Memorium

*Remembering the outstanding contributions of individuals to the department*



## **Dr. G. Robert Greenberg,**

Emeritus Professor of Biological Chemistry, died May 15, 2005 at his home following a brief illness. He was 86.

Bob's research career spanned six decades and several scientific disciplines. He was born in 1918 in Minnesota and received a doctorate in Physiological Chemistry from the University of Minnesota in 1943. During the early years of his career at Case Western Reserve University, he pioneered the use of radioactive compounds to elucidate the pathway for the biosynthesis of purines.

In 1957, Bob was awarded the American Chemical Society's prestigious Paul Lewis Award in Enzyme Chemistry, and he joined the faculty of the newly reorganized Department of Biological Chemistry at Michigan. He refocused his research on the bacteriophage T4, which infects *E. coli* and reprograms the cell to synthesize a new type of viral DNA. His research was innovative and imaginative, and he became

a leader in the emerging field of molecular biology. Bob transmitted his great enthusiasm for bench research to several generations of graduate students and postdoctoral fellows. Through his contacts with the early pioneers of molecular biology, he launched many students on their academic and scientific careers. Junior faculty colleagues also acknowledged his influence on their scientific development. Mandatory retirement laws forced Bob to step down in 1988, but he continued his research on the T4 ribonucleotide reductase for many years as an active Emeritus Professor. He helped teach a graduate biochemistry seminar until last year.

Bob had a special passion for amateur radio. Following a coup in Brazil, he helped redirect a scientific expedition headed for the Amazon River to the Orinoco in Venezuela to study the genetics of indigenous Indian tribes. He took pleasure in linking members of the Ann Arbor community with family members living in South and Central America before phones and computers were readily available. Bob's wife, Susan, continues to live in Ann Arbor and can be reached by email ([sjgrog@umich.edu](mailto:sjgrog@umich.edu)).

## **Dr. Dale Oxender**

Gifts made in memory of Dale Oxender, former Professor in our Department, have been used at Manchester College in North Manchester, Indiana, to support outstanding students of science. Jean Oxender also reports that she recently donned a lab coat and helped celebrate the new biochemistry lab that was dedicated there to Dale's memory.

# 2005 Annual Student Awards

## Christensen Award

The Halvor N. and Mary Christensen Award for Ph.D. Graduate Study in the Department of Biological Chemistry is presented annually to a second-year student on the basis of academic record. This award is given in memory of Professor Halvor N. Christensen, who was Chair of the Department from 1955-1970, and his wife Mary.

The 2005 award was shared by **Mr. Jared Chripell and Mr. Junyu Xiao.**

## Christman Award

The Adam A. and Mary J. Christman Award is presented to a third-year Department student who is judged to be the most outstanding in that class. The award is dedicated to the memory of Professor and Mrs. Christman. The 2005 recipient of the award was **Ms. Becky Haeusler.**

## Anthony and Lillian Lu Award

The Lu Award is presented annually to a student on the basis of academic background, achievement in the graduate program, and potential as a scientist, with preference for a student who is a non-U.S. citizen. The 2005 recipient of the award was **Ms. Jun Wu.**



1. Jared Chripell and Junyu Xiao

2. Becky Haeusler accepts her award from Dr. Smith

### Coon Award

The Minor J. and Mary Lou Coon Award is given to the student who best exemplifies overall excellence in research, teaching, and service. This award is given in honor of Professor Minor J. (Jud) Coon, who was Chair of the Department from 1970-1990, and his wife Mary Lou. The 2005 recipient of the award was **Ms. Shaohua Xiao**.

### Lee Murphy Memorial Prize

The Lee Murphy Memorial Prize is presented annually to the student who embodies the highest ideals of scientific integrity and who has published a paper or a series of papers judged most significant by the Awards Committee. The 2005 recipient of the award was **Ms. Shaohua Xiao**.

### Dziewiatkowski Award

The Dziewiatkowski Award, which is offered to the student who submits the most outstanding Ph.D. Dissertation during the previous academic year, is given in memory of the late faculty member, Professor Dominic D. (Jay) Dziewiatkowski. The 2005 recipient of the award was **Dr. Jennifer Blanchette**.



3. Shaohua Xiao accepts her award.



4. Ruthann Nichols and Dr. Edward A. Kravitz

## Doctor of Philosophy Degrees Granted

*The Department extends its congratulations to the following students who have completed their PhD degrees.*

### **Jeeyong Lee**

"Netrin-mediated signal transduction in *Ceanorabditis elegans*"

### **Jennifer Lynn Aurandt**

"Signaling Mechanisms of Plexin-B1: A Receptor for Semaphorin 4D"

### **Stephen P. L. Cary**

"Tonic and Acute Nitric Oxide Signaling Through Soluble Guanylate Cyclase: Roles of Non-Heme NO, ATP, and Globins"

### **Peter A. Clapp**

"Identification and functional characterization of two novel alpha-1 adrenergic receptor-interacting proteins"

### **Shaohua Xiao**

"Functional Characterization of the Eukaryotic-specific Conserved Features of Nuclear RNase P in the Yeast *Saccharomyces cerevisiae*"

### **Katherine Hicks**

"Protein Farnesyltransferase: Investigation Of Peptide Specificity Determinants And Identification Of Novel Substrates"

### **Anthony V. Ludlam**

"Structure and function of the bacterial ribosome-bound chaperone trigger factor"

### **Scott B. Berger**

"Enhanced T Lymphocyte Function in Young and Old Mice through Changes in Surface Glycoproteins"

### **Rebecca E. Taurog**

"Substrate Binding And Activation In Cobalamin-Independent Methionine Synthase"

### **Mattabhorn Phimphilai**

"Cooperative Interactions Between Bone Morphogenetic Proteins and the RUNX2 Transcription Factors in Osteoblast Differentiation"

### **Mohamed E. Abazeed**

"Analysis of Clathrin Vesicle Transport from the *trans* Golgi Network to the Late Endosome/Prevacuolar Compartment"

### **Kuei Chung Lee**

"Molecular Imaging Biomarkers in the Evaluation of Experimental Therapeutics"

## New Students

*The Department of Biological Chemistry welcomes this year's new students*

**Stacie Bulfer** received her Bachelor of Arts degree in Biochemistry from Gustavus Adolphus College in St. Peter, Minnesota. Stacie is conducting her thesis research with Raymond Trievel.

**Veronica Burns** received her Bachelor of Science degree in Chemistry/Mathematics with a specialty in Biochemistry from Bowling Green State University. Veronica is conducting her thesis research with Tom Kerppola.

**Rebecca Fagan** received her Bachelor of Science degree in Chemistry from Indiana State University in Terre Haute. Becky is conducting her thesis research with Bruce Palfey.

**Samuel Gattis** received his Bachelor of Science degree in Biochemistry from the University of Michigan. Sam is conducting his thesis research with Carol Fierke.

**Edgar Lee** received his Bachelor of Science degree in Biology from Utah State University in Logan. Edgar is conducting his thesis research with Ari Gafni.

**Michael Marvin** received his Bachelor of Arts degree in Chemistry from Albion College. Mike is conducting his thesis research with David Engelke.

## Gifts and Donations

We are extremely grateful to all of the individuals (and in some cases their organizations) whose recent gifts and donations have provided valuable discretionary funds to support a wide range of Departmental activities.

Ward W. Smith and Cheryl A. Janson

Claudia and Jack Dixon

G. Robert and Susan A. Greenberg

Karen Christensen Grey

Minor J. Coon

Audrey F. Seasholtz

Jane Ann Damren

Your contribution to the Department, either designated for one of the following endowment funds or as an unrestricted gift, would be most welcome and sincerely appreciated. Checks may be made payable to the University of Michigan.

- Christensen Fellowship Endowment
- Christman Fellowship Endowment
- Minor J. and Mary Lou Coon Graduate Student Fellowship in Biological Chemistry
- Dominic D. Dziwiatkowski Dissertation Award
- Graduate Program Endowment
- Anthony and Lillian Lu Collegiate Professorship Endowment
- Vincent Massey Collegiate Professorship in Biological Chemistry
- Murphy Memorial Prize Endowment
- Minor J. Coon Chair Professorship Endowment
- William E.M. Lands Lectureship on the Biochemical Basis for the Physiology of Essential Nutrients

**Tushar Menon** received his Bachelor of Science degree in Biochemistry & Microbiology from Michigan State University. Tushar is conducting his thesis research with Dan Bochar.

**Jay Pieczynski** received his Bachelor of Arts degree in Biology from the University of Wisconsin at La-Crosse. Jay is conducting his thesis research with Ben Margolis.

**Feng Wang** received his Bachelor of Science degree in Biological Sciences from the University of Science and Technology of China. Feng is conducting his thesis research with Ming Lei.

**Abigail Wolfe** received her Bachelor of Science degree from Carnegie Mellon University in Pittsburgh. Abby is conducting her thesis research with Pat O'Brien.

**Bin Zhao** received his Bachelor of Science degree in Biotechnology from Zhejiang University in Hangzhou, China. Bin is conducting his thesis research in the laboratory of Kun-Liang Guan.

*To find out more about gift opportunities to the Department, please contact:*

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