

Biochemistry News

Kansas State University – Alumni and Friends Newsletter

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Stimulus Funding Awarded to K-State Biochemists

Four K-State Biochemistry faculty members have received funding from the National Institutes of Health, through the American Recovery and Reinvestment Act economic stimulus program.

Dolores Takemoto received more than \$366,000 from the National Eye Institute to study how a protein kinase C gamma (PKC gamma) affects the lens. Her research looks at how PKC gamma is controlled in normal cells versus the loss of control in diabetics. This prospect seeks to determine how several mechanisms control PKC gamma in normal lenses and how control of PKC gamma alters gap junction activity and assembly. Takemoto also wants to understand how diabetes and galactosemia decrease PKC gamma and how this affects gap junctions.

Michael Kanost received an administrative supplement of \$257,674 to his grant "Proteinase Systems in Insect Hemolymph" from the National Institute of General Medical Sciences. These funds will be used to obtain the DNA sequence of the genome of an insect, *Manduca sexta*, a large moth studied in the Kanost lab. The availability of the genome sequence will promote rapid advances in studies of the biochemistry of insect immune responses by the Kanost group, and the sequence data will be made available to all interested researchers around the world through an internet database that will be hosted by the K-State Arthropod Genomics Center.

See **STIMULUS FUNDING** page 2

Biochemistry Graduate Student Meets Nobel Laureates

K-State News Service

A Kansas State University graduate student spent nearly a week last summer rubbing elbows with some of the world's top scientists.

Jayne Christen, a doctoral student in biochemistry, was chosen to attend the 2009 Nobel Laureate Meeting in Lindau, Germany. Christen was one of nearly 100 students selected from institutions in the U.S. Her attendance at the meeting was funded by the National Institute of General Medical Sciences. The meeting, held between June 28 and July 3, was dedicated to chemistry. Christen had a chance to meet with 19 Nobel laureates through lectures and informal meetings.



Nobel Laureate Dr. Richard Ernst and Jayne Christen

"What an opportunity, but you have to be at the top of your game when you're talking with Nobel laureates," Jayne said. "I'm sure that they have a lot of insight as to what will happen in the future of research," she said.

See **NOBEL LAUREATES** page 2

Nobel Laureates Continued from page 1

Christen received her B.S. in secondary education and M.S. in Entomology. In her research she is investigating the structure and function of serine proteases in insect immune responses

Christen said "It was an amazing and life-changing experience that is hard to put into words. The meeting gave me inspiration, motivation and hope for my future in science. I was able to learn secrets of success from some of the most highly regarded individuals in the field of chemistry and meet other young researchers who will help shape the future of scientific research. Most of all, it helped me realize that being in science is the correct choice for me and that I can, and will, accomplish many things throughout my scientific career."

National Program Honors Biochemistry Professor

Dr. Dolores Takemoto has been named a Fellow of the Association for Research in Vision and Ophthalmology. The title of ARVO fellowship is an honor established last year that recognizes current ARVO members for their individual accomplishments, leadership and contributions to the association.



Dr. Dolores Takemoto

Stimulus Funding Continued from page 1

Michel Zolkiewski received an administrative supplement of \$190,426 for his collaborative project with Dr. Paul Smith of the Department of Chemistry. Their project "Accurate Simulations of Peptide Aggregation" will investigate the process of recognition of aggregation peptides by the molecular chaperone ClpB. The information will be used to design peptide sequences that could block protein aggregation that is often linked to human diseases.

John Tomich received an administrative supplement of \$80,136 to fund his project "Model Synthetic Channel Assemblies." This work is aimed at redesigning channel-forming peptides to increase their selectivity for chloride ions. Results generated by this project could find clinical application in patients that have defective anion transport, such as that found with cystic fibrosis.

Biochemistry Alum Wins Fulbright



Biochemistry graduate **Mike Reppert** received a 2009 Fulbright U.S. Student scholarship.

Reppert, a May 2009 K-State bachelor's graduate in biochemistry, chemistry, and mathematics, received a Fulbright Scholarship to study single-molecule spectroscopy at the Polish Academy of Science in Warsaw, Poland. He also received a prestigious Goldwater Scholarship.

After completing his Fulbright, Mike will pursue a Ph.D. in physical chemistry at the Massachusetts Institute of Technology. Congratulations Mike!

2009 BS/BA Biochemistry Graduates

Michelle Amthauer (BS)

Fritzi Domingo (BS)

A. Scott McCall (BS)

Paul Basel (BS)

Michelle Higgins (BS)

Chester McDowell (BS)

Elizabeth Blaesi (BS)

Erin Katzfey (BS)

Jeanne Pierzynski (BS)

Craig Doan (BS)

Andrew Kerns (BS)

Ivan Popov (BS)

Michael Reppert (BS)

Mohammad Sbeih (BS)

Melissa Veldman (BS)



Undergraduate Scholars for 2009-2010 School Year:



W. Mack Barlow Scholarship

David Murphy

David/Tim Havelly Memorial Scholarship

Clay Williams

University Foundation / General Fund Scholarship

Christopher Jones
Derek Low

University Putnam / Hughes (JS) Memorial Scholarship

Karsten Evans

General Fund Scholarship

Jarrold Bechard
David Murphy
Karsten Evans

Thanks to all alumni who contributed to Biochemistry funds. Your help supports outstanding graduates, teaching, and research.

Change is in the Air



In July, **Kirk H. Schultz** became the 13th president of Kansas State University following the retirement of President John Wefald. Most recently, he was Vice President for Research and Economic Development at Mississippi State University, where he also served as Dean of the College of Engineering.



Ruth Dyer has been appointed Senior Vice Provost at Kansas State University. Dyer earned a doctorate in mechanical engineering from the University of Kentucky in 1980. Her bachelor's and master's degrees in Biochemistry are from K-State where she studied with Dr. Bill Klopfenstein. As a K-State Associate Provost since 2004, Dyer has overseen K-State's offices of planning and analysis, assessment and summer school. She also coordinates the university's mentoring program for women and minorities in the sciences and engineering, and coordinates academic initiatives with the Kansas Board of Regents. She is also a professor in Kansas State's Department of Electrical and Computer Engineering.



K-State also has a new Provost and Senior Vice President, **April Mason**. She succeeds M. Duane Nellis, who left K-State in June 2009 to become president of the University of Idaho. Mason came from Colorado State University, where she was Dean and Professor in the Department of Food Science and Human Nutrition. Before joining Colorado State, Mason was Associate Dean for Extension and Associate Dean for Discovery and Engagement in the College of Consumer and Family Sciences at Purdue University.



Brian Spooner, University Distinguished Professor of Biology is serving as Interim Dean of the College of Arts and Sciences. Dean Stephen White chose to take a half-year sabbatical and then began phased retirement. Dr. Spooner served as Director of the Division of Biology since 1994. He has 38 years of university teaching experience at K-State, including courses at all levels.

Making a Difference

Research Assistant Professor **Maureen Gorman** (left) and Biochemistry Prep Lab Supervisor **Sue-Yi Huang** were awarded the 2009 "Making a Difference Award" from the Women in Engineering and Science Program. They were both nominated by Celeste Yang.



2009 MS/PhD Biochemistry Graduates

Emilia Solomon (Ph.D., with Zolkiewska) *Regulation and Proteolytic Activity of ADAM12 Metalloprotease*

Nozomi Matsumiya (M.S., with Tomich) *Optimization of Disulfide Mapping Using Mass Spectrometry*

Satyabrata Das (Ph.D., with Takemoto) *Role of PKC γ in the Regulation of Lens Gap Junction*

Lucinda Sullivan (M.S., with Kanost) *Recombinant Expression and Characterization of Two Isoforms of *Anopheles gambiae* Laccase-2*

Sheng Yi (M.S., with Tomich & Schultz) *Synthetic Peptides Modulate Epithelial Junctions*



Graduate Student Awards and Scholarships



2009 Graduate Student Summer Stipends received from the Terry C. Johnson Center for Basic Cancer Research. **Satyabrata Das** (Takemoto), **Sushanth Gudlur** (Tomich), **Sinu Jasaruria** (Muthukrishnan), **Debjani Pal** (Wei), **Emilia Solomon** (Zolkiewska) and

Hui-Chuan Wu (Zolkiewski) **Debarshi Banerjee** (Takemoto) **Spring 2009 Cancer Center Travel Award** for the Association for Research in Vision and Ophthalmology annual meeting (May).

Satyabrata Das (Takemoto) received a **Biochemistry Hedgcoth Graduate Teaching Award** from the department and a **Konza and Manhattan Rotary Club Scholarship** for outstanding international students engaged in graduate study at K-State.

Emilia Solomon was awarded a **Biochemistry Hedgcoth Graduate Research Award**.

Biochemistry Charles Hedgcoth Graduate Travel Awards for the Third Arthropod Genomics Symposium in Kansas City, Missouri (June) **Sinu Jasaruria** (Muthukrishnan) presented the poster "Functional identification and characterization of *Tribolium castaneum* gene families encoding proteins with chitin-binding domains" **Sujata Chaudhari** (Muthukrishnan) presented the poster "Role of Knickkopf gene family in cuticle organization in *Tribolium castaneum*"

Jayne Christen, Chunju An, and Minglin Lang (Kanost) **American Society for Biochemistry and Molecular Biology Graduate/Postdoctoral Travel Fellowship** They presented posters at the annual meeting in New Orleans, Louisiana (April 2009).

Debarshi Banerjee and Satyabrata Das (Takemoto) **Biochemistry Philip Nordin Memorial Graduate Travel Awards** for poster presentations on their studies of Gap Junction Proteins at the Association for Research in Vision and Ophthalmology annual meeting in Ft. Lauderdale, Florida (May 2009)

Tracking Alumni



In June of 2009, **Larry Davis** took a trip to Jordan, to attend a meeting being organized with the assistance of a former student **Jwan Ibbini**. Jwan is an Assistant Professor at the Hashemite University, teaching several environmental topics to eager undergraduates. While there, Davis had an opportunity to see a lot of the country and meet several K-State alums who live in and around the city of Irbid. At the far right is **Khalid Abdul-Razzaq** who got a PhD with Bob Clegg, and was then a post-doc with Jerry Reeck. He is a dean at Jordan University of Science and Technology (pharmacy). His daughter Gada Al-Ani received her M.S. at K-State and is presently a PhD candidate at KU. Raad Salman received a

PhD in Agronomy at K-State and worked for many years with the FAO in Iraq. His wife Selma Abdul-Hussain also got a PhD at K-State and is a professor of Foods and Nutrition at Jordan University of Science and Technology.



Larry Davis, Jwan Ibbini, Selma Abdul-Hussain, Raad Salman, Khalid Abdul-Razzaq

Obituary: Owen Koeppe

Manhattan Mercury



Owen Koeppe, former Provost of Kansas State University and Professor of Biochemistry passed away on January 27 in Moberly, Missouri.

Koeppe was born May 29, 1926 in Cedar Grove, Wisconsin, and grew up in south China with his parents who were missionaries with the Reformed Church of America.

With the imminence of World War II, they returned to the US where Koeppe completed high school then joined the U.S. Navy. He served as a radio technician in the Pacific Theater and was discharged July 1, 1946.

Koeppe was a professor of biochemistry at the University of Missouri-Columbia for 25 years. He then held the post of Provost for Academic Affairs at Columbia for seven years before being named as Provost at Kansas State. He and his wife JoAnne lived in Manhattan from 1980 to 1992 where he taught as a professor of biochemistry for five years before retiring to Missouri with his wife.

He is survived by his wife JoAnne; children John, Robert, and Barbara, his sister Ruth DeYoung and his four grandchildren.

Hageman Distinguished Lecturer: Dr. May Berenbaum

The 2009 Hageman Distinguished Lecturer in Agricultural Biochemistry was Dr. May Berenbaum from the University of Illinois. Berenbaum received a B.S. in biology (honors) from Yale and a PhD in ecology and evolutionary biology from Cornell. She has won a prize for popular science writing. She has continued writing popular articles, books and columns, which regularly receive recognitions, and recently won an award as an advocate for pollinator species (bees). Her entire faculty career has been at the University of Illinois in the Entomology department, where she has served as Head since 1992. Early in her career she received a Young Investigator Award from NSF. She has received numerous honors, recognitions and awards for her scientific efforts, including a Guggenheim fellowship, the Mercer award from Ecological Society of America and the Founder's award from the Entomological Society of America. She has been designated a Fellow of AAAS and the Am. Acad. Arts & Sciences, and is a member of the National Academy of Sciences and American Philosophical Society.



Longterm themes of Professor Berenbaum's research have been biochemical interactions of plants with plant-eating insects, roles of cytochromes P₄₅₀, and ecology and evolution with special reference to insects. Her work addresses insect/plant coevolution at multiple hierarchical levels. One of her recent NSF grants is titled "From tangled banks to Genbank: multiscale approaches to insect-plant inter-actions." Her broad interests extend to some practical aspects of agriculture and plant-insect interaction, including changing CO₂ levels, genetic engineering and impacts of invasive species. Her output of both peer-reviewed and popular publications is large. She is sole author of five popular books, and has edited

a comparable number, of a more rigorous scientific nature. In addition to contributing many chapters to meetings proceedings and other volumes, she is co-author of over 200 peer-reviewed articles, and even more popular items.

In 1994 Dr. Berenbaum was elected to the National Academy of Sciences and in 2005 she chaired the NAS committee on the status of pollinators in North America and edited the 2006 volume that they produced. A regular participant in Darwin Day activities, she recently spoke on "Darwin's parsnips", a return to her dissertation study of furanocoumarins in the Umbelliferae.

This year's Hageman lecture focused on some of the roles of cytochromes P₄₅₀ of insects. Plants produce toxins, insects detoxify them. The arms race continues and both plant and insect evolve. This affects the structure of both plant and insect communities in complex ways. The high host specificity of insects, and the diversity of toxic molecules produced by plants that must be detoxified by insects drives their coevolution. The P₄₅₀ enzymes evolve, changing both structure and function in response to their changing substrates.

The colloquium considered one of the larger ecological crises to hit agriculture in this century, the colony collapse syndrome of honey bees. When ~100 crops are highly dependent on a single pollinator species and that species declines precipitously, the impact will be widespread. The recent collapse revealed large knowledge gaps regarding both honeybees and other potential pollinators that are essential for maintenance of many species of flowering plants.

Dr. Chen Invited to Wakonse Teaching Conference

Biochemistry assistant professor Jianhan Chen took part in the 20th Wakonse Conference on College Teaching May 21-26, 2009 in Stony Lake, Michigan.

The conference allowed faculty to discuss teaching methods and strategies, renew their commitment to excellence in teaching and contained sessions focused on the balance of living, working in academia and positive psychology. Dr. Chen said "I have learned a range of teaching strategies, such as how to involve and engage students in the classroom, how to interact with students more effectively and how to design and manage group projects. I will definitely be able to use many of these techniques in my future classes." He also said that "the conference was extremely helpful for me. Without much former training on teaching, being able to learn from many experienced teachers and educators has been very useful. I also benefited greatly from discussing our teaching experience with fellow conference attendees." He encourages anyone who is serious about improving their teaching to attend the conference in the future and says it will be well worth their time.



Beocat Supercomputer

Kansas State Collegian

Kansas' largest academic research supercomputer, valued at half a million dollars and composed of 122 machines and thousands of processors, sits in Nichols Hall.

Jianhan Chen said "access to high-performance computing (HPC) facilities like beocat is absolutely critical for our research on computer modeling of protein structure and dynamics. We need to run large number of molecular simulations on the beocat supercomputer on a regular basis. Access to beocat does not only significantly increases the productivity of our research, but also enhances the competitiveness of our funding applications. It is important that we continue to maintain, improve and expand the HPC capacity at KSU."

Tracking Alumni



Rich Cate (PhD 1979, Roche) has retired from Biogen. He still resides in the Boston area (Cohasset) and is active in research.

Ken Dokken (PhD 2006, Davis) is still in El Paso, Texas. He works for a large healthcare products company in Research and Development using chlorhexidine. He recently produced a new product that is going into clinical trials.

Shane Kasten (PhD 2005, Roche) is working as a senior postdoc at the US Army Medical Research Institute of Chemical Defense (Aberdeen Proving Grounds, MD) as a civilian contractor. Melissa and Shane now have two children, Grayson (4yrs) and Kaitlyn (8months).

Lisha Kelo (BS 2003, MS 2004, Kanost) and her husband Rick welcomed their second son, Adler Grahamon, born on May 21, 2009, joining their older son Hayden, who is now two and a half years old. Lisha continues her work at Eli Lilly in Indianapolis.

 Leave your tracks here!



Please tell us about yourself! Let your friends know what you are up to. Email us at: biochem@ksu.edu

Please include:

-Name	-Degree/year
-Position/title	-Life Changes
	-Personal activities

Dear alumni and friends,

We hope you will keep in touch with us and your former classmates by contributing to our newsletter. Would you please take a minute to send us your news about you, your career, and your family?

The Department of Biochemistry would also like to thank you for your generous support. Your donations allow us to offer scholarships, improving our ability to recruit and retain outstanding and deserving students. General funds supplement the department's operating budget to enhance the quality of education and research experiences we can provide to our students and to attract and support new faculty.

If you wish to donate to any of the Biochemistry Foundation funds (see below) please send your contribution to the Department of Biochemistry and indicate which fund you wish to support. Please call us at 785-532-6121 or email biochem@ksu.edu if you have any questions.

**Department of Biochemistry
Chalmers Hall 141
Kansas State University
Manhattan, KS 66506
Email: biochem@ksu.edu**



Biochemistry Foundation Funds

- F17870** **Biochemistry General Fund Account**
- F66998** **Hageman (Richard/Elizabeth) Distinguished Lectureship**
Annual Hageman Lecture Series
- F68342** **Havley (David/Tim) Biochemistry Discretionary Account**
Undergraduate Scholarships
- Q53097** **Hedgcoth Biochemistry Graduate Scholarship Account**
Outstanding Graduate Teaching and Graduate Research Awards
Graduate Student Travel to Scientific Meetings
- Q71700** **Hughes (J.S.) Memorial Scholarship Account**
Undergraduate Scholarships
- F79431** **Merrill (Fred/Virginia) Biochemistry Discretionary Account**
Undergraduate Scholarships
- Q03227** **Wanda Bates Undergraduate Scholarship Account**
Undergraduate scholarships for students with financial need
- N85330** **Willard & Ora M. Ruliffson Memorial Scholarship Account**
Scholarship for pre-dentistry or pre-veterinary students
- F81556** **Philip Nordin Memorial**
Awards for Graduate Student Research Travel
- F51745** **W. Mack Barlow Memorial Scholarship**
- Q55486** **R. Kenneth Burkhard Scholarship for Women in Biochemistry**
Scholarship for Outstanding Female Biochemistry Juniors and Seniors

Department of Biochemistry
141 Chalmers Hall
Kansas State University
Manhattan, KS 66506-3702
312

KSU Biochemistry on the World Wide Web

<http://www.k-state.edu/bchem/>

Our homepage contains information on the Department of Biochemistry, faculty, undergraduate and graduate programs, courses, seminar, and core facilities. Other K-State related pages that might be of interest:

Recipe: Apiscotti (bee-enabled biscotti) on Pollinator Partnership

http://www.pollinator.org/pw09_contestwinners.htm

Dr. May Berenbaum, this year's Hageman Lecturer, created this recipe and was chosen the 2009 Pollinator Week recipe winner by Pollinator Partnership. Of the 12 ingredients in this recipe, 7 depend on the pollination services of *Apis mellifera* (butter, honey, almond extract, nutmeg, cranberries, cherries, almonds)—hence the name “Apiscotti.” Without *Apis mellifera*, breakfast (and every other meal) would be infinitely less interesting and colorful.

K-State Alumni Foundation <http://www.k-state.com>

E-Collegian Newspaper <http://www.spub.ksu.edu>