

Benchmarks

A newsletter from the Dept of Biochemistry



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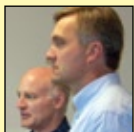
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Note from the Chair of Biochemistry, Dana Carroll, Ph.D.

You are receiving this first edition of the annual Biochemistry Newsletter because of your connection with the Biochemistry Department at the University of Utah School of Medicine. A few of you will remember Leo and Barbara Samuels, who established the Department in the 1940s and set it on the course of excellence that we maintain today. Others of you hold degrees from the Department, are former faculty, staff, or postdocs, or are simply long-time friends. The



goal of this publication is to keep the past and present Biochemistry community up to date and informed regarding departmental research, education and achievements. Although grant funding is hard to come by, our faculty have competed well, and we continue to be an active, interactive, productive and enjoyable group of researchers, teachers and trainees.

I am particularly grateful to Professor Janet Shaw, and to Rachel Bookman and Linda Van Orden, who did such an outstanding job on this newsletter and our new departmental website, which I encourage you to visit.

Research Highlight: Working Toward an HIV Vaccine

When the Human Immunodeficiency Virus (HIV) was identified as the cause of AIDS in 1984, researchers and health professionals were optimistic that a vaccine would quickly follow. However, 24 years later the classical vaccine development strategies have failed, in part, because the virus evolves very quickly. Now, researchers like Associate Professor Michael Kay in the Biochemistry Department are pursuing novel strategies to prevent HIV infection.

Using a combination of basic research and computer methods, the Kay lab has designed a special kind of molecule, called a D-peptide, that binds one of the HIV surface proteins 1000 times better than any existing viral inhibitor. This D-peptide potently inhibits all major HIV strains in circulation worldwide. Most proteins in the body are constructed of amino acids in the L-configuration. The mirror image of this L-configuration is known as the D-configuration. Peptides made from D-amino acids are not found in the human body and have many advantages as therapeutics because they are not susceptible to degradation by proteases and are also less immunogenic. Michael Kay and his team are currently working with NIAID (National Institute of Allergy and Infectious Disease) and commercial collaborators to determine whether the D-peptide is clinically effective as a "microbicide", a topical inhibitor for the prevention of HIV infection.



Model of a D-peptide inhibitor (orange, yellow, and green) binding to an HIV surface protein (gray). The inhibitor binds to three sites on the HIV protein, effectively "strangling" it and preventing infection of new cells.

that time, Bill served in the Utah House of Representatives. They moved to Salt Lake City in 1948, where Bill served as Utah State Liquor Commissioner for the next 20 years. They left their estate to their nephew C. Nick Pace, a Distinguished Professor of Molecular and Cellular Medicine at Texas A&M, stipulating that he use it for both his own research and that of other individuals or organizations engaged in such research. In honor of his aunt and uncle and their home state of Utah, Nick Pace founded the seminar series in 1992. The first Pace Lecture was presented by the distinguished x-ray crystallographer Paul Sigler of Yale University. Over the past 16 years, there have been 12 Pace lecturers, all illustrious biochemists, including Nobel Laureate Roger Kornberg and Nick Pace himself. Pace Seminars have greatly benefited biochemical and medical research at the University of Utah.

If you would like to make an online contribution to the Pace Lectureship or another established Biochemistry Fund, please visit:

<http://medicine.utah.edu/biochemistry/Giving/index.htm>

To donate by cash or check, or take advantage of a naming opportunity, contact Stephen Warner, Health Sciences Development, at 801-585-7010.

We thank you for your ongoing support. Your gift of any amount advances the research, teaching and student training missions of the University of Utah Biochemistry Department.

Spotlight: Congressman Jim Matheson's Visit

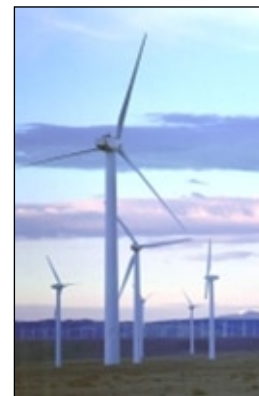


Congressman Jim Matheson visited the Department on July 3rd, 2008. He met with faculty members to learn about their research and discuss the importance of increasing federal funding for basic research.

The Greening of Biochemistry

Wind Energy Program

Starting in 2006, the Department pioneered a highly cost effective wind energy program that has spread throughout the U of U campus and beyond. This past year, donations from faculty, staff, students and friends made 117% of the Department's electricity come from wind sources, which means we are funding



Biochemistry Donor Profile: C. Nick Pace, Ph.D.



The Biochemistry Department's Pace Lecture Series was made possible by a generous gift from the estate of John William (Bill) and Wanda Pace. Bill and Wanda, lifelong residents of Utah, were married in Provo in 1934 and lived in Delta for the next 15 years. During

The Greening of Biochemistry (cont.)

more renewable electricity for the grid than we use. Biochemistry faculty also make donations to avoid emissions equal to the CO₂ produced by flying speakers to give talks in our seminar series. Anyone can donate to this program to make their share of electricity come from wind (\$30/year for a typical household) or simply to support a program that is helping to solve the problems of climate change, mercury pollution, air quality, and energy security. Address questions to chris@biochem.utah.edu. Details can be found at <http://windpower.utah.edu>.

Biochemistry Wins Commuter Challenge



Biochemistry excelled in another "green" area by winning the Utah Transit Authority (UTA) Ride Share Commuter Challenge in both 2006 and 2007, thanks to the participation of over 70% of

its students, staff and faculty who rode bikes, walked, took the bus and TRAX, or carpooled to work instead of driving alone. The University makes getting to work in a "green" manner easy with numerous bus routes, free UTA passes, and buildings with showers and bike lockers.

Biochemistry Moves into the Emma Eccles Jones Building

Until recently, members of the Biochemistry Department were scattered among several buildings on the medical school campus. This changed in late 2005 when the Biochemistry and Pathology Departments moved into attractive new laboratory and office space in the Emma Eccles Jones Medical Research Building (EEJMRB). Construction of this new building was made possible by generous donations from the Emma Eccles Jones Foundation and ARUP. The EEJ building is located in the southeast area of the Health Sciences Center campus, directly east of the South Parking Terrace.



Promotions, Honors, and Awards

Faculty

Brenda Bass, Ph.D., was elected President of the international RNA Society, a Fellow of the American Academy of Arts and Sciences, and was named a Distinguished Professor of Biochemistry.

Michael Kay, M.D./Ph.D. was promoted to Associate Professor of Biochemistry with tenure.

Tim Formosa, Ph.D., was promoted to full Professor of Biochemistry.

Costa Georgopoulos, Ph.D., received the Tousimis-Lauffer Inaugural Distinguished Lecture Award from the University of Pittsburgh.

Christopher Hill, D. Phil., was appointed a member of the Membrane Biology and Protein Processing Grant Review Section at the National Institutes of Health (NIH).

Janet Lindsley, Ph.D., received the Gender Equity Award from the U of U chapter of the American Medical Women's Association. Dr. Lindsley was also elected the first chair of the 2008 executive committee of the Association of Biomolecular-Course Directors, a newly coalesced group with members from all over North America committed to developing and sharing the best approaches to teaching biochemistry, molecular and cellular biology and genetics to medical students.

Marin Rechsteiner, Ph.D., was named a Distinguished Professor of Biochemistry.

Janet Shaw, Ph.D., was appointed a member of the Public Policy Committee of the American Society for Cell Biology.

Wesley Sundquist, Ph.D., was named the H.A. and Edna Benning Endowed Chair. He also received an NIH P50 multidisciplinary research grant to establish an HIV Research Center at the University of Utah. The Center, which will probe the structure of the AIDS-causing virus, includes U of U Biochemistry faculty Christopher Hill and Michael Kay, Research Associate Professor David Myszka, Chemistry faculty Jill Trehwella and Greg Voth as well as investigators at Scripps Research Institute, Northwestern University, the California Institute of Technology, and the University of Virginia.

Dennis Winge, Ph.D., was the recipient of the 2006 David Danks Award. He presented the David Danks Award Lecture at the 5th International Meeting on Copper Homeostasis in Alghero, Sardinia.

Postdoctoral Fellows

AWARDS: **Beth Amriott, Ph.D. (Shaw Lab)** United Mitochondrial Disease Foundation Postdoctoral Fellowship; **Devon Christensen, Ph.D. (Sundquist Lab)** received the 2008 Harold M. Weintraub Graduate Student Award for Outstanding Achievement in the Biological Sciences for his thesis studies performed in Rachel Kelvit's laboratory at the Fred Hutchinson Cancer Research Center; **Holly Holman, Ph.D. (Shaw**

Promotions, Honors, and Awards

Postdoctoral Fellows (cont.)

Lab) was awarded an NIH Cardiology Training Grant Postdoctoral Fellowship; **Julie Eggington, Ph.D. (Bass Lab)** was awarded an American Foundation for Suicide Prevention Postdoctoral Fellowship; **Heather Hundley, Ph.D. (Bass Lab)** was awarded a Helen Hay Whitney Postdoctoral Fellowship; **Agnieszka Lewandowska, Ph.D. (Shaw Lab)** was awarded an American Heart Association Postdoctoral Fellowship; **Mark Parnell, Ph.D. (Bass Lab)** was awarded an NIH Ruth L. Kirschstein Postdoctoral Fellowship; **Eric Taylor, Ph.D. (Rutter Lab)** was awarded an NIH Genetics Training Grant Postdoctoral Fellowship.

TRANSITIONS: **Julianne House Grose, Ph.D. (Rutter Lab)** accepted a faculty position in the Department of Microbiology and Molecular Biology at Brigham Young University; **Sean Johnson, Ph.D. (Hill Lab)** accepted a faculty position in the Department of Chemistry and Biochemistry at Utah State University; **Mark R. Macbeth, Ph.D. (Bass Lab)** accepted a faculty position in the Department of Biological Sciences at Carnegie Mellon University; **Andrew VanDemark, Ph.D. (Hill Lab)** accepted a faculty position in the Department of Biological Science, University of Pittsburgh.

Graduate Students

AWARDS: **Megan Bestwick (Winge Lab)** 2008-2009 U of U Graduate Research Fellowship; **Angela Katsuyama (Sundquist Lab)** 2007-2008 U of U Graduate Research Fellowship; **Robert Fisher (Hill Lab)** 2008 James W. Prael Memorial Award for Outstanding Graduate Student from the University of Utah Medical School.

TRANSITIONS: Fourteen students completed their degrees Summer 2007-Spring 2008.

Ph.D.—Hyo-Young Chung (postdoc at Rockefeller University); **Robert Fisher** (Genentech); **Rebecca Frederick** (postdoc at Carnegie Institute, Baltimore, Maryland); **Sabine Hellwig** (postdoc at University of Pittsburgh School of Medicine); **William Holland** (postdoc at University of Texas, Southwestern); **Brian Kelly** (postdoc at University of Utah, Hill Lab); **Collin Keiffer** (postdoc at University of Utah, Welm Lab); **Sunghwan Kim** (postdoc at M.I.T.); **Eugene Masters** (Southern Research Institute, Birmingham, Alabama); **Kevin Rigby** (postdoc at NIH/NIAID Rocky Mountain Laboratory in Hamilton, Montana); **Rodrck Taylor** (faculty position at Dixie State College, St. George, Utah); **Brett Welch** (postdoc at Northwestern University).

M.S.—Yu “Maggie” Shi (Rutgers University); **Eleanor Sundwall** (Granite Technical Institute).

In Memoriam

Sidney F. Velick, Ph.D.

Sidney F. Velick, Ph.D., former chair of the Department (1964-1978) died on December 29, 2007 at the age of 94. Sid was nationally recognized for research in protein biophysics. Locally he was a strong advocate for classical music and for the proper treatment of mental illness. He earned the Distinguished Research Award at the University of Utah in 1976, and was elected to the National Academy of Sciences in 1981, which is among the highest honors granted to American scientists. Sid was dedicated to basic research and to understanding how the world works. His wife, Bernadette continues to live in Salt Lake



City and to have contact with the Department. Their son, William, is a radiologist in private practice in Southern California, but visits Utah regularly, especially during ski season.

Floyd W. Sweat, Ph.D.

Floyd W. Sweat, Ph.D., former Associate Professor of Biochemistry, died on June 6, 2008 at the age of 66. Floyd earned both his B.S. and Ph.D. degrees in Chemistry here at Utah. After a postdoctoral stint at Harvard, he returned to join the faculty in Biochemistry in 1970. His research interests were in the area of cell signaling through cyclic AMP. Floyd's main contributions were in the teaching of first-year medical students, and they were very appreciative of his efforts on their behalf. He served as course director, delivered a large proportion of the lectures, and instituted the first small-group problem sessions that are now an integral part of our offerings. Floyd is survived by his wife, Debra, two sons, and a number of stepchildren and grandchildren.



Sherman Dickman, Ph.D.

Sherman Dickman, Ph.D., another former faculty member, passed away in 2006 at the age of 91. He was active in the Chamber Music Society and in the community.

Acknowledgements

Newsletter Contributors: Dana Carroll, Christopher Hill, Michele Pasker, Martin Rechsteiner, Heidi Schubert, Janet Shaw, Linda Van Orden, and Rachel Bookman.