

**SPECIAL
POINTS OF
INTEREST:**

- Faculty Focus
- Student Spotlight
- Graduate Student News
- Undergraduate Accomplishments
- Alumni: Where Are They Now?

**INSIDE THIS
ISSUE:**

Faculty	1-3
Department Highlights	3
Distinguished Alumni	4
Beadle Center News	5
Undergraduate Students	6-7
New Alumni	7
Graduate Student News	8



From the Department Chair

Bob Spreitzer— Interim Chair, Department of Biochemistry

This is not what I expected to be doing this year, but it is an exciting time to serve as Interim Chair of the Department of Biochemistry. Despite the departure of three senior colleagues, Ruma Banerjee, Ray Chollet, and Steve Ragsdale, we

have faculty searches in progress for a permanent Department Chair, Co-Director of the Redox Biology Center (RBC), and Assistant Professor in the RBC. Plans are also set for the addition of five more faculty members over the next year or two, which will be the largest expansion of Biochemistry in decades. At the same time, our undergraduate major, in both the College of Agriculture and Natural Resources and the College of Arts and Sciences, has increased to

over 300 students. During this time of unprecedented growth and collegiality, our faculty, staff, and students continue to make outstanding contributions that strengthen our department and build momentum for the future. Accomplishments from the past year are highlighted in this newsletter along with other news of interest. Best wishes, and please keep us updated on your career endeavors.



Chollet Retires After 30 Years of Service

Ray and his wife Barb at the retirement reception. Barb also just recently retired (2006) from her position as the Assistant Vice Chancellor for Student Affairs at UNL.

Professor Ray Chollet completed 30 years of service at UNL this year. A retirement reception was held on September 21, 2007 to celebrate his career. Upon his retirement, Ray was awarded the rank of Professor Emeritus. Ray was a leader in the department and we are especially grateful for his guidance as Interim Department Head over the past year. Ray received his Ph.D. in Biochemistry from the University of Illinois in 1972. After spending a few years at DuPont, Ray decided to join the biochemistry faculty at UNL in 1977. He was a terrific mentor of both undergraduate and graduate students. He was a strong supporter of undergradu-

ate research and one of his favorite courses to teach was Plant Biochemistry 434/834. He also had an instrumental role in developing the B.S. degree program in Biochemistry. Ray's research program focused on post-translational regulatory mechanisms of proteins in plants. His lab helped establish that plant metabolic enzymes are reversibly regulated by phosphorylation. His work on phosphorylation of metabolic enzymes was funded continuously by the National Science Foundation-Division of Molecular and Cellular Biosciences for 20 years. In 1998, UNL recognized Ray's accomplishments and named him as a W.W. Marshall

Family Distinguished University Professor. Ray's leadership outside UNL included serving as an advisory committee member for grant-review panels and workshops at the National Science Foundation, chairing various scientific meetings, and on editorial boards of different journals such as the *Annual Review of Plant Physiology & Plant Molecular Biology* and *Archives of Biochemistry & Biophysics*. In his retirement Ray looks forward to spending time up North in Minnesota with his family. He has promised though to keep in touch with the department and is even willing to attend faculty meetings at our request to get his advice.

Banerjee & Ragsdale Move to Michigan

Ruma and Steve receive parting gifts from Vadim Gladyshev at a farewell reception in July.



A big disappointment this year was the departure of Ruma Banerjee and Steve Ragsdale. This summer they left UNL to join the faculty in the De-

partment of Biological Chemistry at the University of Michigan. Both Ruma and Steve selflessly served our department and UNL in a variety of ways during their 16 years in Lincoln. Ruma, now a Vincent Massey Collegiate Professor of Biological Chemistry at the University of Michigan, was the founding director of the Redox Biology Center. They are also internationally recognized for their innovative research and leadership in the scientific community. Ruma and Steve both received the Outstanding Research and Creativity Award, a prestigious award that is given by the University of Nebraska System. They will be greatly missed and we wish them and their family all the best at their new home in Michigan.

Gladyshev Named Redox Biology Center Director

Vadim Gladyshev, a Charles Bessey professor, was named as the new director of the Redox Biology Center this summer. Vadim has served in the executive/mentoring committee of the center since 2002 when it was established under the leadership of the former director, Dr. Ruma Banerjee. Vadim brings exceptional leadership to the Redox Biology Center and is an eminent international scholar. In 2007, Vadim's group published 25 papers including premier journals such as *Science* and the *Proceedings of the Na-*

tional Academy of Sciences. His laboratory has built novel bioinformatics platforms for identifying and understanding the roles of selenocysteine-containing proteins. Vadim's research is also leading to the understanding of selenium-based cancer prevention, redox regulation, and mechanisms of aging. His research is funded by several major awards from the National Institutes of Health. Vadim joined the Biochemistry Department at UNL in 1998 after completing a postdoctoral position at NIH.



Prof. Vadim Gladyshev announces the \$10.8 million renewal award to the Redox Biology Center from the National Institutes of Health at a press conference on August 27.



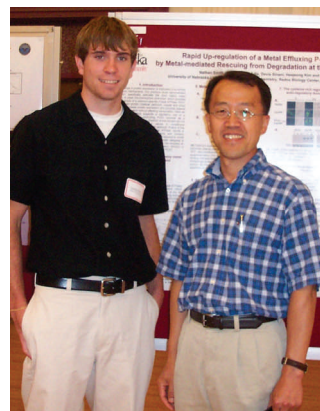
Front Row: Rachel Koski, Zegbeh Kpadeh, Miranda Martin, Sierra Cullati, and Jenni Wyatt. Back Row: Jeff Scrippler, Ben Arentson, Brett Oestreich, Isis Arreguin, Ben Remington, Jonathan Saffold, and Nathan Smith

REU 2007 Summer Program in Redox Biology. Twelve students participated in this year's 10-week undergraduate research program sponsored by the National Science Foundation and the Department of Defense. At the end of the program, students presented their research findings at a poster session in the City Campus Union. If you know a student that would be interested in a great summer research experience, encourage them to apply to our program at <http://www.unl.edu/RedoxBiologyCenter>.

Jaekwon Lee awarded NIH grant

Dr. Jaekwon Lee joined the Biochemistry Department and the Redox Biology Center in 2003 as an Assistant Professor. His research program focuses on identification and characterization of metal ion transporters in baker's yeast, plants, and mammals. His group has cloned the cell surface transporters for copper or cadmium and elucidated the function, mechanism of action and regulation of the transporters. Copper is a vital yet toxic micronutrient necessary for growth and development of many organisms. Deficiency or excess accumulation of copper causes initiation and progression of hepatic and neuronal diseases in humans. Cadmium is a non-physiological toxic environmental con-

taminant that leads to several public health concerns, including cancer and hormone imbalance. Dr. Lee's group has revealed which transporters play roles in uptake or extrusion of these metal ions across the cell membrane and how the systems are controlled to maintain optimal uptake, utilization and detoxification of copper and cadmium. The National Institutes of Health, Nebraska Redox Biology Center, Nutricia Research Foundation, Nebraska EPSCOR and Layman Foundation have awarded a total ~\$1.8 million in research grants to Dr. Lee. Two graduate students, two postdoctoral fellows and three undergraduate students are currently working in his laboratory. His re-



Jaekwon Lee and Nathan Smith at the summer REU poster fair.

search group published two papers this year in the *Journal of Biological Chemistry* this year (vol. 282, pp. 947-55 and pp. 26775-85). Their research was also presented at the Gordon Research Conference, FASEB Summer Conference and Biophysical Society Annual Meeting in 2007.

Departmental Highlights

- **Melanie Simpson** received the 2006 Recognition of Junior Faculty for Excellence in Research Award from the University of Nebraska Agricultural Research Division.

- The Redox Biology Center Minisymposium was held on Sept. 14, 2007 and focused on "Mitochondrial Signaling Pathways". Making presentations were Dr. Irwin Fridovich (Duke), Dr. Carla Koehler (UCLA), Dr. Leonid Sazanov (Cambridge College, UK), Dr. M. Celeste Simon (University of Pennsylvania), **Dr. Donald Becker** (UNL), Dr. Bruce Spiegelman (Harvard) and Dr. Benjamin Tu (UTSW Medical Center).

- UNL received a \$10.8 million competitive renewal grant from the National Institutes of Health in August to support the Redox Biology Center through 2012. The Redox Biology Center, which was founded in 2002, involves faculty at UNL and the University of Nebraska Medical Center in Omaha. Faculty in the center work to understand redox processes and problems that underlie a wide range of diseases such as cancer, Alzheimer's, Parkinson's and cardiovascular disease, as well as advancing knowledge of aging.

- **Julie Stone** and **Mark Wilson** received funding from the UNL Research Council, Interdisciplinary Grants Program: "A Model Plant for Insights into Human Disease?"



- **Don Becker, Jerry McEntee** and **Joan Krush** were recognized by the UNL Parent Association for contributions to undergraduate students. Awardees are nominated by current undergraduate students.

- **Dr. Madhavan Soundararajan** received the Holling Family Award for Teaching.

- **Dr. John Markwell** was recently named as the new Associate Dean in CASNR.

- **Dr. David Manderscheid** became the new Dean of the College of Arts and Sciences. He was previously a Professor of Mathematics at the University of Iowa.

- This year the Redox Biology Center's Annual Retreat was held on April 21-22 at the Lied Lodge and Conference Center-Arbor Day Farm in Nebraska City and hosted by **Dr. Joseph**

Barycki. Over 90 members of the Center participated in this year's program which included scientific presentations by postdocs and students, poster sessions and a poster contest.

- **Cheryl Bailey** receives a Department of Energy grant to host a genome annotation center at UNL. Shown here is Cheryl using football as a motivational tool.



- **Don Weeks** and co-workers published their development of dicamba-resistant crops in *Science* last May (vol. 316, pp.1185-8).

- **Vadim Gladyshev** and his collaborators published a method for high-throughput identification of catalytic redox-active cysteine residues in *Science* (vol. 315, pp. 387 – 389) last January. He also published a high profile paper in *Proc Natl Acad Sci U S A*, (vol. 104, pp. 13919-13924) describing the first report of a selenium-selenium bond in a native protein. His discovery was highlighted in *Chemical & Engineering News* in August.

- **Bob Spreitzer**, with the exceptional assistance of **Carol Hegel** and **Rita Yeggy**, hosted the annual meeting of Regional Project NC-1168, Regulation of Photosynthetic Processes, in the Beadle Center in November.

Third Annual Distinguished Alumni Lecture



Shown above are Dr. Hargrove with faculty members that had mentored him for his undergraduate research at UNL (left to right) Dr. Knoche, Dr. Sarath, Dr. Hargrove and Dr. Dam.

Dr. Mark Hargrove presented the Biochemistry Annual Alumni Seminar entitled "Structural Highlights in the Evolution of Oxygen Transport in Globins" on April 24, 2007. Dr. Hargrove is an Associate Professor of Biochemistry and Biophysics at Iowa State University. Mark was raised in Lincoln and attended UNL where he received a B.S. degree in Biology and Chemistry (1989). He then went on to earn a Ph.D. in Biochemistry and Cell Biology at Rice University. He joined the faculty at Iowa State University in 1998.

ALUMNI UPDATES -

Matt Albin '07 is participating in a mission trip in Ecuador after which he intends to begin medical school.

Matt Hibberd '07 is a Project Scientist at Ag-Tech Products Inc. in Milwaukee, WI. His present project is to analyze and reduce problems

with pathogenic strains of bacteria at a poultry production facility.

Patrick J.D. Kennedy '05 is currently Director of Public Programs and Public Policy at the Clinton School of Public Service at the University of Arkansas.

You've always said someday you'll give something back to the college that gave you so much.

How about now?

To make a donation, please contact Ann Bruntz, IANR Director of Development, University of Nebraska Foundation, 402-458-1176. Or go to abruntz@nufoundation.org



Beadle Center News

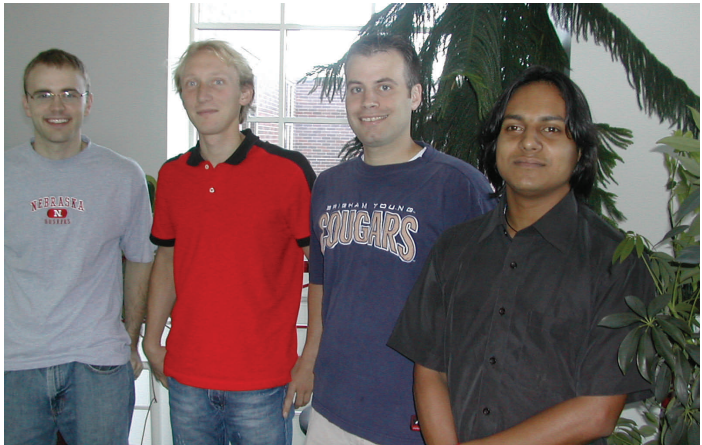
Members of the Department of Biochemistry recognized for years of service in 2007:

- Raymond Chollet (30 years)
- John Markwell (25 years)
- Marilyn Cunnings (10 years)
- Joseph Barycki (5 years)
- Kempton Horken (5 years)
- Melanie Simpson (5 years)



Neil Zimmer (pictured with Bob Spreitzer) retired from the Department as instrument specialist after nearly 26 years. A reception was held in the spring.

Department Welcomes New Class of Graduate Students



(left to right: Mike Moxley, Lincoln, NE, Sebastian Kehr, Darmstadt, Germany, Perry Ridge, Burbank, CA and Nikilesh Sanyal, Bangalore, India)

Recent Graduate Degrees

Master	
Cracan Valentin	PhD University of Michigan Ann Arbor MI
Galbenus Robert	Biochemist SC Prelchim SA Romania
Gupta Nirupama	PhD University of Michigan Ann Arbor MI
Madzelan Peter	Researcher - University of Nebraska Lincoln NE
Pierce Elizabeth	PhD University of Michigan Ann Arbor MI
Yan Zhonghua	PhD University of Michigan Ann Arbor MI
Yi Li M	PhD University of Michigan Ann Arbor MI
PhD	
Khan Sadaf	Post Doc CA
Kunz Ryan	Post Doc University of Michigan Ann Arbor MI
Sen Suvajit	Post Doctoral Fellow UCLA Los Angeles CA

L.K. Crowe Advising Award

The Institute of Agriculture and Natural Resources and the College of Agriculture and Natural Resources at the University of Nebraska- Lincoln named Joan Krush as the 2007 recipient of the L. K. Crowe Outstanding Undergraduate Adviser Award. Krush was nominated by the Department of Biochemistry where she is the professional adviser for over 300 undergraduate majors.

The L.K. Crowe award allows recognition of a faculty member who has made outstanding contributions to undergraduate advising. The award was established in 1983 in memory of Professor Lawrence K. Crowe.

Professor Crowe was a dairy science professor from 1925-1968 and was an effective and popular adviser to hundreds of undergraduate students during his period of service with the university.

Krush has been an undergraduate adviser with the Department of Biochemistry since 2005 and is co-instructor for the *Career Opportunities in Biochemistry* course offered in the Department of Biochemistry and also teaches a recitation section of the *Food, Agriculture and Natural Resource Systems* course to students in the College of Agricultural Sciences and Natural Resources.



Joan Krush (right) 2007 L.K. Crowe Academic Advising Award with Dr. Steven Waller, Dean of the College of Agricultural Sciences and Natural Resources.

Undergraduate News

The Undergraduate Creative Activities & Research Experience (UCARE) program continues to match undergraduate students seeking research experiences and faculty mentors in the research arena. In 2007-2008, 36 Biochemistry majors have been granted UCARE funding; below is a list of undergraduate students working directly with faculty within the Department of Biochemistry. [The faculty sponsor is indicated in brackets.]

Derrick Anderson [Donald Becker]
Importance of Tyrosine 437 in E. Coli Proline Utilization A (Put A)

Joshua Bies [Jaekwon Lee]
Structure-function Analyses of ctrl Copper Transporter

Michelle Byerly [Cheryl Bailey]
Cryopreservation of Chlamydomonas

April Christensen [Donald Becker]
The Impact of PutA-FAD Interactions on PutA-Membrane Association

Danita Curtiss [Melanie Simpson]
Hyaluronan Synthase 2: Unstable or Inactive in Tumor Metastasis?

Sahar Hasim [Mark Wilson]
Esl protein in Down Syndrome

Jacob Johnson [Madhavan Soundararajan]
Acetylcholine and Plant Signaling

Scott Kindle [Julie Stone]
A Unicellular Model for Understanding DJ-1 Function: Part II

Alisha O'Malley [Melanie Simpson]
Structural Determinations of 6-deoxy-oxytetracycline

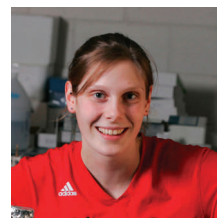
Jesse Pickerill [Donald Weeks]
Normalization of Exogenous Protein Expression in Xenopus Oocytes

Kara Pozehl [Melanie Simpson]
Characterization of a Hyaluronan Synthase Point Mutant Implicated in Human Congenital Heart Defects

Lauren Volentine [Jaekwon Lee]
Role of CCC2 Gene in Copper Transport

Laura Willoughby [Donald Weeks]
Multiple Uses of the C. reinhardtii ACM Gene

NOTABLE ACCOMPLISHMENTS



Senior Biochemistry major **Sarah Pavan** was recently named Academic All-American of the Year and Big 12 Player of the Year. Earlier this year, Pavan was also named the 2006-2007 Collegiate Woman Athlete of the Year. She was presented the Honda-

Broderick Cup during a ceremony at Columbia University in New York City. Sarah is the first Cornhusker to receive this award which is the highest honor that a female collegiate athlete can receive. An outside hitter for the UNL Volleyball team, Pavan is from Kitchener, Ontario.

Agricultural Research Division Student Undergraduate Research project funding (2007-2008):
Jeanine Frey—Hay Springs, NE
Branden Nemecek—Kearney, NE

Milton E. Mohr Scholarship for 2007-2008:
Kendra Kaldahl—Hardy, NE
Scott Kindle—Yankton, SD

Dr. Benjamin M. Sahagian Scholarship:
Joshua Bies—Yankton, SD
Kendra Kaldahl—Hardy, NE



Josh and Kendra pictured with Mrs. Benjamin (Twila) Sabagian.

First-year students Lauren Beitel and Cory Drvol were recognized at the annual Omaha World Herald banquet. Lauren is a Biochemistry major and Cory is a Nutrition major. Both are enrolled in the *BIOC 101: Career Opportunities in Biochemistry* course. They each received a scholarship award.



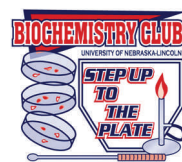
May and August 2007 graduates

NAME	OCCUPATION	LOCATION (if known)
Nick Anderson	PhD Purdue University	West Lafayette IN
Jeff Brenneman	Pharmaceutical Tech.- Novartis	Lincoln NE
Anh B Bui	Research Alcon	Fort Worth TX
Thriep B Bui	Compliance Specialist - Pfizer	Lincoln NE
Thu-Hong Bui	University of Nebraska	Lincoln NE
Andrew Casper	MD UNMC	Omaha NE
Sarah Ciurej	Nursing UNMC	Omaha NE
Pete Dawson	MD University of Missouri	Columbia MO
Sara Duhachek	Grad School University of Nebraska	Lincoln NE
Jessica Frazer	Viral Production Laboratory Pfizer	Lincoln NE
Jeanine Frey	PhD - Stanford University	Palo Alto CA
Dalal Gumeel	Pharmacy UNMC	Omaha NE
Kaylene Harms	Dentistry UNMC	Omaha NE
Matt Hibberd	Project Scientist AgTech Products	Milwaukee WI
Andrew Huber	Medical School	
Matthew Kappes	M.S. Iowa State University	Ames IA
James Kurasawa	Lab Technician UNL	Lincoln NE
Carrie Lebsack	BSN St Louis University	St Louis MO
Joel Lechner	M.S. Biological Chemistry-UNL	Lincoln NE
Ryan Legge	M.S. Food Science & Tech. - UNL	Lincoln NE
Benjamin Miller	DDS	
David Morris	Dental School	
Natsuki Nagashima	Analyst - Deutsche Bank Group	Tokyo
Tony Nguyen	Pharmacy - Creighton University	Omaha NE
Jenna Perry	Clinical Laboratory Science UNMC	Omaha NE
Jamie Pham	Grad School UNL	Lincoln NE
Meghan Piepho	Pharmacy - University of Iowa	Iowa City IA
Kelli Sack	Physician's Assistant - UNMC	Omaha NE
Michael Seim	Pharmacy Technician	Lincoln NE
Patrick Seitz	MD UNMC	Omaha NE
Jennifer Simmons	JD SMU	Dallas TX
Chai-Fei Soh	M.S. Microbiology	
Michael Swerczek	MD UNMC	Omaha NE
Hozan Taha	Lab Tech Novartis	Lincoln NE
Brenton Thomas	DC Parker College of Chiropractic	Dallas TX
Kristin Williams	MD UNMC	Omaha NE
Abraham Zabih	Pathology Lab Children's Hospital	Omaha NE

Phi Beta Kappa Inductees

Meghan Ann Sedlacek and Ali Jane Steckelberg, were elected to Phi Beta Kappa and were initiated on December 12, 2007.

Biochemistry Club



The Biochemistry Club continues to hold monthly meetings throughout the semester. Speakers on research opportunities, volunteering as well as toxicology and pharmacology presented to the group this semester. Recently, the club participated in the UNL Thanksgiving Dinner food drive to benefit the Lincoln Food Bank. Students and members of the Beadle Center contributed over 200 food items. The Biochemistry club earned third place based upon items donated and money raised for the event.



Biochemistry Club officers from left to right: Josh Bies, Scott Kindle, Sasha Zheng, Ashley Sternbagen, Sarah Brownell, Alisha O'Malley, and Tara Somer. Not pictured: Becky Somer and Laura Hahn.

Outstanding Women in Science



The February Forum recognized outstanding Undergraduate Women in Science. Dr. Melanie Simpson represented the department and the following students attended: Tara Somer, Melanie Norton, Meghan Sedlacek, (Dr. Simpson) Kristin Williams and Jeanine Frey.



Department of Biochemistry
University of Nebraska-Lincoln
N200 Beadle Center
1901 Vine Street
Lincoln, NE 68588-0664

Graduate Student News

The Milton E. Mohr Fellowship in CASNR-IANR was awarded to **Alamelu Bharadwaj** (Simpson Lab).

Navasona Krishnan (Becker lab) was a recipient of the Widaman Trust Distinguished Graduate Assistant Award.

Vyacheslav Labunskyy (Gladyshev lab) received the Milton E. Mohr Graduate Fellowship in Biotechnology and a Maude Hammond Fling Fellowship.

Boon Hoe Lim (Spreitzer lab) was awarded a David H. and Annie E. Larrick Travel Award to attend the annual meeting of the American Society of Plant Biologists in Chicago in July.

A David H. and Annie E. Larrick Travel Award was presented to **Michael Mox-**

ley (Becker lab) to attend the National Institutes of Health meeting on proline metabolism in Fredrick, MD in September.

Amy Miller (Weeks lab) received an Othmer Graduate Fellowship and a Milton E. Mohr Graduate Fellowship in Biotechnology. In addition, Amy received a Teaching Fellowship award and a \$2000 stipend from the Farmers National Company.

A Maude Hammond Fling Fellowship recipient was **Anton Turanov** (Gladyshev lab).

An Othmer Graduate Fellowship was awarded to **Melanie Neely Willis** (Barycki lab).

BIG RED ROAD SHOW



Pictured with Herbie: Kendra Kaldahl, Danita Curtiss, Bridget Foley, Karina Stott, Josh Bies, Sarah Brownell.

The UNL community takes their show “on the road” to the Omaha Qwest Center on Sunday, February 24th, 2008. The Big Red Road Show is an open house event for adults and students of all ages to learn more about the academic and student life programs at UNL.