University of Nebraska Lincoln

Biochemistry Today

VOLUME 2 WINTER 2006

SPECIAL POINTS OF INTEREST:

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

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Herbicide-resistant Crops Developed by Weeks Lab

After stepping down as the Head of the Department of Biochemistry this past August, Don Weeks is looking forward to having more time to devote to research and teaching. One of his research projects is focused on developing dicamba resistant broadleaf crops. Dicamba is a low-cost and environmentally friendly herbicide that is important to U.S. agriculture. The Weeks laboratory isolated a gene from a bacterium that degrades dicamba in soils for potential heterologous expression in plants. Inserting this gene into plants such as tomato and tobacco resulted in dicamba resistant engineered plants. In collaboration with Dr. Tom Clemente of the UNL Plant Transformation Core Facility, the gene was also introduced into soybean plants. Greenhouse and field tests show that the engineered soybeans are protected against dicamba up to five times the amount of herbicide levels typically used by farmers and with no negative impact on soybean yields. The dicamba-resistance gene technology has been licensed to Monsanto and presently is being evaluated for potential commercial release sometime in the early part of the next decade. Meanwhile, the Weeks and Clemente laboratories are using a $2.5 million grant from Monsanto and a smaller grant from the Consortium for Plant Biotechnology Research to explore the biochemistry of the enzymatic reactions involved in the resistance trait and to determine if there are additional applications of the dicamba-resistance gene trait.

From the Department Head

Raymond Chollet, W.W. Marshall Family University Professor & Interim Head, Department of Biochemistry

The Department of Biochemistry is undergoing a transition in leadership this year since Don Weeks decided to step down as Department Head in late July. We are very grateful to Don for his leadership over the last five years, during which time the department experienced a nearly 60% growth in the number of B.S. biochemistry majors, seven new faculty were hired, and extramural competitive funding for 2005-06 was $7.5 million. With Don returning to the faculty, we are now searching externally for a new Department Chair and hope to have the position filled by August 2007. In the meantime, I have assumed the responsibilities of Interim Department Head. This past year we welcomed two new faculty, Dr. Cheryl Bailey and Dr. Gilles Basset. Cheryl received her Ph.D. in Biochemistry from the University of Iowa and was previously at Promega Inc. and Midland Lutheran College in nearby Fremont, NE. Dr. Gilles Basset joined us in early November from Bordeaux, France and will hold joint appointments in the Department of Agronomy & Horticulture and UNL's campus-wide Plant Science Initiative. Gilles received his postdoctoral training at the University of Florida. The growth trend in the department continued this year with increased enrollment in our Undergraduate Biochemistry Program and the arrival of eight new graduate students in August. Our teaching laboratory and research infrastructure was also enhanced over the last year by purchasing new departmental equipment, including ultra- and analytical centrifuges, liquid scintillation counters, and a fluorimeter. In this second volume of our alumni newsletter, we hope you will enjoy learning more about the department as we highlight the accomplishments of students and faculty over the past year.

Faculty Focus

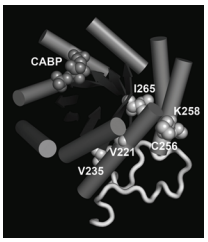
Joe Barycki

Dr. Joe Barycki is beginning his fifth year in the Department of Biochemistry. His research program is focused on the two major thiol-based redox buffers of the cell, thioredoxin and glutathione. These two biomolecules are largely responsible for the tightly controlled maintenance of intracellular reduction-oxidation status essential for normal cellular function. Joe's research group uses protein crystallography in combination with site-directed mutagenesis, enzymology, protein chemistry, and other biophysical techniques, to examine the biological functions of the enzymes responsible for maintaining reduced glutathione and thioredoxin reservoirs. Recently his group published the structure of gamma glutamyltranspeptidase from *Helicobacter pylori* in the *Journal of Biological Chemistry*. G. Glutamyltranspeptidase catalyzes the first step in glutathione degradation and may be an important virulence factor for infection. In collaboration with Dr. Vadim Gladyshev, Joe also published the structures of the oxidized and reduced forms of thioredoxin reductase in *Proceedings* of the *National Academy of Sciences* (2005, vol. 102, 15018-15023). Thioredoxin reductases are flavoenzymes responsible for reducing thioredoxin, a disulfide reductase protein important for maintaining redox balance in the cell and regulating numerous biochemical processes. His research program is funded by a five year grant from the National Institutes of Health and by regional funding mechanisms. His research group is currently comprised of two graduate students, two undergraduate students, and two research technicians. In addition to research, Joe teaches Biochemistry 431 and is actively involved in mentoring undergraduate biochemistry students.

Stephen Ragsdale

Dr. Stephen W. Ragsdale joined the faculty at UNL in 1991. In 2003, he was appointed as a Charles E. Bessey Professor. Dr. Ragsdale's research interests are in microbial physiology and biochemistry, environmental biochemistry, and the roles of metals in biology. He also is spearheading a new project on oxygen sensing by the carotid body, an organ that helps mammals respond to low oxygen levels in the blood. Presently, his group consists of four graduate students, two undergraduate students, two postdoctoral associates, and a research assistant professor. Over the past year his group published research articles in the *Journal of the American Chemical Society, Journal of Biological Chemistry, and Biochemistry* and contributed two reviews on one-carbon metabolism and the roles of metals in catalyzing difficult reactions. One paper in particular described the redox regulation of a unique transcriptional activator of dehalorespiration, called Cprk from the bacterium Desulfitobacterium dehalogenans. D. dehalogenans is an unusual microbe that gains energy by metabolizing toxic chlorinated aromatics, a process which also benefits the environment. Graduate students Stelian Pop and Nirupama Gupta coauthored the paper on CprK (2006, *J. Biol. Chem.* 281, 26382-90). In addition to research, Dr Ragsdale teaches Biochemistry 431 and is also the Director of the newly created Molecular Biosciences and Biotechnology Integrated Graduate Program at UNL which provides interdisciplinary training opportunities for students in the areas of molecular biosciences and biotechnology. Dr. Ragsdale was also just elected as an American Academy of Microbiology Fellow (2006) in recognition of his expertise, creativity, and scholarly achievements in microbiology.

Robert Spreitzer



Changing five large-subunit residues (light gray spheres) and introducing the spinach small-subunit loop (ribbon) converts the kinetic properties of Chlamydomonas Rubisco to those of spinach. The transition-state analog carboxyarabinitol bisphosphate (CABP) denotes the active site, which is more than 20 Å away from the engineered changes.

Dr. Spreitzer's research group uses the green alga Chlamydomonas reinhardtii as a model genetic organism for studying the key photosynthetic enzyme ribulose-1,5-bisphosphate carboxylase/oxygenase (Rubisco). By genetically engineering both the chloroplast-encoded large subunit and nuclear-encoded small subunit, Dr. Spreitzer's group has recently increased the CO2/O2 specificity of the enzyme. Because beneficial improvement of Rubisco has the potential for increasing the production of food and renewable energy (and decreasing global warming), these results warranted publication in the prestigious *Proceedings* of the *National Academy of Sciences* (vol. 102, 17225-17230). Dr. Todor Genkov (senior research associate in Spreitzer's group) was invited to present his work on the genetic engineering of the Rubisco small subunit in the photosynthesis minisymposium at this year's meeting of the American Society of Plant Biologists. A member of the faculty since 1984, Dr. Spreitzer is a university Charles E. Bessey Professor and Professor of Biochemistry. His research group is presently comprised of a senior research associate (Dr. Genkov), two graduate students (Boon Hoe Lim, Jelena Spiric), and three undergraduate biochemistry majors (Amanda Firestone, Kelsey Swartz, Heather Woerpel). Dr. Spreitzer's research received renewal funding this year from both the USDA National Research Initiative and US Department of Energy.

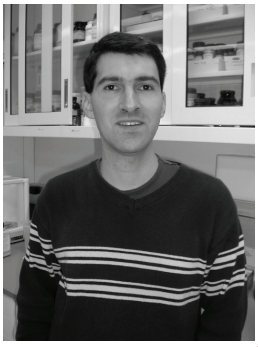
New Faculty

Cheryl Bailey

Dr. Bailey's research focuses on inquiry based learning and protein modification of plants as they respond to changes in the environment.

Gilles Basset

Dr. Basset is a plant biochemist whose research focuses on plant vitamins and other phytochemicals that are beneficial to human health.



Departmental Highlights

Vadim Gladyshev and **Ruma Banerjee** organized the first Gordon Research Conference on Thiol-Based Redox Regulation and Signaling at the University of New England, Biddeford, ME.

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

Stephen Ragsdale was elected as an American Academy of Microbiology Fellow.

The collaborative work of **Julie Stone** and **Mark Wilson** was featured in articles in the *Lincoln Journal Star* (July 10, 2006) touting the virtues of Arabidopsis thaliana as a model plant for studying Parkinson's disease. The work is funded by a pilot grant from the UNL Redox Biology Center.

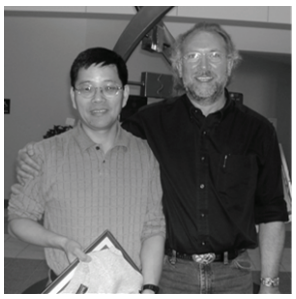
The Redox Biology Center was designated as a **UNL Program of Excellence**.

NSF/DoD Summer Students
Pictured are the 15 participants in our 10-week undergraduate research program sponsored by the National Science Foundation and the Department of Defense. These students represented 14 institutions from Nebraska, Iowa, Minnesota, Missouri, and New York. 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.

Dr. David Sellmyer, Professor of Physics and Astronomy and Director of the UNL Center for Materials (second from left) and **Dr. Don Weeks**, Professor and Head of the Department of Biochemistry (third from left) are winners of the UNL 2006 Sigma Xi Outstanding Scientist Award. Congratulating them are Vice Chancellor for Research, Dr. Prem Paul (left) and Dr. Merlin Lawson (right), Professor of Geosciences and President of the UNL chapter of Sigma Xi.

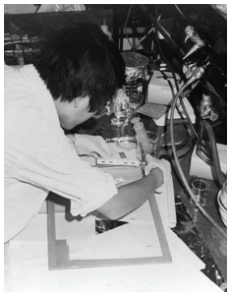
Alumni Focus

Second Annual Distinguished Alumni Lecture

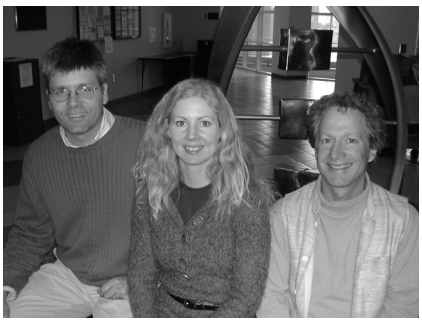


Dr. Chen and Dr. Spreitzer at the alumni lecture

Dr. Zhixiang Chen presented the Biochemistry Annual Alumni Seminar entitled "Molecular Regulation of Plant Responses to Microbial Pathogens" on April 18, 2006. Dr. Chen is an Associate Professor of Plant Pathology at Purdue University. Zhixiang received his Ph.D. in Biochemistry at UNL in 1990. His advisor was Prof. Robert Spreitzer. At UNL Zhixiang received a Widaman Trust Graduate Fellowship. Dr. Chen did post-doctoral training at the Waksman Institute at Rutgers University before accepting his first faculty position at the University of Idaho. In 2002, he moved to Purdue University to join the Department of Botany and Plant Pathology. We were very glad that Dr. Zhixiang Chen was able to visit our department this year.



Chen preparing a DNA sequencing gel during his UNL graduate school days.



(left to right) Donald Becker, Sharmin Schauble (Allen), and Stephen Ragsdale. Sharmin (B.S., 1997) was an undergraduate researcher in Dr. Ragsdale's laboratory and worked with Dr. Becker who was a postdoctoral fellow at the same time in the Ragsdale group. Sharmin visited UNL this fall to present a seminar on "Novel Substrates for Protein Kinase C". She is now an Assistant Professor of Chemistry at Wayne State College in Wayne, NE.

Alumni Updates -

Cristina Furdui joined the Biochemistry Department at Wake Forest University in Fall 2006 as an Assistant Professor. She is a former graduate student in the Ragsdale lab.

Deepak Madhavan, M.D. Recipient of Epilepsy Foundation Grant (2006) for his work on "A Novel Method to Predict and Analyze Seizure Propagation Using CONVOLUTIONAL Neural Networks" (He is developing a novel methodology using computational learning technologies to analyze an individual's brain waves during the start of a seizure. This is done to isolate the regions of the brain that create the brain waves most responsible for the start of the seizure as areas for therapeutic intervention). In July, 2007, he will join the Department of Neurology at the University of Nebraska Medical Center, as Assistant Professor.

Eisuke Murakami, a former student from the Ragsdale group, is a research scientist at Pharmasset, Inc. in New Jersey.

Alumni Updates and News

Alumni News from the Madhavan/ Markwell Labs

Our collaboration continues and turned out to be more intimate that we imagined. Andrew Thiele (Markwell student) and Akiko Tekatani (Madhavan student) were married in a ceremony at Pioneers Park on September 16. Wayne Versaw (M.S. 1990) is an Assistant Professor of Biology at Texas A&M and works on phosphate transport. Gongqin Sun (Ph.D. 1992) is Associate Professor of Cell and Molecular Biology at University of Rhode Island and works on the role of protein phosphorylation in the cell cycle. Brad Olson (B.S. 2000) is in the final year of his Ph.D. program with Cathy Osteryoung at Michigan State. Renee (Baack) Paulson (B.S. 2004) has completed a M.S. in Pharmacology at Stanford and is currently pursuing a Ph.D. Two recent graduates now in graduate school are Josh Widhalm (Horticulture at UNL) and Brittany Prather (Biology at Iowa).

Patricia Echtenkamp (B.S. 2003) is in her fourth year of her Ph.D program at Cornell. She is in the Chemical Engineering Department and is a recipient of the predoctoral NSF Fellowship.

This fall, Dr. Steve Zatechka, (B.S. 92; M.S. 97) presented a special seminar on opportunities available for postdoctoral fellowships at the world premier research center St. Jude Children's Research Hospital in Memphis, TN.

Beadle Center Support Staff News

Members of the Center for Biological Chemistry recognized for years of service in 2006:
Carol Hegel (30 years)
Shirley Condon (25 years)
Ruma Bannergee (15 years)
Stephen Ragsdale (15 years)
Joyce Ore (10 years)
Dimitri Formenko (5 years)
Julie Stone (5 years)
Wenxin Xu (5 years)

New Staff Members:
Carrie Henrichs (Temporary Worker)
Sheila Hayes (Admin Tech I)

Undergraduate Academic Advisor, Joan Krush was awarded the "Superior Academic Advising" award during CASNR Week. In addition, she was recognized by the UNL Parent Association with a Certificate of Recognition for Contributions to Students.

Sarath Lab Update

Dr. Gautam Sarath's Switchgrass EST project was funded by the Joint Genome Institute – expected 300,000 to 500,000 ESTs. Former graduate students in Dr. Sarath's lab: Alan R. Penheiter (PhD May 1998) Assoc. Prof, Mayo Clinic; Zhaohui Sun (MS May 1998) MBA – Schering Plough; Emily Ross (PhD August 2002) Asst. Prof, High Point University, High Point, NC; Ping Xiang (PhD May 2003) PDF, University of Washington, Seattle. Ping and Lin welcomed their first baby, Daniel, in June. Undergraduate students (thesis) Jeanenne (Dean) Suneja (BS May 1995) MD, Internal Medicine, University of Iowa Medical Center; Colleen Bizzell (BS May 1999) PDF, Plant Gene Expression Center, UC Berkeley, CA; Aaron Saathoff (BS May 1999) PhD, Cornell University; Joel Hansen (BS May 2002) Sigma Chemical Co.; Dana Novak (BS May 2002) PhD, UC-Santa Barbara; Todd Brockett (BS May 2003) Teach for America- New York City; Uyen Chu (BS May 2005) PhD, University of Wisconsin-Madison.

Department Welcomes New Class of Graduate Students

(left to right) Boon Hoe Lim (B.S. University of Illinois), Tom Plucinak (B.S. Eastern Oregon State University), Byung Cheon Lee (B.S. & M.S. Korea University), Marina Kasaikana (B.S. Lomonosov Moscow State University), Ashely Haile (B.S. Cornell University), Melanie Neely Willis (B.S. Texas A & M, J.D. University of Texas-Austin), Katie Carnes (B.S. Fort Hays State College). Not pictured Jelena Spiric (B.S., UNL).

Undergraduate News

Student Spotlight

Internships in Summer 2006:

Rachel Anderson - Perioperative Services at Glenview Hospital; Chicago, IL

Andrew Brennfoerder - Lab Technician at Geneseek; Lincoln, NE

Matt Hibberd - Researcher at Agtech Products, Inc.; Waukesha, WI

Students attending the annual Women in Science Forum were (from L to R) Kristin Williams, BIOC majors Angie Prescher, Frannie Mann, Kara Pozhel, Angel Walstrom, and Deame Hua.

The Undergraduate Creative Activities & Research Experience (UCARE) program continues to match undergraduate students seeking research experiences and faculty mentors in the research arena. In 2006-2007, 30 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.]

Matthias Albin [Ruma Banerjee] Determining the Intracellular Expression and Extracellular Secretion of Thioredoxin and Thioredoxin-Reductase in vitro Using a Cell Culture Model

Derrick Anderson [Donald Becker] Importance of Arginine 431 Residue for Conformational Change in Ecoli PutA

Nickolas Anderson [Gautam Sarath] is researching switchgrass and bioenergy

Jeanine Frey [Julie Stone] Functional and Biochemical Analyses of Plant DJ-1-like Proteins

Melissa Guenthner [John Markwell] Directed Evolution of Plant Formate Dehydrogenase

Matthew Hibberd [Donald Weeks] Mechanisms for Degradation of the Herbicide, Dicamba, by Pseudomonas Maltophilia, Strain DI-6

Sara Khalil [Mark Wilson] Determining if Yeast Protein YDR533C has a Redox-regulated Chaperone Activity Like Human Hemologue DJ-1

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

Carrie Lebsack [Donald Weeks] Testing the Efficacy of a New RNA Interference (RNAi) System in Chlamydomonas Reinhardtii

Alexander Lin [Ruma Banerjee] Redox Communication During Oxidative Stress in Brain

Francis Mann [Raymond Chollet] A Biochemical/Molecular Biology Analysis of the Conserved C-terminal Moiety of C4 Phophoenolpyruvate Carboxylase

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

Yukiho Shinagawa [Vadim Gladyshev] The Role of Sep15 inDisulfide Bond Formation

Kristin Williams [Joe Barycki] Structural Features of Human gamma-Glutamyltranspeptidase

Notable Accomplishments

Goldwater Scholar Jeanine Frey

Jeanine L. Frey, a Biochemistry major from Hay Springs, NE, was awarded the prestigious Goldwater Scholarship. (The Goldwater scholarship is supported by the Office of Undergraduate Studies and students are assisted in the scholarship application process by UNL's Fellowship Advisor, Laura Damuth.) Upon graduation Jeanine plans to pursue a Ph.D. in Biochemistry. She would like to conduct biomedical research focusing on gene expression as it relates to human disease and teach at a research institution. Jeanine works in Dr. Julie Stone's lab and completed the Spring 2006 semester abroad studying at Bath University, England.

Junior **Sarah Pavan** was recently named Academic All-American of the Year and Big 12 Player of the Year. An outside hitter for the UNL Volleyball team, Pavan is from Kitchener, Ontario.

Milton E. Mohr Scholarship for 2006-2007:

Nickolas Anderson - Carver, MN
James Kurasawa - Lincoln, NE
Matt Hibberd - Scottsbluff, NE
Alexander Lin - Lincoln, NE
Natsuki Nagashima - Tokyo, Japan

Dr. Benjamin M. Sahagian Scholarship:

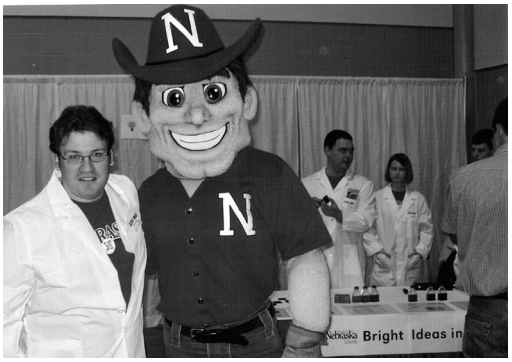
Matt Hibberd - Scottsbluff, NE
Angelique Walstrom - Omaha, NE

Matt and Angelique pictured with Mrs. Benjamin (Twila) Sahagian.

Recent Undergraduates

Where are they now?

Ross Agee	Munitions Maintenance - US Air Force
Brent Barta	Paramedic – Midwest Medical Ambulance
Ashely Batie	MS Animal Science – UNL
Noah Beadell	MS – University of South Dakota (Vermillion, SD)
Brady Brabec	UNMC Medical School
Andrew Brennfoerder	Ph.D. in Biosciences – University of Iowa (Iowa City, IA)
Sara Brostrom	UNMC Medical School
Jesse Cox	M.D./Ph.D. Program at UNMC
Katie Easley	Temporary Researcher – UNL Biochemistry
Shaundra Eichstadt	M.D./MPH - Stanford Medical School Program (Stanford, CA)
Jennifer Haas	D.C. – Palmer College (Davenport, IA)
Jason Hamata	Temporary Researcher – UNL Biochemistry
Evelyn Hong	Pharmacy Program - Creighton University
Vicki Hong	Student Worker – UNL Biochemistry/Plant Science Initiative
Deame Hua	Weill Medical College of Cornell University (Manhattan, NY)
Andrew Karpisek	Temporary Worker – UNL Biosciences/Plant Science Initiative
Lucas Knoflicek	Lab Technician – UNL Biotechnology
Bobbi Laun	UNMC College of Dentistry
Christopher Lebsack	Lab Technician – Nova-Tech. Inc.
Anthony Macdissi	UNMC Medical School
Adam Macdissi	UNMC Medical School
Allen Magama	Research Scientist - Zimbabwe
John-Martin Lowe	Ph.D. in Biological Sciences at UNL
Frannie Mann	Ph.D. at Iowa State University (Ames, IA)
Susan M. Newman	UNMC Medical School
Hanh Nguyen	Optometry – Illinois College of Optometry (Chicago, IL)
Jodi Nordell	Masters in Forensics program - Nebraska Wesleyan University
Dustin Peterson	Researcher – Pfizer, Corp.
Trinh Pham	Bio Analyst - MDS Pharma
Brittany Prather	PhD in BioSciences - University of Iowa (Iowa City, IA)
Jeffrey Richardson	Pharmacy Technician
Matthew Schaecher	UNMC Pharmacy Program
Joshua Schlautman	Graduate Lab Assistant - UNMC
Daniel Schellhorn	Research Scientist – MDS Pharma
Sara Schumacher	Pharmaceutical representative for TEAMM Pharmaceuticals
Jelena Spiric	MS - Biochemistry at UNL
Yoshio Toda	PhD in Cell and Molecular Biology - Duke University (Durham, NC)



Big Red Road Show

Come out and see us during the Big Red Road Show in 2007! The UNL community takes their show "on the road" to Omaha on Sunday, March 4th and South Sioux City on Saturday, March 31st. 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. Representatives from UNL undergraduate colleges and departments and graduate studies departments, and student affairs offices will be present.

What's new with you?

Want to recommend an outstanding graduate? Got a promotion? Finished that Masters or Ph.D.? Have you published recently? Let us know your updated information. We wish to stay connected with our alumni! Simply visit the departmental website (http://biochem.unl.edu) and choose Alumni to send us an update.

Recent Graduate Degrees

Ph.D.	**Thesis Title**	**Current Position**
ChaoWei (Kate) Chen	The Physiological Function of Reactive Oxygen Species in Human Lens Epithelial Cells [Advisor: M. Lou]	Post Doc - UNL/Vet. Science
Nagarama Kothapalli	Biotinylation of Histones: Physiological Importance [Advisor: J. Zempleni]	Post Doc - NIH
Anna Prudova	Modulation of Homocysteine Metabolism and Redox Homeostasis via Regulation of Cystathionine Beta Synthase [Advisor: R. Banerjee]	Post Doc - Univ. British Columbia
Mr. Dan Su	Mammalian Thioredoxin Reductases: Functions and Regulation [Advisor: V. Gladyshev]	Post Doc - Yale U.
Mrs. Dan Su	Characterization and Functional Studies of Three Mammalian Cytochromes B561 [Advisors: H. Asard, V. Galdyshev]	Post Doc - Yale U.
M.S.		
Mahadevan Lakshiminarasimhan	Characterization and Mutational Studies on a Mouse Cytochrome b561 [Advisor: H. Asard]	UNL/Dr. Wilson

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Graduate Student News

Graduate students **Gina Boanca** (Barycki Lab), **Robert Galbenus** (Simpson Lab), **Devis Sinani** (Lee Lab) received a Teaching Fellowship award and a $2000 stipend from the Farmers National Company.

Weidong Zhu (UNL Ph.D., 2005) received an American Heart Association (AHA) Postdoctoral Fellowship. He is currently a member of Dr. Ruma Banerjee's group.

A Bukey Memorial Graduate Fellowship was awarded to **Ekaterina Biterora**.

Chancellor's Doctoral Fellowships were granted to **Valentin Cracan** and **Anna Witt**.

Navasona Krishnan was a recipient of a Milton E. Mohr Graduate Fellowship in Biotechnology.

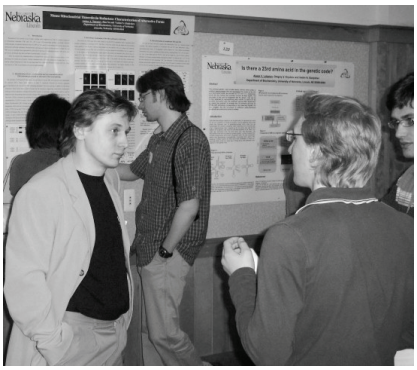
Slava Labunskyy received the Milton E. Mohr Graduate Fellowship in Biotechnology, the Bukey Memorial Graduate Fellowship and the Norman and Bernice Harris Cancer Research Award.

A Richard H. Larson Graduate Research Fellowship was awarded to **Marien Maldonado**.

Amy Miller received an Othmer Graduate Fellowship and a Milton E. Mohr Graduate Fellowship in Biotechnology.

An Othmer Graduate Fellowship was awarded to **Melanie Neely Willis**.

Carmen Gherasim won an Outstanding Poster Award at the FASEB Conference on Folic Acid, B12 and One Carbon Metabolism held in Palm Springs in Aug. 2006.



Sebastian Kehr and Vyacheslav Labunskyy (right) discuss research with Prof. Vadim Gladyshev (left) at the Redox Biology Center Retreat in April, 2006. Also, Anton Turanov (background) is shown explaining his poster.

The University of Nebraska-Lincoln does not discriminate based on gender, age, disability, race, color, religion, marital status, veteran's status, national or ethnic origin, or sexual orientation.