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Chemistry & Biochemistry Newsletter

Chemistry & Biochemistry

Fall 2005

Chemistry & Biochemistry Newsletter

Department of Chemistry & Biochemistry, South Dakota State University

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South Dakota State University

Chemistry & Biochemistry

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Message from the Department Head



Although some years have passed since you were a South Dakota State University student in the Department of Chemistry and Biochemistry, the department has continued its commitment to rigorous coursework, high academic reputation and exceptional faculty.

The Department of Chemistry and Biochemistry continues to give today's SDSU students the tools to think critically, solve problems, and meet the demands of a rapidly changing world. As a graduate of our program, you appreciate the importance of labs, technology, undergraduate research, faculty and other academic programs and facilities in the delivery of a high-quality education.

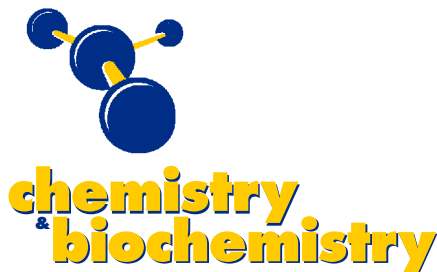
Help us preserve the value of your degree. Please consider a gift to the SDSU Foundation on behalf of the Department. Gifts directed specifically for the Department of Chemistry & Biochemistry will have a direct impact on our program and allow today's students access to an education that lasts a lifetime. Maybe you'd like to:

- Adopt a senior undergraduate research project (\$1,000 gift);
- Endow a graduate student fellowship (\$5,000 gift);
- Or, buy a lab bench for the new laboratory building we will be constructing in 2007 (\$20,000 gift).

Thank you for your continued support of the Department and South Dakota State University. The next time you are on campus, please stop by the department, or stay connected by visiting our website at <http://chembiochem.sdstate.edu>.

Please stay in touch!

Jim Rice
james.rice@sdstate.edu



2010 Research Center Wins Big in Business Competition

A medical technology company associated with a new university-based research center in South Dakota has won top prize in a business awards program.

PhotoBioMed of Sioux Falls earned \$20,000 and the opportunity to compete in the national 2006 World's Best Technologies competition. The company took top honors this month in the Governor's Giant Vision Business Awards competition, sponsored by the South Dakota Chamber of Commerce and Industry.

Researchers at PhotoBioMed are working to perfect a sutureless, adhesive surgical process based on platform tissue bonding technology. Dr. Kaia Kloster, who is on the USD School of Medicine faculty, and Dr. Ron Utecht of the SDSU Department of Chemistry and Biochemistry, use chemistry to bond tissue to tissue, tissue to graft material, or a drug to a tissue location in a process that will minimize or eliminate the need for sutures. The technology advances new ways to effectively and quickly close wounds, which reduces pain and promotes healing.

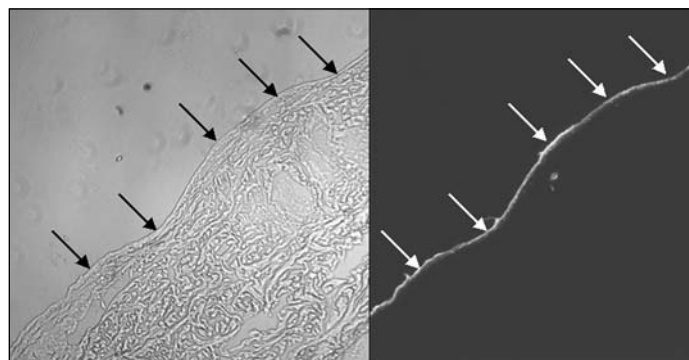
"PhotoBioMed is taking a new idea, developed through research at our state's universities, and translating it into a marketable business venture," said Gov. Mike Rounds, one of the founders of the Giant Vision award. Initially, PhotoBioMed's research has focused on repairing corneas in the eye, but vascular patching, reconstructive surgery, and combat wound repair

also are potential applications.

The research is a critical component of the work under way at the Center for the Research and Development of Light-Activated Materials, which is housed at The University of South Dakota's chemistry department, with



Governor Mike Rounds, Dr. Ron Utecht, and Dr. Kaia Kloster.

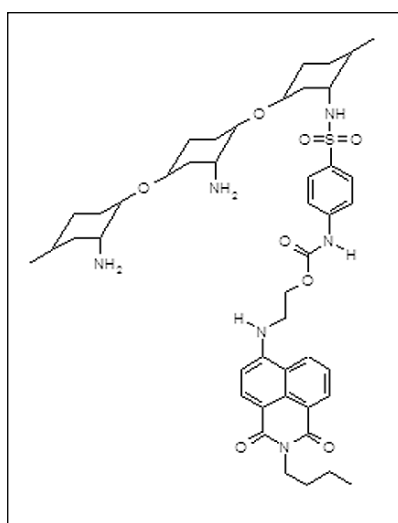


Photomicrograph showing photochemical attachment of drugs to the skin surface.

Avera Research Institute and South Dakota State University as participating institutions.

The center is one of four created statewide by the South Dakota Board of Regents, and funded by the Legislature, as a planned strategy to heighten South Dakota's profile in research and development. Increasing university research, and translating that research into ideas and products that can be marketed, are central points in Gov. Rounds' 2010 economic development initiative.

"We are thrilled that work under way at our 2010 research centers is catching the attention of the business and economic development communities," said Regents President Harvey C. Jewett. "This is exactly the kind of commercialization activity that holds such promise for our state's future."



Naphthalimide modified chitosan used for tissue bonding.

New Grad Students



Kevin Poenisch

I was born in Milwaukee, and grew up in Rochester, MN, where I graduated from John Marshall High. I attended Rochester Community and Technical College and finished my education at SDSU where I completed my B.S. in Chemistry. I was accepted into the Ph.D. program where I work with Dr. Cole-Dai in the field of Environment Chemistry. My goals are to continue researching after my education is complete. However, I think that I would enjoy teaching at some point in time.

My parents live in Texas and my two brothers live in California.



Bethany Melroe

I am from Gwinner, ND, and received a B.S. in Chemistry from SDSU. I am working towards a Master's in Biochemistry with plans to pursue a Ph.D. in Chemical Education.

My brother is also an SDSU graduate and is currently finishing his Master's in Ruminology from SDSU. With the kids out of the house, mom and dad are keeping busy with their jobs. Dad is a farmer/ rancher and mom is a RN working in home health.



Lisette Ngo Tenlep

I am from Douala, Cameroon-West Africa. I grew up in Yuounde where I also went to school. I went to college at the University of Siegen in Germany where I did my undergraduate and graduate studies earning a B.S. and Master's.

Here at SDSU I am pursuing my Ph.D. in analytical chemistry with Dr. Raynie.



Stephanie McClure

I graduated from the College of St. Benedict with an ACS Chemistry degree and a math minor. I am working on a biosensor project with Dr. Logue in the field of bioanalytical chemistry with the goal of getting a Ph.D. My family lives in Omaha and I have a twin brother, Nick, who is at the University of Montana in a mathematical biology program.



Srinath Pashikanti

I was born and brought up in the small town of Hanamkonda, Warangal District, Andhra Pradesh, in India. I completed my primary and high school education at St. Peter's Central Public School. Later, I joined CKM Arts & Science College, Warangal District, to pursue my intermediate course (10+2) in biological sciences. I obtained a Bachelor of Science degree and Master of Science in Chemistry with specialization in Organic Chemistry from Kakatiya University.

I was awarded a "Lectureship – NET" by Council for Scientific and Industrial Research, New Delhi, in 2002. This exposure gave me the opportunity to join Medicinal Chemistry Laboratory, GVK Biosciences, Hyderabad in 2002 as a trainee-chemist. After successful completion of my training and probation, I worked as a Senior Chemist, and as a Research Associate before I left for higher education in the Department of Chemistry & Biochemistry at SDSU where I am working under the guidance of Dr. Daniel Cervantes Laurean.

Julee Driver to attend ACS Summer School on Green Chemistry

Congratulations to Julee Driver. She has been accepted to attend the ACS Summer School on Green Chemistry – an all-expenses paid, weeklong workshop at McGill University in Montreal. During this event, Julee will learn about sustainable processes, green chemistry and engineering, and related topics that will undoubtedly help her in her career and as we establish our research program.

Please join the department in congratulating Julee on being selected for this exciting opportunity.

New Staff



Ovidiu Chilom

After working many years as a Research Scientist in the physical chemistry area, I came to SDSU in the Fall of 2000.

I began working in the Physics Department as Lab instructor and in the Computer Science Department towards completing a M.S. degree program. In February 2005 I joined the Chemistry Department as Research Associate at the new Mass Spectrometry Facility.

This is a challenging job because not only you have to operate expensive, state-of-the-art equipment (MALDI-TOF, ESI-FTMS high resolution) but also deal with large variety of samples such as oligonucleotides, peptides/proteins, polymers, carbohydrates. It is my responsibility to maintain the instruments operating at optimum performance. I periodically update of a website dedicated to the Mass Spectrometry Facility. I find this work very interesting and never routine.



Laura Koepsell

My hometown is Yankton, SD, and I graduated from the University of South Dakota in 2004 with a B.S. in Chemistry and Business. I moved to Brookings in May of 2005 and am working for Dr. Utecht as a chemist.



Shar Quam

My hometown is Volga, SD, but after graduating from Nettleton College in 1973, I have called Brookings my home. From 1974 to 1982 I worked with the SDSU Extension Service. I left there to work at the East Central Multi-District as business manager until 1997. Until

I joined the staff in the Chemistry Department I worked with my husband at Dave's Collision Repair Center.

My family is most important to me, and includes my husband, Dave; my children, Nathan and his wife Jill and son Ronin; Natalie and her husband Scott and their children Hunter and Mackenzie; and Natasha and her husband Matt.

My interests include quilting, camping with family, following local sporting events and being with my pugs Carson and Cole.



Greg Marcom

I am responsible for maintaining and repairing all instruments and routing filling of the cryogens for the MNR/MS magnets. I am also responsible for all computers, computer software and printers in the department.

I was born in Fort Wayne, IN, and graduated from Purdue University in West Lafayette, IN, with a B.S. in Industrial Technology and a minor in Computer Information Systems. I am married and have a 5-year-old son, Rafael, and a new baby on the way in April. I am a diehard Purdue Boilermaker, Indianapolis Colts, and Philadelphia Flyers fan. In my spare time I enjoy reading assorted literature and playing around with computers.

Foundation Donors

from May 2005-June 2006

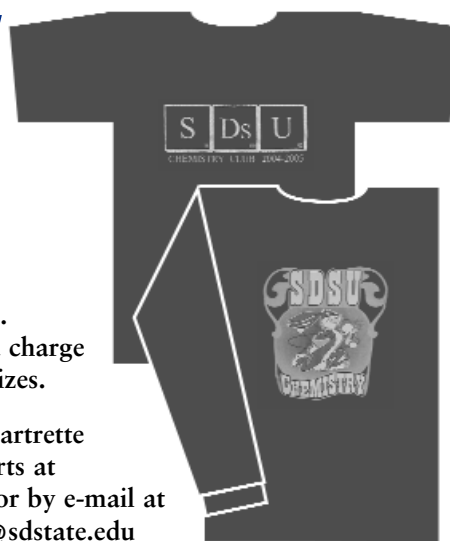
Lorraine Bell, Lincoln, NE
 Krisma DeWitt, Yankton, SD
 Eileen Hyatt, Sioux Falls, SD
 Joseph and Karen Morse, Bellingham, WA
 Doug Raynie, Brookings, SD
 Stephanie Russo, Paris, KY
 Irwin and Carol Scot, Concord, CA
 Terry Van Erem, Brookings, SD
 Robert and Edna Wayryner, Wilmington, DE
 Matt and Lisa Miller, Brookings, SD

Chemistry T-Shirts

T-Shirts are Gold and White on SDSU Blue!

T-shirts: \$15
 Long Sleeve: \$20.
 There is an extra charge for XXL on up sizes.

Contact David Cartrette to purchase t-shirts at (605) 688-6480 or by e-mail at David.Cartrette@sdstate.edu



Alumni News

Mike Benjamin

B.S. 1998

Currently, I am a graduate student in the Chemistry Ph.D. program at the University of Cincinnati, where I work for Dr. Theresa Reineke. Time has flown quickly, and I can't believe that I am almost done with my second year of graduate school. It's a lot of work, but I'm glad that I made the decision to go back to school after a five-year break (two years of teaching high school science and three years at the Nebraska state health department).

I presented a poster at the spring national ACS meeting in San Diego, and I was able to have coffee and chat with Sonja Braun-Sand and her husband. It was good to see her in person after only exchanging e-mails for a few years. It's been tough for me to get back to Brookings, so I'm out of the loop on most things going on there. The department newsletter has helped with that.

It looks as though there are many new faces in the department. I think the only professors I recognize are you [Jim Rice] and Dr. Shore, but I may be missing a few that are still around. I have been able to keep in touch with Dr. Gehrke over the years, mainly through letters and postcards.

It seems as though many of the new faculty have interesting research projects. I saw Erin Mercer's picture in the newsletter — is she an undergraduate chemistry student at SDSU? She was one of my students (an excellent one, too) when I taught chemistry at Pius X High School in Lincoln, NE.

Noelle Umback

B.S., ACS Chemistry, 1992

You have an alum on faculty at NYU! I'm now an adjunct assistant professor in the Forensic Medicine program at NYU Medical School. Duties: nothing new, but then again the additional salary is nothing extra either! You can find my listing at: www.med.nyu.edu/directory/

Each newsletter will contain information on alumni and their activities. If you would like to share something about yourself and what you are doing, please send us a note and we will include it in the next issue. You can FAX to us at (605) 688-6364, e-mail us at James.Rice@sdstate.edu, and mail is always welcome.

Tim Grosch

Ph.D. in 2000

Last October I left Abbott Laboratories in North Chicago, IL, and took a job with a contract lab in Madison, WI.

I had kept in contact with Dave Sullivan and he recruited me to PPD for a project that he was putting together with a spin off company from Abbott. After I started here (about one month) Dave left to take a job with Boston Scientific in Minnesota so we both are getting closer to our roots.

I moved the family to Middleton, WI, which is about five minutes from work. It was nice to reduce my commute time from 45 minutes to five.

Hope all is going well at SDSU. I talk to Rick Peterson now and then and he gives me updates as to how SDSU is doing . . . from Northern's point of view!



Jim Ogren

B.S. Chemistry, 1979

I graduated with a B.S. in Chemistry in 1979 and I enjoy getting the occasional newsletter from State.

After graduation, I got out of the chemistry business, joined the Navy and became a pilot, and eventually retired from the Naval Reserve. I have been flying for American Airlines for 19 years and have flown the 727, DC-9 (MD-80), 757 and 767 airliners. I have been based in New York and Boston, but primarily fly international routes out of Chicago O'Hare. My wife, Mary, and I spend the summers in South Dakota and the winters closer to work, near Lake Geneva, WI. I've attached a photo of me at work.

You know, I was thinking, I actually DO use my chemistry training from State . . . especially the lab portion. I'm an amateur brewer and have a little brewery in my garage. I love fabricating and tinkering with the gizmos and gadgets and toying with the process which in itself is a really interesting science. You guys should start a brewing science program. I might come back to school!

Recent Faculty Publications

Jihong Cole-Dai

Pohjola, V.A., J. Cole-Dai, G. Rosqvist, A.P. Stroeven, and L.G. Thompson, Potential to recover climatic information from Scandinavian ice cores: An example from the small ice cap Riukojietna, *Geografiska Annaler*, 87A, 259-270, 2005.

Hansen, Jon, (J. Cole-Dai, faculty research advisor) Determination of trifluoroacetic acid by ion chromatography for snow and ice analysis, *Journal of Undergraduate Research*, South Dakota State University, 3, 31-37, 2005.

Fathi Halweish

Bartalis, J, and Halaweish, F.T., Relationships between cucurbitacins reversed-phase high-performance liquid chromatography Hydrophobicity index and basal cytotoxicity on HepG2 cells, *J. Liq. Chromatog. B.*, 818 (2), 159-166, 2005.

Awad, S., Hassan, A.N., and Halaweish, F., Application of Expopolysaccharide-Producing Cultures in Reduced-Fat Cheddar Cheese Composition and Proteolysis. *J. Dairy Sci.*, 88, 4195-4203, 2005.

Vukovich, M. Halaweish, F.T., Ballard, T., Stevermer, S., Agrawal, P., Naringin does not alter caffeine pharmacokinetics, energy expenditure, or cardiovascular hemodynamics in humans following caffeine consumption, *Clinical and Experimental Pharmacology and Physiology* (in press)

Scott L. Kronberg, Mindy B. Hubert, Fathi T. Halaweish, and Paul J. Weimer., Interactions Between Cattle and Goat Rumen Microbes and E. esula Toxins. *J. Chem. Ecol.* (in press).

Brian Logue

I. Petrikovics, S. I. Baskin, T-C. Cheng, D. Qin, R. Yin, M. Szilasi, B. A. Logue, J. C. Jaszberenyi, M. E. Wales, J. R. Wild, J. L. Way (2005) Enzyme-based intravascular defense against organophosphorus neurotoxins: Synergism of dendritic-enzyme complexes with 2-PAM and atropine, *Nanotoxicology*, DOI: 10.1080/17435390500128271.

Jim Rice

Tremblay, L.; Rice, J. A.; Kohl, S. D.; Gagné, J.-P., 2005, Effects of water temperature, salinity and DOM concentration on sorption of PAHs to suspended particles: Study of an estuary, *Marine Chemistry*, 96: 21-34.

Chilom, G.: Rice, J.A., 2005, The influence of lipids on the energetics of uptake of PAHs by natural organic matter, *Journal of Environmental Quality*, 34:1055-1062.

Chilom, G.: Rice, J.A., 2005, Glass transition and crystallite melting in natural organic matter, *Organic Geochemistry*, 36: 1339-1346.

Faculty Patents

Halaweish, F.T., and Bartalis, Judit. Methods for using cucurbitacin compounds. U.S.PPA: 60/712,872 (patent pending).

Halaweish, F.T., and Bartalis, Judit, Cucurbitacin Compounds.112948 U.S.PPA; 60/713,181 (patent pending).

Undergrad Publications

Hansen, Jon,* Determination of trifluoroacetic acid by ion chromatography for snow and ice analysis, *Journal of Undergraduate Research*, South Dakota State University, 3, 31-37, 2005.

Singh, Y., Devkota, A.K., Sneed, C.D., Singh, K.* and Halaweish, F.T., Hepatotoxicity potential of Saw Palmetto (*Serenoa repens*) in rats. *Phytomedicine* (in press).

* SDSU Chemistry/Biochemistry undergraduate student