

BIOCHEMISTRY & MOLECULAR BIOLOGY TODAY

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Chair's Message

It's that time of year when the Texas wild flowers are in bloom all over our highways, although more concentrated in some areas than others. Just the other day on Highway 8 on the way to the airport, blankets of Bluebonnets with red Indian Brushes in between made the usually tedious drive a joy for the eyes. Back on the Island, gardens are on the verge of summer growth, as prospects for summer activities become more real every day. In synchrony with the renewal of our flora, we will increase our recruitment activities as we begin to bring on campus candidates for a faculty position in the area of mouse genetics, along with ongoing proteomics candidates. Also, Wayne and Wlodek assure me that an ad for our open structural positions is being placed as we speak.

Even as we welcome the new, we must say goodbye to Vince Hilser, headed for Johns Hopkins after having served the Department, the Center and the University faithfully and well for many years. Knowing that he will be going back and forth to UTMB for some time, he is keeping his appointment as a Full

Professor in BMB. Although not as often as before, I look forward to seeing him here on a somewhat regular basis. To maintain some continuity in leadership. Vince and Wayne, the new Director ad interim of SCSB, are working hard to make the transition in leadership seamless. Hats off to both of them.

The Research Executive Committee will soon advise the Provost as to what role stem cell biology should play in the research strategy of the University. As always we welcome input from one and all, so please send me your thoughts on the matter.

I am happy to announce that in spite of its late start (must have to do with the prolonged winter), the Presidential Graduate Student Program has been off and running, and has signed up 4 outstanding new graduate students. Of more interest, one of the four has chosen the BMB graduate program. I would remind you that any faculty member is free to nominate candidates for this prestigious program, whose goal is to bring on board outstanding students who will be eligible for NIH or NSF



training program grants. Once we have a sufficient number of these students it will enhance our opportunities to compete successfully for training grants. The Presidential Scholars will receive an enhanced stipend of \$30,000 a year, tuition, and \$5,000 in relocation expenses.

Do remember that if you are planning to submit a grant for the June cycle we will need a little more lead time, given all the changes in the forms. As always David Konkel stands ready to help by editing your grant, though he'll surely be booked if you wait until the last minute to seek his input. If you are thinking of submitting in the fall, now is the time to schedule a chalk talk to enhance your chances – and I do not use the word "chances" lightly.

I'll see you at one of the commencement exercises – and take care of your garden if you have one.

regino

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Special Items of Interest

- ✦ Awards and Announcements
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Awards and Announcements

Emilio Reyes-Aldrete, graduate assistant in Dr. Marc Morais' lab received a Poster Award at the 2010 Sealy Center for Structural Biology and Molecular Biophysics Structural Biology Symposium, held March 19 in Galveston



Abhisek Mukherjee received the "GSBS Incentive Award" last month from UTMB. This award provide recognition for GSBS students who apply for and receive an individual fellowship from external funding sources.

Alexandre Esadze, graduate assistant in Dr. Iwahara's lab, received an ENC student travel award for his poster presentation (Dynamics of lysine side-chain NH₃⁺ groups in a protein studied by 15N relaxation) at the 51st Experimental NMR Conference held April 18-23 in Florida.

Levani Zandarashvili, also in Dr. Iwahara's lab, received an ISOTEC student travel award for his poster presentation, Structure-independent analysis of distribution radii for disordered groups in macromolecules by using 1H-1H cross relaxation rates) at the same Conference

Christof Straub will participate in the Capitol Hill Day 04/20/2010 – 04/22/2010 .

Faculty on the Road

Dr. Cheryl Watson traveled to Kyoto, Japan as an invited speaker and symposium chair at the International Congress of Endocrinology March 24-31, 2010



Dr. Krishna Rajarathnam traveled on 11th April to Dallas to review grants for the American Heart Association.

Dr. Marc Morais gave a seminar at the University of North Texas in Denton, TX on March 26th titled "The Molecular Machinery of Genome Packaging and Ejection in dsDNA Bacteriophages".

Dr. Junji Iwahara attended the 51st Experimental NMR Conference held April 18-23 in Florida to give a talk entitled "Structure-Independent Determination of Distribution Radius for Disordered Group in Macromolecule by NMR: Use of Order Parameters for Long Variable-Length Vectors."

Graduate Program News

We've had a very busy spring with Recruitment and Admissions and have been fortunate to have a high number of talented individuals apply to our Program. The process is nearly complete. We sincerely appreciate all the assistance given to the interviewing process and are grateful to our faculty and students who helped us interview, socialize, and walk candidates around our campus while spreading the word about the strength of our Program and school.

Several of our students have recently received recognition for their hard work. When you see them, please congratulate Christof Straub, of the Alex Kurosky laboratory. He has been elected by his peers to be the 2010-2011 Chair of the UT System Student Advisory Council. Christof was also selected to represent BMB and UTMB for the Coalition for Life Sciences "Day on the Hill", which is an advocacy and public policy group. The Day serves to educate members of the US Congress on the importance of scientific research and the importance of continued funding for science.

Marlene Starr, Hiroshi Saito laboratory, was awarded a Graduate Fellowship from the American Foundation for Aging Research.

Many of our students are traveling and attending conferences. Debashish Sahu, Junji Iwahara laboratory, recently visited his undergraduate university, Anna University, and met with many faculty and students.

Please remember the BCSO Fundraiser for the Lillian Chan Endowment Fund. The Lillian Chan Endowment Fund was created in 2009 in honor of the former director of the BMB Graduate Program, Professor Lillian Chan. The fund serves the purpose of BMB student training and will support student-selected seminar speakers, travel awards to scientific meetings, and other activities to promote networking and develop interpersonal skills.

As part of the fundraiser, we are taking orders for short sleeved polo shirts with the BMB logo embroidered on it. Examples of embroidered shirts can be looked at in Debora Botting's office (BSB 1st floor room 107). Shirts are available in many colors and sell for \$32.50. All profits generated from the shirt sales will flow into the Lillian Chan Endowment Fund.

For more information on the Lillian Chan Endowment Fund or on this current fundraising effort, please contact any of the BCSO Officers Christof Straub, Michal Szymanski, Sarah Hemauer, and Paige Spencer.

We have a new baby to the BMB family, Paige Spencer and her husband are the proud parents of a baby boy named Dale.

Please put the GSBS Commencement date on your calendar, Saturday, May 1st at 10am in the Levin Hall Main auditorium.

We are very proud of our BMB graduates. On Match Day we found out where our MD/PhD students will be heading:

- ✦ Paul Evans, Chunming Liu laboratory, will be joining Barnes-Jewish Hospital, St. Louis, MO
- ✦ Courtney Lockhart, Cornelius Elferink, will be joining Mercy Hospital and Medical Center, Chicago, IL
- ✦ Brian Tieu, Allan Brasier laboratory, will be joining the University of Texas Health Science Center, Houston, TX

-Deborah Botting

Dear Colleagues:

The end of the SOM academic 2009-2010 year is coming and the intensive recruitment process for participation in the PBL modules in the next academic year will start soon. The faculty members that facilitated CVP (Cardiovascular and Pulmonary) in previous year were already contacted by the course coordinator to sign up again because this course starts in June. As the coordinator for SOM Year I and II activities I have to keep track of the involvement of our faculty members in SOM teaching. I would greatly appreciate if you forward to me as well your confirmation letter once you sign up for the SOM teaching.

I will keep you posted on the recruitment process and I will forward to you by e-mail the new academic calendar when it becomes available to me.

Dragoslava Zivadinovic (Gaga)

Publications



Theriot, C. A., Hegde, M. L., Hazra, T. K. and Mitra, S. RPA physically interacts with the human DNA glycosylase NEIL1 to regulate excision of oxidative DNA base damage in primer-template structures. *DNA Repair*, In press, 2010.

[A docking model based on mass spectrometric and biochemical data describes phage packaging motor incorporation.](#) Fu CY, Uetrecht C, Kang S, Morais MC, Heck AJ, Walter MR, Prevelige PE Jr. *Mol Cell Proteomics*. 2010 Feb 2. PMID: 20124351

Save the Date
16th Annual Structural
Biology Symposium
April 8, 2011

Featured Abstract by BMB Faculty

RPA physically interacts with the human DNA glycosylase NEIL1 to regulate excision of oxidative DNA base damage in primer-template structures.

DNA Repair (Amst). 2010 Mar 23. [Epub ahead of print]

Theriot CA, Hegde ML, Hazra TK, Mitra S.

Department of Biochemistry and Molecular Biology, University of Texas Medical Branch, 301 University Boulevard, Galveston, TX 77555, United States.

The human DNA glycosylase NEIL1, activated during the S-phase, has been shown to excise oxidized base lesions in single-strand DNA substrates. Furthermore, our previous work demonstrating functional interaction of NEIL1 with PCNA and flap endonuclease 1 (FEN1) suggested its involvement in replication-associated repair. Here we show interaction of NEIL1 with replication protein A (RPA), the heterotrimeric single-strand DNA binding protein that is essential for replication and other DNA transactions. The NEIL1 immunocomplex isolated from human cells contains RPA, and its abundance in the complex increases after exposure to oxidative stress. NEIL1 directly interacts with the large subunit of RPA (K(d) approximately 20nM) via the common interacting interface (residues 312-349) in NEIL1's disordered C-terminal region. RPA inhibits the base excision activity of both wild-type NEIL1 (389 residues) and its C-terminal deletion CDelta78 mutant (lacking the interaction domain) for repairing 5-hydroxyuracil (5-OHU) in a primer-template structure mimicking the DNA replication fork. This inhibition is reduced when the damage is located near the primer-template junction. Contrarily, RPA moderately stimulates wild-type NEIL1 but not the CDelta78 mutant when 5-OHU is located within the duplex region. While NEIL1 is inhibited by both RPA and Escherichia coli single-strand DNA binding protein, only inhibition by RPA is relieved by PCNA. These results showing modulation of NEIL1's activity on single-stranded DNA substrate by RPA and PCNA support NEIL1's involvement in repairing the replicating genome. Copyright © 2010 Elsevier B.V. All rights reserved.

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