MBMB Communiqué

Newsletter of Molecular Biology, Microbiology and Biochemistry Graduate Program
Fall 2010

Welcome on board! (New student list)

Since the start of the Spring Semester, 25 fresh graduate students joined the MBMB program from several countries including India, China, Colombia, Eritrea, Iraq, Nepal, Taiwan, Ukraine, Austria, Saudi Arabia and USA. The following are our new members:

Biochemistry and Molecular Biology (Carbondale)

Arjan Hada – Kathmandu University, Nepal
Solomon Hailu – University of Asmara, Eritrea
Sujata Jana – Punjab Agricultural University, India
Parinati Kharel – University of Texas at Arlington, Nepal
Yuan-Chi Lin – University of Southern Mississippi, Taiwan
Alexandra Lolis – Millikin University, USA
Ayan Malakar – National Institute of Technology, India
Oleksandra Zatserklyana – Northern Illinois University, Ukraine
Bo Zhu – Northwest A & F University, China

Microbiology (Carbondale)

Charles Pugh - SIU Carbondale, USA
Breanna Wham - SIU Carbondale, USA
Mark Murskyj - University of Illinois Urbana, USA
Eric Adkins - Southern Illinois University Edwardsville, USA

Medical Microbiology, Immunology and Cell Biology (Springfield)

Resha Bajracharya - Kathmandu University, Nepal
Joshua Geltz - SIU Carbondale, USA
Cristal Hill - Tuskegee University, USA
Chenfei Huang - Nanjing Medical University, China
Grace Ramena – Nagarjuna University, India
Ramesh Singh – Manipal College of Pharmaceutical Sciences, India
Olga Villamizar Beltran – Columbia College, Colombia
Juan Zhang – Nanjing Agricultural University, China
Jianguo Huang – Huazhong University of Science and Tech., China

Public Health Program (Springfield)

Matthew Gunkel – SIU Carbondale, USA
Needa Mahboub – King Abdul University, Saudi Arabia
Deborah Patsch – University of Graz, Austria

New Faculty

Antje Rusch started at SIU Carbondale in 2009 as an Assistant Professor in the Microbiology Department. She graduated with her PhD in 2000 from the University of Bremen in Germany. Her research interests are in Microbial Ecology, Marine Microbiology, Biogeochemistry. She has taught Principles of Microbiology and Diagnostic and Applied Microbiology Laboratory.

Vjollca Konjufca joined SIU Carbondale in 2010 as an Assistant Professor in the Department of Microbiology. She graduated with her Ph.D. in 2002 from the University of Arkansas. Her research interests include Immunology and Host-Pathogen Interactions. She will teach MBMB 453 Immunology Lecture in Spring 2011.

My research

Jake Chambers, a PhD student in the lab of Dr. Kelly Bender (Microbiology, Carbondale) attended the 6th International Conference on Tularemia in Berlin, Germany from Sept 13-16, 2009. He presented a poster entitled "Effect of Hfq on *Francisella tularensis* growth and stress resistance" by Jacob R. Chambers and Kelly S. Bender.

Mike Flister, PhD student in the lab of Dr. Sophia Ran (MMICB, Springfield): Recently I had the experience of a lifetime while attending the 60th Meeting of the Nobel Laureates in Lindau, Germany. This year the meeting brought together approximately 650 graduate students, postdocs, and early career scientists from all over the world to meet and interact with 61 Noble Laureates from the fields of Physics, Chemistry, and Physiology and Medicine. For me the trip began in Washington DC at the Department of Energy, where I had a chance to meet the other ~70 graduate students from institutes all over the country that were part of the US delegation to the meeting. This in itself was an awesome experience!

Because the meeting was interdisciplinary (i.e., students from Chemistry, Physics and Biology), we were able to meet and discuss with other students about how we can develop future interdisciplinary collaborations. This "cross-fertilization" approach was a major theme of the meeting, as the Laureates also held special panel debates on how best to approach scientific problems that require an interdisciplinary approach.

At the meeting students also had multiple opportunities, both formal and informal, to intermix with the Laureates and ask questions directly. Perhaps the most memorable moment for me was sitting next to Martin Chalfie, one of three Laureates awarded for their work with GFP, at a dinner the second night of the meeting. At the dinner, other students and I had a chance to "pick his brain" about what it was like in the years leading up to the discovery and what his career has been like since. He also gave us some invaluable insight to choosing a field, applying for a postdoc, and establishing one's independent career. In addition to informal discussion, each of the Laureates also gave a talk and held a small group discussion that gave students the opportunity to ask questions directly. Of these sessions, my favorite talks were given by Oliver Smithies and Peter Agre, who were awarded the Nobel for creating transgenic mice and discovering aquaporins, respectively. The most striking part of their talks was the passion that both had for not only their research but for how they as scientists could positively impact society. This I thought was also the message of many of the other Laureates as well. To me, this was an important reminder of why scientists do research – not to collect data, write grants, and publish papers – but rather to work towards bettering society as a whole!

In the end, I could not have predicted how great this experience turned out to be. It by far exceeded expectations and gave us students a great perspective on what it means to be a successful career scientist. Without a doubt, I would encourage any student to apply for this meeting, because it truly is a unique experience that comes along only once in a lifetime.

I published!

(Recent publications by graduate students)

The following students published their works as first authors in 2010. We congratulate them on their excellent works!

1. Stimulation of mRNA export by an F-box protein, Mdm30p, in vivo.
Shukla A, Durairaj G, Schneider J, Duan Z, Shadle T, Bhaumik SR.
J Mol Biol. 2009 Jun 5;389(2):238-47.
[Both Abhijit Shukla and Geetha Durairaj are graduate students, and are joint first authors]

2. Histone methylation and ubiquitination with their cross-talk and roles in gene expression and stability. Shukla A, Chaurasia P, Bhaumik SR.
Cell Mol Life Sci. 2009 Apr;66 (8):1419-33.
[Both Abhijit Shukla and Priyasri Chaurasia are graduate students]

3. The interactions of the largest subunit of RNA polymerase II with other cellular proteins: a bioinformatic approach.
Shukla A, Natarajan A, Bhaumik S, El-Shemy HA, Lightfoot D.
Curr Issues Mol Biol. 2009;11 Suppl 1:i65-71.

4. ICP0 antagonizes ICP4-dependent silencing of the herpes simplex virus ICP0 gene.
Liu, M., B. Rakowski, E. Gershburg, C. M. Weisend, O. Lucas, E. E. Schmidt, and W. P. Halford. 2010. PLoS ONE 5:e8837.

5. ICP0 dismantles host cell microtubule networks in herpes simplex virus-infected cells.
Liu, M., E. E. Schmidt, and W. P. Halford. 2010. PLoS ONE 5:e10975.

6. -145 suppresses cell invasion and metastasis by directly targeting mucin 1.
Sachdeva M, Mo YY. MicroRNACancer Res. 2010 Jan 1;70 (1):378-87.

7. MicroRNA-101-mediated Akt activation and estrogen independent growth.
Mohit Sachdeva, Hailong Wu, Peng Ru, Larn Hwang, Vuong Trieu and Yin-Yuan Mo Oncogene. In press

8. Age-related deficiencies in complex I endogenous substrate availability and reserve capacity of complex IV in cortical neuron electron transport.
Jones, T.T. and Brewer, G.J. 2010. Biochim. Biophys. Acta Bioenergetics, 1797:167-176. PMCID:

9. Cacalol, a natural sesquiterpene, induces apoptosis in breast cancer cells by inhibiting fatty acid synthase.
Liu W, Furuta E, Shindo K, Watabe M, Xing F, Pandey P, Okuda H, Pai S, Murphy L, Cao DL, Mo YY, Kobayashi A, Iiizumi M, Watabe K. (2010) Breast Cancer Research and Treatment.2010 Jul 28 (Epub ahead of print)

10. Nuclear export of mRNA and its regulation by ubiquitylation.
Geetha Durairaj, Pooja Garg, and Sukesh R. Bhaumik (2009). RNA Biology 6, 531-5.

11. The interactions of the largest subunit of RNA polymerase II with other cellular proteins: a bioinformatic approach.
Shukla A, Natarajan A, Bhaumik S, El-Shemy HA, Lightfoot D.
Curr Issues Mol Biol. 2009;11 Suppl 1:i65-71.

12. The 19S proteasome subcomplex establishes a specific protein interaction network at the promoter for stimulated transcriptional initiation in vivo.
Shivani Malik, Abhijit Shukla, Payel Sen, and Sukesh R. Bhaumik (2009) Journal of Biological Chemistry 284, 35714-24.
(Second two are joint second authors)

13. Rad26p, a transcription-coupled repair factor, is recruited to the site of DNA lesion in an elongating RNA polymerase II-dependent manner in vivo.
Shivani Malik, Priyasri Chaurasia, Shweta Lahudkar, Geetha Durairaj, Abhijit Shukla, and Sukesh R. Bhaumik (2010) Nucleic Acids Research, 38, 1461-77.
(First four are joint first authors)

14. Mixed lineage leukemia: histone H3 lysine 4 methyltransferases from yeast to human.
Shivani Malik, and Sukesh R. Bhaumik (2010) FEBS Journal, 277, 1805-21.

15. Regulation of chromatin assembly/disassembly by Rtt109p, a histone H3 Lys56-specific acetyltransferase, in vivo. Geetha Durairaj, Priyasri Chaurasia, Shweta Lahudkar, Shivani Malik, Abhijit Shukla, and Sukesh R. Bhaumik (2010) Journal of Biological Chemistry, 285, 30472-9.
(First four are joint first authors)

16. The mRNA cap-binding complex stimulates the formation of pre-initiation complex at the promoter via its interaction with Mot1p in vivo.
Shweta Lahudkar, Abhijit Shukla, Pratibha Bajwa, Geetha Durairaj, Nadia Stanojevic, and Sukesh R. Bhaumik (2010) Nucleic Acids Research, October (in press).
(First four are joint first authors)

Congratulations!

Research Award

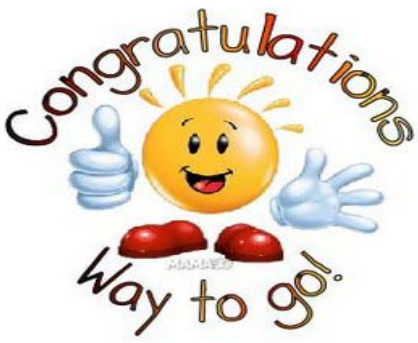
Man-Tzu Wang (MMICB) received a three year predoctoral fellowship from the Department of Defense Prostate Cancer Research Program.

Soumyadipta Kundu (BMB) received a Doctoral Fellowship for the academic year 2010-11.

Shivani Malik (BMB) received a Dissertation Research Award Fall 2010 and Spring 2011.

Samaya Krishnan (BMB) received a Doctoral Fellowship for the academic year 2009-10.

Jacob Chambers (MICRO) received a Dissertation Research Award for Fall 2010.



You made it!

MS and PhD degrees in Summer/Fall 2009 and Spring/Summer 2010

Biochemistry and Molecular Biology

Jamie Feldman

- Dr. Davie; advisor; "Analysis of Myogenin Function in Rhabdomyosarcoma Cells" – **MS**

Shuang Zhang

- Dr. Davie; advisor; " Tandem Affinity Purification of Myogenin and Characterization of the Tcap Promoter" - **MS**

Abhijit Shukla

- Dr. Bhaumik; advisor; "Histone Covalent Modifications and Gene Regulation" - **PhD**

Microbiology

Stacey Taft

- Dr. Achenbach; advisor; "Identification and Analysis of Genes Involved in Anaerobic Nitrate-Dependent Iron Oxidation"- **PhD**

Michelle Galeas

- Dr. Cho; advisor; "Thermoregulation of capsule production in *Streptococcus pyogenes* strain HSC5" – **MS**

Jamila Hangadoumbo

- Dr. Martinko; advisor; "Epitope stability in single chain trimers of a major histocompatibility complex class I molecule" - **MS**

Rikhi Gon

- Dr. Achenbach; advisor, "Identification of Genes Induced under Anaerobic Benzene-Oxidizing conditions in Dechloromonas aromatic strain RCB" - **PhD**

Medical Microbiology, Immunology and Cell Biology

Kelly Hall

- Dr. Ran; advisor; "Angiopoietin-2 Overexpression Promotes Hematogenous Metastasis in Breast Cancer" – **MS**

Audreen Louis

-Dr. Pauza; advisor; "Effects of Growth Hormone and Thryoxine Replacement Therapy on Insulin Signaling in Ames Dwarf Mice" – **MS**

Sandeep Rajput

- Dr. Cao; advisor; "Murine Aldo-Keto Reductases: Identification of AKR1B8 as an Orthologue of Human AKR1B10"- **MS**

Michael Flister

- Dr. Ran; advisor; "Regulation of VEGFR-3 expression and lymphangiogenesis in normal and inflamed tissues"- **PhD**

Ashim Gupta

- Dr. Mo; advisor; "Upregulation of miR-155 is associated with cisplatin resistance in head and neck cancer UMSCC-10B/15S cells"- **MS**

Mingyu Liu

- Dr. Halford; advisor; "Gene regulation and function of ICPO in herpes simplex virus infected cells" – **PhD**

Mohit Sachdeva

- Dr. Mo; advisor; "Mir-145 is a tumor suppressor in both tumor progression and metastasis"– **PhD**

Ashley Satorius

- Dr. Gershburg; advisor; "Studies with BKRF4 deficient mutants of Epstein-Barr Virus"– **MS**

Public Health Program

Dana Armour
- Dr. Carpenter; advisor - **MS**

Teresa Anguiano
– Dr. Carpenter; advisor – **MS**

Julian Fiorini
- Dr. Carpenter; advisor – **MS**

Joshua Geltz
- Dr. Carpenter; advisor **- MS**

Natalie Mills
- Dr. Carpenter; advisor – **MS**

I like this class!

Joshua Geltz began as a MS student in the Public Health program at the Carbondale campus. He is now pursuing his PhD at SIU in Springfield in Dr. William Halford's lab. Here are his thoughts on the MBMB 441 Virology class: "What a refreshing change and addition to the Microbiology Department courses offered at Southern Illinois University. In addition to providing medically relevant viral information during the time of the H1N1 pandemic, the Molecular Virology course provided a fundamental framework with which to build an even stronger scientific knowledge base. When taken along with Immunology, Medical Microbiology, and Bacterial & Viral Genetics as part of an educational portfolio, Molecular Virology completes the picture(s) of infection, immune response/evasion, and evolution of not just the virus but of the host as well. The instructors were immeasurably valuable during the duration of the course as they were extremely knowledgeable, approachable, and encouraged participation to ensure that students didn't just memorize the information but truly understood key concepts to the best of their abilities. However, that being said, this course was very challenging and rewarded those that put forth the effort. It is partly because of this course that I am pursuing my PhD studies in Springfield focusing in the virology discipline. I strongly recommend this course and personally feel better prepared to continue this next educational step as a result of having taken Molecular Virology."

We wanted to hear his talk!

(Student-invited seminar speaker) **May 20, 2010**

Dr. William Fleming, MD, PhD - Professor at Oregon Health & Sciences University
Title: "Hemangioblasts, the Microenvironment & Leukemia"
Student-speaker interactive session followed at 12:00 p.m. in Room 3690, SCLF Addition

Calendar for Fall 2010

-Last day to drop a semester length course	Sunday, October 17
-First day of Spring 2011 Registration	Tuesday, October 19
-Veterans Day Holiday	Thursday, November 11
-Deadline to turn in Research Papers, Theses, & Dissertations	Friday, November 12
-Thanksgiving Vacation	Saturday, November 20 - Sunday, November 28
-Final Examinations	Monday, December 13 – Friday, December 17
-Semester Ends	Friday, December 17
-Commencement at SIU Arena at 1:30 p.m.	Saturday, December 18

Renewed Website!

Coming soon!
We are currently revising the MBMB graduate web site. If you have a cool photo, please send it to tcasson@siumed.edu.

facebook

Join us! We opened an MBMB program Facebook page. We want to see your "unofficial" face, hear your opinions, swap information, and network everyone. We also hope this will connect Carbondale and Springfield. Let's have some fun! Go to Facebook and search mbmb siu.

FAQ

Where do I get a **Graduation Application**?

- Available on the web at http://www.gradschool.siuc.edu/forms.htm

Where do I get an **Approval Form for Thesis/Dissertation**?

- Available on the web at http://www.gradschool.siuc.edu/forms.htm

Where do I obtain a copy of the **Guidelines for Electronic Dissertations and Theses**?

- Available on the web at http://www.gradschool.siuc.edu/dtrguide.htm

Where do I obtain a copy of the **Guidelines for Research Papers**?

- Available on the web at http://www.gradschool.siuc.edu/dtrguide.htm

Where do I find the Graduate Catalog for MBMB?
http://www.gradschool.siuc.edu/catalog_09-10/MOL_BIOL_MICRO_BIOCHEM.pdf

We would like to hear your news. Write to our office: tcasson@siumed.edu