Dr. Hani Zaher joined the Biology Department this fall as an Assistant Professor. As a young teenager, he wanted to be a doctor but eventually grew to love the process of scientific research and the idea of becoming a professor. Zaher grew up in Lebanon until the age of 15, when he went away to an international high school in Canada. He received a scholarship to Simon Fraser University where he attended as a Biochemistry major. Simon Fraser University offered a cooperative education program, which encouraged students to take time off and work in various industries that are relevant to their studies. Dr. Zaher took advantage of the program where he worked in different settings that included pharmaceutical, biotech and food companies to get a feel for fields he might be interested in. For instance during his senior year, Dr. Zaher was involved in developing new techniques to isolate proteins from egg white in the research and development department.

Dr. Zaher enjoyed the process of scientific research so much that he decided to join Simon Fraser’s molecular biology and biochemistry department as a grad student and finished his PhD. There, Dr. Zaher studied the catalytic potential of RNA in an effort to provide further support for the “RNA world” hypothesis. Zaher then went on to complete his postdoc studies at Johns Hopkins School of Medicine in Baltimore, where he investigated the mechanisms of protein synthesis. He came to Wash U this fall with his first appointment as assistant professor. He will be teaching an undergraduate biochemistry course next year and he will also be a mentor for Bio 200/500. In his free time, Dr. Zaher enjoys many hobbies including gardening, fishing, woodworking and biking.

The Zaher Lab studies protein synthesis; in particular, the lab is interested in understanding the molecular mechanism of decoding on the ribosome. In other words, how the ribosome is able to translate the...
JEZ LAB NEWS

Joe Jez received a Fulbright Senior Specialist Award.

Jonathan Herrmann (undergraduate) received a travel award from the ACS Younger Chemists Committee, St. Louis Section, to attend the 2012 ACS Midwest Regional Meeting in Omaha. At the meeting, he also won a Best Undergraduate Poster Award.

And publications from the lab...


Parrott W, Jez JM, Hannah LC (2012) To be or not to be transgenic. Nature Biotech 30, 825-6


Ravillious GE, Jez JM, Jez JM (2012) Structural basis for pre-receptor modulation of plant hormones by GH3 family proteins. Science 336, 1708-11

Bo Zhang, a recent WashU Biomedical Engineering graduate, is a junior lab technician. He is studying the effect of damaged RNA on decoding by the ribosome. He introduces damaged nucleotides at specific sites in RNA sequences to see how the ribosome recognizes the damages and whether or not other translation factors are involved in recognizing the damage.

Zaher Lab also currently has two undergrad students, Ali Rangwala and Vikram Gurusamy, on staff working on their own project as well as assisting the lab techs. They are learning basic biochemical techniques for understanding protein functions such as cloning, purifying and assaying proteins. Their long-term project looks at how modifications affect translation factors. One of the conserved translation factors is universally methylated and they are interested in understanding the importance of the methyl group for the function of the factors.

Zaher Lab, currently on the 4th floor of Monsanto, will move to a new lab space in spring 2013. The lab staff is also working on a new website so stay tuned!

--- Cont’d on next page

ZAHER LAB cont’d —genetic code encoded in the mRNA into functional peptides with high fidelity and speed.

Lab Staff

Elizabeth Ingenthron is a senior technician in the Zaher Lab. She came to Danforth Campus this fall after working for 15 years at the Genome Center. In the Zaher lab, she is responsible for preparing reagents and protein purifications. She is also interested in looking at the effect of RNA damage in yeast. She uses different treatments that could potentially damage RNA to see how they affect the growth of different strains of yeast. RNA damage is implicated in neurodegenerative diseases such as Alzheimer’s. Understanding this potential link between RNA damage and disease could lead to better treatment options in the future. Currently, Elizabeth is spending a lot of time setting up the Zaher Lab.

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Monsanto grants $2.2 million to help expand MySci at WUSTL

Institute for School Partnership’s cornerstone program to have permanent home on campus—by Leslie Gibson McCarthy

Washington University in St. Louis’ Institute for School Partnership (ISP) has received a $2.2 million grant from the Monsanto Fund to take the institute’s cornerstone program, MySci, to the next level.

In its eighth year serving the St. Louis community, MySci’s mission is to cultivate the region’s next generation of scientists by engaging elementary students in science, technology, engineering and math (STEM) through interactive learning experiences and creative curriculum.

This newest grant will help transform the existing MySci program into a multifaceted approach that will both deepen the science content available within the MySci curriculum and broaden the reach of the MySci brand within the education and public community.

Highlighting the newest facet of the program will be MySci headquarters at WUSTL’s North Campus, a warehouse at 6601 Vernon Ave., scheduled to open this fall.

There, MySci teaching materials will be stored and refurbished. The space also will hold classrooms for MySci workshops and house a storefront that will provide easy and affordable access to science materials and loaner equipment.

“The Monsanto grant will help ISP, through our curriculum and other materials, broaden its reach throughout Missouri and across the nation,” Victoria May says. —Read More in the Record: http://news.wustl.edu/news/Pages/24188.aspx

And publications from the lab...


Parrott W, Jez JM, Hannah LC (2012) To be or not to be transgenic. Nature Biotech 30, 825-6


E. coli


Dr. Anton Weisstein, visiting professor from Truman State University, has been working with the BioQUEST Curriculum Consortium (BQCC) for 13 years. BQCC is a community of scientists, educators, and learners of all ages who are interested in supporting biology education that reflects realistic scientific practices. Dr. Weisstein has been involved with and given presentations at other educational institutions about educational reform and employing a more exploratory, investigative style of teaching, but this is his first time doing a whole semester on sabbatical at a university. His semester at Wash U is part of a long-term collaboration. In the future, he will serve as a consultant and possibly work on a publication about these projects. Dr. Erik Herzog brought Weisstein to the Biology Department and serves as a supervisor over the projects Weisstein is working on this semester.

Dr. Weisstein is working in collaboration with Ed Spitznagel from the statistics department on developing an optional seminar series. Seminar topics include statistical distributions, practical applications, and answering questions about the evolution of sex and mating systems. To learn more about Tracy’s research and other research at the Strassman/Queller Lab, go to: http://strassmannedquellerlab.wordpress.com/home/research/.

In the lab, Tracy’s research involves lots of counting, measuring, microscopes, hands on and visual work. Though difficult to find in nature, in the lab, macrocysts can be readily made by Dictyostelium cells of different mating types on nutrient plates in appropriate lab buffers. Using these methods, she can look at mating compatibility and macrocyst formation. She also uses fluorescently labeled cells to look at contributions to the macrocyst by each clone during various stages of macrocyst formation.

Tracy is also interested in producing a library of recombinants by hatching the macrocysts formed through her research and identifying progeny that are the product of meiosis. Dictyostelium discoideum is a commonly studied organism but this genetic resource doesn’t exist yet. Her research works toward developing that body of knowledge and answering questions about the evolution of sex and mating systems. To learn more about Tracy’s research and other research at the Strassman/Queller Lab, go to: http://strassmannedquellerlab.wordpress.com/home/research/.

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preserved tissue specimens and blood for future analysis. When the linkage between Kaposi’s Sarcoma and AIDS was discovered well over a decade later, these specimens were shown to contain a rare early strain of HIV. Of current significance has been the recent upsurge in coinfections of HIV and Lymphogranuloma venereum worldwide, providing further credence to the value of this case in tracing the early origins of these disease complexes in North America.

In the 1970s, in collaboration with her husband, ethnobotanist Walter Lewis, Dr. Elvin-Lewis turned her attention to how plants are used in folk medicine and how this traditional knowledge might be applied to the development of modern pharmaceuticals. Their book, Medical Botany, was the first of its kind to understand the importance of this subject and became a popular text and reference tool. The couple became world renowned for collecting data from indigenous peoples across the globe before precious plant habitats and centuries worth of observation were lost. What they learned would have applications for oral infections and diseases including, viral hepatitis, tuberculosis and malaria. The couple regarded the indigenous communities as vital partners and developed ways to ensure the equitable sharing of commercial benefits. These practices have been the subject of a number of Dr. Elvin-Lewis’ recent publications.

Dr. Elvin-Lewis was the first female president of the microbiology sections of both the American Association of Dental Schools and the International Association of Dental Research and has contributed to a number of Dental Microbiology textbooks.

She has earned many prestigious awards and distinctions worldwide. Among these is the Silver Medal, “Primio Martín De La Cruz” from the Mexican Academy of Traditional Medicine, the Dr. E. K. Janaki Annual Medal, Society of Ethnobotanists, India, and the Distinguished Economic Botanist, from the Society of Economic Botany. Honorary degrees have been conferred on her by both Andrews University and UBC. — http://www.alumni.ubc.ca/2012/awards/memory-elvin-lewis/
Barbara Schaal Becomes Dean of the Faculty of Arts & Sciences; Wins AIBS Distinguished Scientist Award; and Named U.S. Science Envoy

New Dean of Faculty of Arts & Sciences

President Barack Obama appointed Schaal to the President’s Council of Advisors on Science and Technology in April 2009. She has been president of the Botanical Society of America and of the Society for the Study of Evolution. In addition to her research and national service, Schaal also has served as the president of the WUSTL community, serving as chair of the biology department from 1993-97. Since summer 2011, she has directed Tyson Research Center, overseeing operations of the 2,000-acre environmental research station some 20 miles southwest of the Danforth Campus. She has served on numerous WUSTL committees, including the Academic Planning Committee in Arts & Sciences, the Curriculum Implementation Committee and the University Affirmative Action Committee. —Read More in The Record: https://news.wustl.edu/news/Pages/24316.aspx

AIBS Distinguished Scientist Award

The American Institute of Biological Sciences (AIBS) honored Barbara Schaal, PhD, the Mary-Dell Chilton Distinguished Professor in the Department of Biology in Arts & Sciences at Washington University in St. Louis, with the 2011-12 AIBS Distinguished Scientist Award June 1.

Schaal is widely recognized for her pioneering research. She was among the first to use molecular biology-based approaches to understand evolutionary processes in plants, and she has worked to advance our understanding of plant molecular systematics and population genetics. Research in her laboratory also has addressed issues in conservation biology, including the loss of genetic variation in isolated plant populations and the origins of the important tropical food crop, cassava. After learning that she had been selected to receive the distinguished scientist award, Schaal said, “it is a great honor and particularly meaningful coming from AIBS, which has done such a superb job of representing the diversity of biological sciences.”

In 2005, Schaal became the first woman to be elected vice president of the United States National Academy of Sciences, a post she still holds. Since April 2009, Schaal has served on the President’s Council of Advisors on Science and Technology.

In addition to her research and current national service, Schaal also has served as the president of the Society for the Study of Evolution and the Botanical Society of America. Schaal earned a bachelor’s degree from the University of Illinois at Chicago and a doctorate from Yale University.

Prior to joining the WUSTL faculty, she was on the faculty at the University of Houston and The Ohio State University. Schaal’s was one of three awards the AIBS made at the June 1 conference.—Read More in The Record: https://news.wustl.edu/news/Pages/23969.aspx

Schaal Named U.S. Science Envoy

On Nov. 8, Secretary of State Hillary Rodham Clinton announced the appointment of three new science envoys, including Barbara A. Schaal, PhD, the Mary-Dell Chilton Distinguished Professor of Biology in Arts & Sciences at Washington University in St. Louis. Schaal becomes WUSTL’s next dean of the Faculty of Arts & Sciences in January.

The other two envoys are: Bernard Amadei, PhD, who holds the Mortenson Endowed Chair in Global Engineering and is professor of civil engineering at the University of Colorado at Boulder; and Susan Hockfield, PhD, who served recently as president of the Massachusetts Institute of Technology where she remains on the neuroscience faculty.

“These preeminent scientists,” the State Department release said, “will seek to deepen existing ties, foster new relationships with foreign counterparts and discuss potential areas of collaboration that will help address global challenges and realize shared goals.

“The science envoys travel in their capacity as private citizens — such as biodiversity loss, food and water shortages and global warming — are global rather than national in scope.

Schaal hopes to help knit together the international fabric of science — beginning friendships and forging collaborations with each visit. —Read More in The Record: https://news.wustl.edu/news/Pages/24580.aspx

AntonWeisstein cont’d —should add to the experience, not subtract from it. He works hard to develop strategies for helping students take ownership of the material. The idea is to improve their fluency in translating between everyday language and the precise language of math. Ultimately, it is up to individual faculty/departments at educational institutions on how they want to respond to the national call for the improvement of math skills. Dr. Weisstein is available to present the problems and offer tools and strategies needed to help resolve those problems.

He pledged that the United States would “appoint new science envoys to collaborate on programs that develop new sources of energy, create green jobs, digitize records, clean water and grow new crops.”

Although the original intent was to bolster science and technology collaboration with Muslim communities, the program has since expanded beyond the Muslim world, Schaal says.

“This program builds on what has been occurring less formally among individuals around the globe,” Schaal says. “Scientists have always belonged to a kind of international fellowship, based on collaborations grounded in common interests and values that cut across national lines.”

This international freemasonry, she says, is particularly valuable today when so many of the problems science is being asked to tackle — such as biodiversity loss, food and water shortages and global warming — are global rather than national in scope.

Schaal hopes to help knit together the international fabric of science — beginning friendships and forging collaborations with each visit. —Read More in The Record: https://news.wustl.edu/news/Pages/24580.aspx

SAVE THE DATE
Don’t miss the annual Viktor Ham- burger Lecture — Mon. April 1, 2013, 4pm, Dr. Joe Fetcho, Professor & Assoc. Chair, Dept of Neurobiology and Biology, Cornell University
Welcome to “safety spotlight”.

Unfortunately, we must report that we have had one fire (A) and one injury (B) since our previous issue in the spring of 2012.

(A) The laboratory fire was caused by a Bunsen burner that had unknowingly been pushed underneath a fluorescent bench lamp fixture. Even though the burner only spent a second or two in this unintended position, it was enough time to ignite the opaque plastic cover of the light, resulting in immediate and extremely rapid combustion. Thankfully, an alert lab member used a nearby fire extinguisher to end the threat.

Please remember that such an extinguisher is useful to you only if you:
- know its location
- have easy access to it
- know how to operate it

In case you find that you need an additional fire extinguisher for your area, please contact me rohde@wustl.edu.

Environmental health and safety (E.H. & S.) rostt@wustl.edu or Emergency Management bagbym@wustl.edu can assist you with fire extinguisher operation training, if needed.

(B) The injury was caused by a splash of bleach (sodium hypochlorite) that made contact with the unprotected eye of someone who was in the process of preparing an aqueous solution. Although these solutions are made routinely in our labs, this incident illustrates that you need to wear goggles or at least safety glasses if you are going to have your face anywhere in close proximity of these liquids’ mixing point, where splashing may occur. Thankfully, the injury could initially be treated in the lab with its eye wash fountain; later, an emergency visit at Barnescare Health Service revealed no permanent damage to the victim’s cornea.

Both (A) and (B) underline the importance of checking regularly both the pressure gauge of each of your lab’s fire extinguishers and the functionality of your lab’s eye wash station(s), as outlined in section 2 of the institutional “blue book”.

Continue to be safe – and remember: “Falling objects can be brutal if you don’t protect your noodle”.

Do you have any exciting news to share? Please submit announcements, lab notes and photos to Erin Gerrity:
gerrity@biology2.wustl.edu