Biology Newsletter: December 2012

The College at Brockport
Another semester has been completed. Hopefully you’ve all done well and are looking forward to a good and enjoyable holiday break. I know I’m looking forward to snowboarding at Killington Resort in Vermont over Christmas. This is my first chance to introduce our two new faculty members, Dr. Bernardo Ortega and Dr. Kanchana Mendes. If you took A&P I this past semester, you know that both new faculty were involved in teaching the lecture and labs of this course. Both will be involved in anatomy and physiology for their future teaching assignments. In fact, Dr. Ortega will be teaching the 400-level Human Physiology course this Spring semester. We are very lucky to have both faculty join the department to expand and enhance its course offerings and research opportunities. You’ll be able to read about them more below. In addition, you’ll read about the various Summer and Fall faculty and student activities. These include undergraduate summer research sponsored by Brockport Alumni, the medical technology summer research sponsored by ACM Labs, the various national and regional meetings that our faculty, MS and BS students presented at. If you are interested in participating in any of these research opportunities, speak with a faculty member this Spring semester to sponsor you and look for application announcements. Take care and enjoy the break, it will be over too quickly.

Rey Sia, Ph.D., Chair

On November 8th, 2012 the Biology Honors Club and the Pre-Professional Club co-hosted a pre-health panel discussion. The panel consisted of a dentist, veterinarian and a physician. Dr. Pelletier was the mediator throughout the discussion. Each panel member was asked the same question and asked to answer honestly and in such a way that pertained to their specific profession. At the end of the discussion the floor was opened to the audience, which allowed them to ask any questions that might not have been examined. The event was a huge success with approximately 100 people in attendance. We hope to make this an annual event and bring in different health professionals every year.
Two New Faculty Join the Biology Department

Dr. Bernardo Ortega

Dr. Bernardo Ortega joined The College at Brockport, SUNY from the Department of Physiology at the University of Maryland School of Medicine, where he was a postdoctoral researcher, while simultaneously teaching biology, as an adjunct faculty, at the Community College of Baltimore County. After earning his undergraduate degree in Biology in Spain and Italy, he obtained his PhD in physiology from the University of Sheffield, UK, conducting research on the physiology of the kidney, an interest that he has maintained throughout his career. During the fall semester, Dr. Ortega has been busy teaching Anatomy and Physiology (BIO 321) to over 300 hundred students, the largest course at SUNY Brockport. One of his main goals for the next semester, in addition to developing a new Human Physiology course, is to launch his research lab at Brockport. Dr. Ortega is planning in developing a pharmacological mouse model in order to the study

Dr. Kanchana Mendes

Dr. Kanchana Mendes is very excited to be a part of the Biology department and the Brockport community at large. She earned her Ph.D. in Microbiology & Molecular Genetics from Oklahoma State University in Stillwater, OK in 1999. Her doctoral thesis was based on the effect of G-protein signal transduction pathways in the developmental life cycle of the slime mold Dictyostelium discoideum. She then continued with 2 postdoctoral fellowships, both based on signaling pathways. At the University of Oklahoma Health Sciences center, she worked on Interleukin 8 production involving MAP kinase- signal transduction pathways in adenoviral-mediated ocular keratoconjunctivitis. This was followed by a second postdoc at the University of Rochester Medical Center on G-protein and receptor tyrosine kinase mediated signaling associated with atherosclerosis. She then moved to The University of Texas M. D. Anderson Cancer Center in Houston as an Instructor and continued her signaling research in glioblastoma (GBM)-based proteomics. While at M.D. Anderson, she got her teacher’s certification to teach High School Biology that exposed her to pedagogy and various teaching and learning techniques. This further enhanced her passion for teaching, and when she moved back to the Rochester area, she taught as an Adjunct faculty member at the Finger Lakes Community College in Canandaigua for 3 years before joining the Brockport community in the Fall of this year. Through her years of research, Dr. Mendes has dabbled in, and has developed a growing interest in various kinds of bioinformatics software and hopes that she will get a chance to use them as a teaching tool in undergraduate research in addition to her teaching commitment.
Dr. Adam Rich returned this fall following a year-long sabbatical leave. His lab studies gastrointestinal motility using a zebrafish model system. Alexander Viavattine is a new student in the lab partnering with Kelly Marchionda examining expression and function of Piezo, a newly discovered mechano-sensitive ion channel. This channel senses plasma membrane tension and it is easy to imagine that it plays a regulatory role responding to stretch of the GI tract, and also in cell division. Tori Cenzi has a project of her own comparing GI tissues from fasted and fed python snakes. The 400% increase in wall thickness of the python GI tract is observed within 2 days after feeding (pythons are fed once every 3 months!). This rapid cellular proliferation may include rapid emergence of regulatory elements like ICC, and Tori’s experiments will let us know if this is possible. The rest of them (Cyrus Salehi, Steve Lane, and Dr Rich) are working on anoctamin 1, a newly discovered calcium activated chloride channel that is important in ICC pacemaker function in mice and humans. Nothing is known about the regulation of this gene and, if it is expressed in the zebrafish, we will pursue connections between this gene and gastrointestinal motility patterns in the zebrafish. Dr. Rich recently published a paper in the journal Zebrafish titled Kit signaling is required for development of coordinated motility patterns in the zebrafish gastrointestinal tract authored by Adam Rich, Scott Gordon, Chris Brown, Simon J. Gibbons, Katherine Schaefer, Grant Hennig, and Gianrico Farrugia. This work verifies the presence and function of interstitial cells of Cajal, the pacemaker cell, in the zebrafish GI tract and it validates the zebrafish as a model for human GI motility because it shows that the regulatory mechanisms involved in zebrafish GI motility are similar to what has been documented in mammals.

Dr. Laurie Cook spent a productive summer in the lab with Andrew Goodspeed, Bryan Pratt, Colin King, Stacy Wicks, Nico Covello and Derek Bernacki, and all of them have continued on with their research projects this fall semester. Congratulations to Stacy Wicks for receiving the Bower Summer Research Fellowship and to Nico Covello and Colin King for being awarded the Brockport Foundation Summer Research Fellowship. Collectively, the lab is working to determine how cells regulate signaling of MCH, a hormone that stimulates appetite. They presented four posters and two oral presentations at this year’s Rochester Academy of Sciences meeting at St. John Fisher. Dr. Cook is traveling to San Francisco, CA with Andrew and Bryan to present two posters after finals. Congratulations to both of them for receiving ASCB Travel Awards to present. This is quite an honor! Dr. Cook submitted two grant applications since May; a NIH R15 AREA grant application in June and a NIH Bridges grant application in October of this year. She is also currently revising a manuscript written with students that was submitted to the journal Peptides.

Dr. Rey Sia attended the 2012 Yeast Genetics and Molecular Biology Conference this past August where he presented the work of former graduate and undergraduate students from his lab, Christine Hochmuth ('08), Luke Krembs ('12), and Jacqueline Walker ('12). Recently, Faculty of 1000 or F1000 recommended a paper published with collaborators from the University of Rochester and former graduate and undergraduate students Gary Coles ('09) and Laura Schiraldi ('07) from Dr. Sia’s lab. (F1000 identifies and recommends the most important articles in biology and medical research publications.) In addition, a 3-year $700,000 collaborative National Science Foundation Grant with the same University of Rochester collaborators was funded. In conclusion, Dr. Sia would like to acknowledge the hard work of eight undergraduate research students currently working in his lab.

Dr. Michel Pelletier received great news about a month ago. He has been awarded US permanent residency. Congratulations to him! This Fall, his lab has been buzzing with many undergraduates (Jaclyn Beckinghausen,
Darian Edlen, Alysha Hedding, Mackenzie Meyer, Lacey Staniszewski and graduate students (Nicole Muehleisen, Christine Sharlow, Elizabeth Snyder) working on several research projects aiming at characterizing and understanding phospholipid biosynthesis and virulence in Trypanosoma brucei. In addition, Janna Draper has been working hard on her College Honors work characterizing the bacterial flora associated with hoof infections in horses. Dr. Pelletier just submitted an article entitled “TbLpn, a novel lipin homologue from the parasitic protozoan Trypanosoma brucei, is methylated in vivo.” to BMC Microbiology and he is also working on an NIH AREA grant due for submission in February. That should keep him busy during the winter break. Besides all that, I am getting ready to teach two upper-level courses during the Spring semester: General Microbiology (BIO423/BIO643) and Immunology (BIO414/BIO514). Many returning and new undergraduate students will also be performing research in my lab. They are: Jaclyn Beckinghausen, William Bigham, Janna Draper, Kelly Hasman, Alysha Hedding, Mackenzie Meyer, Christopher Peeck, Alesya Popalvskiy, Rachel Sealy, Lacey Staniszewski, and Matthew Stewart.

Ted Ryan spent a very successful summer in the Tsubota lab as a recipient of a Brockport Foundation Summer Research Fellowship. He presented the results of his work as a poster at the Parents’ Weekend, Nov. 9, and at the Rochester Academy of Science Annual Fall Scientific Paper Session. Dr. Tsubota gave an oral presentation at this conference and also chaired the Session on Life Sciences: Genetics, Cell & Molecular, and Biophysics. Ted is continuing his research and will be presenting at the National Undergraduate Research Conference this spring. Dr. Tsubota also danced with BIODANCE this September in the Rochester Fringe Festival. This summer Stuart and his dog Oreo, a black and white Shih Tzu, won a beard growing contest as part of the Brockport Art Festival. In keeping with the Olympic theme, they entered in the pairs competition of synchronized beard growing.

Look out for upcoming events sponsored by the Biology Honors Club. Next Spring we are planning on visiting the Rochester Museum of Science. We will also be selling Science Humor T-shirts and we will be conducting a Book Drive. We’ll be taking a dollar for Book Donations. If you are interested in joining the Biology Honors Program, Please contact Dr. Laurie Cook at lcook@brockport.edu for more details.

The following students participated in a 4-Wk Paid Medical Technologist Internship this past Summer: Kristina Brown, Kristina DeWaters, Robert Gregory, Brittany Heatherington, Sounpheth Thammavong, Julia Fesyuk, Lacey Stanszewski, Matthew Stewart, Rebecca Tobin, and Leedia Viavattene. Congratulations!

In the Spring semester of your Junior Year, you are eligible to apply for this new opportunity. If you are considering graduate work, we offer well-qualified students with a 3.25 GPA or higher the chance to get an accelerated Masters degree in one year rather than the usual two years. If you are interested, please contact Dr. Laurie Cook, 3+2 Program Coordinator.
Help Support the Next Generation of Biology Students

Dear Alumni,

We are asking you to contribute to our Department and to help us provide research experiences for students. A research experience contributes to undergraduate and graduate education by providing hands-on experience with state of the art equipment, and an opportunity to work with faculty mentors directly. These skills are fundamental to success, and the research experience provides a competitive edge. Biology faculty are active, working with students, and presenting results at scientific meetings with students. Not surprisingly research is expensive and Biology faculty work hard to raise money for research. The College at Brockport is doing a great job in spite of funding cuts, and has found the funding to support equipment repair, equipment purchases, and support for summer research internships.

We ask that you consider donating to The College at Brockport, and specifically to the Biology Department. Your support will help us to help students. The faculty in the Department of Biology, and the College at Brockport, are committed to student excellence and student success. Donations of any amount will help us to provide significant and meaningful research experiences for student. Please consider helping to support our students' research opportunities. For more information please contact Dr. Rey Sia (rsia@brockport.edu) or by making an online monetary gift by visiting the College's Giving Website below, making sure that your gift is designated for use by The Biology Department in the appropriate box.

https://www.brockport.edu/giving/online/gift.php

-The Biology Faculty
Jessica Ouderkirk ('10) passed her qualifying exam and has advanced to PhD candidacy at Upstate medical Center.

Scott Gordon ('08) passed his thesis exam (PhD) at University of Cincinnati and will move to Bethesda, Maryland to begin a post-doctoral fellowship.

Jenna Wiemer ('12) is now a Medical Technologist at Rochester General Hospital

Chris Brown ('08) completed medical school and is in his first year of residency in Connecticut.

Karen Howard ('08) is in her 2nd year MD/PhD program at SUNY Upstate and just completed her 2nd rotation in the orthopedic surgery research department.

Matt Halloran ('12) is teaching 8th grade Physical Science at Victor Junior High.

Joy (Hagan) Wang ('08) is a 4th year dental student at UB and was accepted into a prosthodontic residency program at UT Houston. She recently married her longtime sweetheart!

Tiffany (Telarico) Caza ('06) is in her 7th year in the MD/PhD program at SUNY Upstate and recently defended her thesis on lupus T cell biology. She’s also enjoying motherhood, and has a new beautiful baby boy, Dillinger Caza.

Mac Cerasaro ('11) is in his 2nd year of Osteopathic medical school at Western University of Health Sciences in Southern California.

Lisa Dishaw ('12) will be working as a laboratory technician at SUNY Upstate Medical Center in the Microbiology & Immunology Department.

Thinking about Graduate School? Stop by and see Dr. Adam Rich or Dr. Huey Hing for more information!

Why Choose a M.S. in Biology?

A Master’s degree will help you to compete for jobs, and for admission to PhD programs or for clinical programs like Veterinary medicine, Physicians Assistant, or Pharmacy school. You will complete additional coursework, but most importantly you will learn how to design and execute experiments that will address a novel problem, and you will learn to communicate the outcome of that work. We know that the MS degree helps graduates to compete because they are succeeding. For example, Brittany Heatherington (August, 2012) is interviewing for Clinical jobs that will help her to gain the necessary experience to enter Physicians Assistant Programs. Amanda Diamond (October, 2012) is already working in a hospital and she also plans to apply to PA programs. Jennifer Strouse (May 2011) is in her second year at Michigan State in Veterinary Medicine. Jay Moden (January 2012) is working at Johnson and Johnson, and Lauren Field is in her first year of a PhD program at the University of Maryland. Dominic Munini (July, 2012) is returning to Kenya to teach Biology. There are 4 ways to get a MS degree in Biology at Brockport. The first is something we encourage all current Biology majors to consider, the 3+2 program. This is an accelerated program requiring a strong effort and high motivation resulting in a MS degree for 1 additional year of study. Because the program is accelerated a 3.25 GPA is required for admission. I won’t describe the Plan 1, Plan 2, or the PSM programs here but please look at our website, and talk to the faculty. We hope that some of you will apply!

Brockport Biology Program is on Facebook! Add us to keep up with old friends and faculty as well as past and future happenings!

Congratulations to Jaclyn Beckinghausen for being our 100th member added to our Facebook Group!
Poster Presentations

- Tori Cenzi (presenter): Remodeling of the Python Gastrointestinal Tract After Feeding
- Derek Bernacki (presenter): MCH Receptor Localization: Connecting the Dots
- Nico N. Covello (presenter): MCHR1 Localization to Primary Cilia in SH-SY5Y Cells
- Colin King (presenter): Disruption of Caveolae Lipid Rafts and the Effects on Melanin-concentrating Hormone Receptor-1 Localization: A Pharmacological Study
- Cyrus Salehi, Tyler Stein-hilber, Julie McGrath, Adam Brooks, Edward Capurro, Kris DeWaters, Kelly Hasman, Nataliya Ponomarova, Alesya Poplavskiy, William Valentino (presenters in bold): Expression Pattern of Anoctamin1 in the Zebrafish
- Stacy Wicks (presenter): MCHR1–eYFP and Phodamine-MCH Co-Localize to Primary Cilia in 3T3-L1 Cells
- Julie McGrath & Rachel Folts: The Role of DNM1 in Mitochondrial Genome Stability in Budding Yeast
- Christopher Prevost (presenter), Laura Pankowski, Hugo Avalos, Matthew Luther, Emily Whiteside: The Role of Rad52p Isoforms in Nuclear and Mitochondrial Homologous Recombination Events
- Theodore Ryan (presenter): Construction of an E(r) Vector Lacking the Protein Coding Region for Use in Studying the Conservation, Expression and Function of the E(r) Gene
- Emily R. Wexler (presenter), Jay-Christian Helt, Jennifer Clark: Visualization of Novel Guidepost Cells in Drosophila Olfactory Map Development

Oral Presentations

- Bryan H. Pratt (presenter) and Nico N. Covello: Melanin-concentrating Hormone Receptor 1 in CHO-K1, SH-SY5Y and 3T3-L1 cells: a Pathway to Primary Cilia
- Stuart Tsubota (presenter) and Theodore Ryan: The Use of a Gene Construct that Lacks the Protein Coding Region in the Study of the Conservation, Regulation, and Function of the Enhancer of Rudimentary Gene in Drosophila Melanogaster
- Andrew Goodspeed (presenter), Jay Moden, Stacy Wicks: Desensitization of Melanin-concentrating Hormone-mediated ERK Signaling Despite Poor MCHR1 Internalization