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December graduates

Dr. Janice Pata has been promoted to Associate Professor. Congratulations!

Since she first joined the Wadsworth Center in 2004, Dr. Pata has worked consistently to improve her teaching skills and is now one of the Department of Biomedical Science’s most highly ranked and effective teachers. In addition, she has worked hard to build effective communication between graduate students and faculty, and thereby created a strong community around teaching and learning in her courses. She provided the impetus for a redesign of the Biomedical Sciences curriculum by assessing how well it met graduate students’ goals and has organized curriculum design retreats and workshops for the faculty to help the department better address the students’ needs. Dr. Pata, a Research Scientist in the Division of Genetics, is the Associate Chair of the Department of Biomedical Sciences at the University at Albany. The Wadsworth Center, the Department, the School of Public Health and now the entire SUNY system recognize that Dr. Pata’s contributions to teaching and service have been truly exceptional. Dr. Pata was recently promoted to Associate Professor in the BMS department.

Research highlights:

Grant awarded to Dr. Pata
Title: Mechanisms of Bacterial DNA Polymerase Replication and Fidelity

The research funded by this grant will investigate how the DNA polymerases of Staphylococcus aureus replicate the bacterial genome with high accuracy overall, but also create mutations that give rise to antibiotic resistance, using kinetic, structural and molecular genetic tech-

www.albany.edu/sph/bms
New MPH students!

Heather Solomon

Heather is enrolled in the MPH program with interest in infectious diseases. She completed her bachelor’s degree majoring in Animal Science at University of Rhode Island. She would like to apply the knowledge gained from the field of public health, focusing on zoonotic infectious diseases. With this experience, she plans to attend Veterinary school and apply both skill sets to contribute to decreasing the spread of diseases between both animals and people.

Jean Stella

Jean is from Guilderland, NY and is currently enrolled in the MPH program with an interest in infectious diseases. She received her bachelor’s degree in Biochemistry with a minor in Public Health from the College of Saint Rose. Jean was an intern in the vector ecology lab in Wadsworth center under the supervisor Melissa Prusinski, where she worked on was identifying the presence of various pathogens in tick samples from all over the capital region. She is excited to continue researching and improve the health of current and future generations.

Michelle Wemette

Michelle is an MPH student concentrating in Biomedical Sciences. She completed her bachelor’s degree in animal science with a minor in biology at Cornell University. She was as a student research assistant in a laboratory studying equine immunology at Cornell’s College of Veterinary Medicine, where she worked on the characterization of monoclonal antibodies to equine chemokine CCL11. After graduation, she continued working at the veterinary school as a diagnostic technician in the Animal Health Diagnostic Center. Working with a variety of serological tests for the detection of diseases, sparked her interest in the field of public health. She currently remains interested in the intersection between zoonoses control, epidemiology, and policy.

Nathaniel Flynn

Nathaniel is enrolled in the MPH program with a concentration in Biomedical Sciences. He attended Adirondack Community College and the University at Albany, receiving a Bachelor’s of Science in Biology. He has spent two summers at Regeneron Pharmaceuticals working as a Manufacturing Technology Services intern, participating in various data evaluation and management projects. He is am interested in the development and evaluation of cancer prevention programs and hopes his efforts will serve as an important contribution to a team of public health officials in reducing the incidence of cancer through equitable access to appropriate educational and preventative methods for all of those at risk of developing cancer.
MPH internships

How MPH internships benefit the students?

- It allows students to obtain hands-on experience practical experience
- Allows students to integrate what is learned in the classroom into the field
- Provides students with an opportunity to develop skill sets related to their chosen concentration area, as well as across interdisciplinary competencies
- Allows students exposure to numerous working environments and mentors
- Many students enter this program without any work experience so it provides them with a structured environment to develop or further hone PH-related skill-sets

Nicole Cillis

Internship title: The Development and Validation of an HIV-2 DNA Detection Assay Using Droplet Digital PCR.

Nicole is interning under Dr. Monica Parker and Dr. Linda Styer in the Bloodborne Viruses Laboratory in the Division of Infectious Diseases at the David Axelrod Institute (Wadsworth Center). The ultimate goal of her project is to modify the existing HIV-2 RNA assay to detect HIV-2 proviral DNA in blood cells and validate it for clinical use.

Nicole’s project focuses on the second step of the assay, detection of HIV-2 DNA using the existing HIV-2 primers and probes in a droplet digital PCR assay. It is important to compare the limit of detection of whole blood samples spiked with HIV-2 infected cells on the real time PCR and droplet digital PCR systems in order to determine which assay will be most successful. She is currently performing a validation study to determine sensitivity, specificity, reproducibility, and accuracy of the droplet digital HIV-2 DNA assay in whole blood and blood cells. Once this study is completed, she will move onto testing clinical samples.

This internship has allowed her to become proficient in the real time PCR assay, droplet digital PCR assay, and EasyMag extraction. Additionally, she has been able to integrate general biological and molecular concepts into public health, explain the role of biology in the ecological model of population-based health, and apply biological principles to development and implementation of disease prevention, control, or management programs. This experience has allowed her to gain invaluable skills and knowledge she can take with her no matter what avenue I choose in the future.

Ryan Thibodeau

Internship title: Ecology and Epidemiology of Powassan Deer Tick virus in NYS

Powassan virus, a member of the mammalian tick-borne virus group, was first isolated and identified from brain tissue of a fatal case of encephalitis in 1958 in Powassan, Ontario, Canada. POWV is composed of two lineages, Lineage I (prototype POWV) and Lineage II (Deer tick virus; DTV), with distinct transmission cycles. With the exception of a few human isolates, the majority of Lineage I strains isolated in N. America have been primarily from I. cookei ticks and their hosts, woodchucks (M. monax), mustelids, and wild canids. Lineage II strains have been predominantly isolated from I. scapularis ticks. Human incidence of POWV encephalitis has increased in the US and in particular, southeastern New York State. From 2004-2012, 10 of 14 seropositive individuals identified during routine clinical testing in NYS resided in Westchester, Putnam, or Dutchess Counties. Two additional seropositive individuals were identified in Albany and Suffolk Counties, locations with burgeoning populations of I. scapularis. Two fatal cases of POW encephalitis, were residents of Putnam County. The project is a continuation of a published study that found relatively high DTV infection rates (2-6%) in adult ticks collected from Dutchess, Putnam, Columbia, and Westchester counties. The project will continue to examine spatial and temporal variation in these areas and determine the presence/absence of DTV in I. scapularis populations in areas outside of the Lower Hudson Valley region.

Ryan learned how to test ticks for medically important pathogens utilizing both molecular and classical virology, specifically real time RT-PCR and cell culture assays to detect Powassan virus/Deer tick virus. Procedures included homogenization of ticks, RNA extraction, infection of cell cultures and monitoring for cytopathic effect, and harvesting/identifying viral isolates. Ryan had the opportunity to learn biosafety level-2 and -3 containment laboratory procedures. In addition to his role in the tick project, Ryan assisted with routine mosquito surveillance, plating cell cultures, and making IFA slides for Chikungunya virus. At the end of his internship he was in the process of developing IgM and IgG indirect ELISAs for the detection of Powassan antibodies in humans.
**Student achievements**

_Cristina Herrera and Kara Levinson_

Kara and Cristina are PhD students in Dr. Nicholas Mantis lab. They both attended the Advanced Course in Immunology offered through the American Association of Immunologists in Boston, MA. This course was offered to students and scientists who are interested in increasing their knowledge in immunology. This one week long course is unique as it is taught by the leading scientists in the field, where they teach about their expertise, outstanding research, and the new technologies being developed. The days were filled with classes, seminar style, and at the end of each talk attendees had time for questions and discussion, which many times continued in the evening at the end of the day. Some of the topics covered included signaling of the immune system, innate and adaptive immunity, advances in cancer immunology, B and T cell development, lymphocyte memory, and B cell tolerance, just to mention a few.

This class offered students the opportunity to learn from the experts and also discuss with them new and innovative methods that they could bring back to the bench. They were able to get input and advice on dissertation project and got to ask the lecturers their opinion on specific issues and experiments. The most valuable things learned were the new advances in technology for experiments and new methods being used in vaccine development. Most lecturers were great overall, but one professor in particular, Dr. Shiv Pillai from Massachusetts General Hospital Cancer Center, Harvard Medical School, was outstanding. He taught about B cell development using a different approach. He focused on the bigger picture instead of dwelling on the details of proteins and signals that affect the development of B cells. He explained how B cell development as a process is important not only for the immune system but also for the rest of the body to function properly. Dr. Pillai ended his lecture with a memorable lymphocyte rap where he summarized the major points of his lesson rapping for the class.

Kara and Cristina came back with lots of ideas that could be applied to their own research projects. They recommend the advanced immunology course to anyone looking to expand their knowledge of immunology and get a sense of where the field is at currently!

**December Graduates—Congratulations!**

_Amanda Braithwaite_,

**MPH**

_Kuasha Paul_,

**MPH**

_Namita Chatterjee_,

**PhD**

_Brandon LaPallo_,

**PhD**

_Kate Simmons_,

**PhD**