In fall 2013, M2M admitted six new students from a variety of PhD programs. Brief highlights of their research interests are provided below.

**Kelly Shaw**, Public Health Genomics Track, Genetics and Molecular Biology Program, Graduate Division of Biological and Biomedical Sciences (GDBBS)

Kelly is working to uncover the role of gut microbiota and other gastrointestinal factors as potential contributors to the outcomes of patients with classic galactosemia (CG), a rare autosomal recessive metabolic disorder which results from an inability to metabolize galactose. Her research may lead to novel approaches to intervention for these and other patients.

**Constance Harrell**, Predictive Health Track, MD/PhD Program

Constance’s research examines the influence of psychosocial stressors on susceptibility to infection and metabolic disorders, as well as the influence of physiologic insults including infection and metabolic perturbation on behavioral change. Specifically, she is examining the interaction of stress and fructose-induced hyperglycemia on cerebral glucose transporters, the HPA axis, and behavior in rats. Additionally, she is beginning to study the role of social status and HPA axis dysregulation on SIV viral load in rhesus macaques.

**Chandresh Ladva**, Biomarkers Track, Environmental Health Sciences Program, Rollins School of Public Health

Chandresh’s research focuses on the biology of exposure to traffic-related air pollutants during commuting on Atlanta roadways. His research aims to identify characteristics of in-vehicle pollutant mixtures, and their corresponding biological signatures in human breath, blood, and saliva through the use of targeted and untargeted high-resolution analytical chemistry and exposure characterization.

**Sasha Parets**, Public Health Genomics Track, Genetics and Molecular Biology Program, GDBBS

Sasha’s research focuses on the functional consequences of DNA methylation in PTB (preterm birth), using genome-wide methylation arrays as a first step in identifying possible candidates that are involved for both neonatal and maternal DNA. Her research will continue to evaluate the consequences of differences of DNA methylation in PTB.

**Kristen Howery**, Infectious Diseases Track, Microbiology and Molecular Genetics Program, (GDBBS)

Kristen’s research examines the regulation of cell division and swarming in *Proteus mirabilis*, specifically investigating genetic and extracellular elements which trigger the process of differentiation into a swarmer cell.

**Memorie Nichols**, Predictive Health Track, Nutrition & Health Sciences Program, GDBBS

Memorie’s primary research interests are focused on nutrition’s role in obesity and chronic disease prevention. Specifically, she is interested in interventions and factors that prevent obesity and improve health among children. One of Memorie’s research aims focuses on increasing fruit and vegetable consumption among preschool age children through Farm to Preschool programs, as dietary habits and taste preferences are formed during these crucial years. Her other research aims will also focus on strategies that prevent childhood obesity.

Learn more about M2M at: www.m2m.emory.edu
Greetings and Happy New Year to Each of You!

As we begin this year, we reflect upon all the accomplishments that the M2M Program has experienced during the last twelve months. It has certainly been a busy and productive year!

On May 14-16, 2013, we were honored to host the Burroughs Wellcome Fund (BWF) student symposium that was a huge success. Sixty-two individuals, including students, faculty and administrators from the six Programs Unifying Population and Laboratory Based Sciences (PUP) schools and BWF administrators came to Emory to experience 2 ½ days that were filled with activities representing a variety of disciplines and topics. Interactive discussion sessions included case studies, poster competitions and social events. In addition to Emory University, the participating schools were: Albert Einstein College of Medicine of Yeshiva University; Boston University; Johns Hopkins Bloomberg School of Public Health, University of California, Los Angeles; and University of Texas Health Science Center at Houston.

Several students remarked about how meaningful the symposium was for them in their academic studies. We would like to thank the BWF for sponsoring this event and for their ongoing enthusiastic support of laboratory and population sciences.

In the fall, we welcomed six new PhD students to the program whose home departments are MD/PhD, the Graduate Division of Biological and Biomedical Sciences (GDBBS) and Environmental Health Sciences/Rollins School of Public Health. The new students are: Constance Harrell, Kristen Howery, Chandresh Ladva, Memorie Nichols, Sasha Parets, and Kelly Shaw. We are looking forward to the academic experiences that these students will bring to the program.

Each semester, our M2M capstone class continues to be the highlight of the program. During the spring and fall of 2013, we welcomed a stellar group of experts representing interdisciplinary fields who engaged our students in various topics. Our speakers consisted of: Dean Lisa Tedesco, Drs. Ralph David Cutler, Ralph DiClemente, Ben Druss, Bruce Levin, Kerry Ressler, Joel Saltz, Jeremy Sarnat, Jack Schull, Alicia K. Smith, Miriam Vos, David Weiss, Peter Wilson, and Fernando Baquero from Madrid, Spain. Additional details about each speaker are on page 4.

Our program has grown from five students in fall 2010 to twenty students in fall 2013. We are extremely proud to announce that we have two MD/PhD students, Pierre Ankomah and Joshua Shak, who have completed their PhD studies and moving on to complete their MD studies. We also have one PhD student, Lisa Staimez, who graduated and is now beginning her post-doctoral studies in the Rollins School of Public Health. We appreciate the value that they have added to M2M! Each one of them brought their own unique perspective and experiences that enhanced the success of the program. We wish them the best as they embark upon their future endeavors and look forward to staying in touch and future collaborations.

What’s to come for M2M?
As funds permit, we will continue to bring in new students while earlier cohorts will transition from M2M into their careers. Additionally, we are working diligently to seek and obtain funding to continue with the successful training model of the M2M program.


Mina MJ, Klugman KP, Winkler AM, Dente CJ. Let technology do the work: Improved prediction of massive transfusion with the aid of a smartphone app. Journal of Trauma and Acute Care Surgery. 2013:75(4), 669-675


Sasha Parets

Erica Smearman


REFLECTIONS ON M2M
By Lisa Staimez, former M2M Student and Nutrition and Health Sciences PhD graduate, August 2013

I recently completed all requirements for my doctoral degree, and the diploma finally hangs in my office. What was first a long-term goal of attaining a PhD now almost seems like a short-term accomplishment, especially when thinking about the grand scheme of my career. As I navigate through next steps in my career, I feel more sure-footed, thanks to the unique training I received from Emory’s Molecules to Mankind (M2M) Program, an innovative program that trains young researchers to integrate laboratory and population sciences. M2M left me with several valuable lessons, described below.

First, widen the lens. What is the value of the research outside of my own discipline? The M2M program encouraged a wide vision by placing the research into a broad context. In health sciences, a variety of policies, programs, and resources are needed to serve the needs of human health. Basic research and population research must work together to inform the public and improve health. By thinking broadly, i.e., across basic research, population research, and translational research, we understand the true value of the work.

Next, make new friends. Develop and maintain working relationships with colleagues from other disciplines and communicate regularly. Under the M2M program, we took coursework and attended seminars both in the laboratory and populations sciences, and we tried to solve research challenges as a group using a variety of methods. Certainly, learning the ‘basic language’ of an alternative discipline makes communication easier, and in M2M, we had this sort of orientation from faculty and students from a broad spectrum of academic disciplines and from several different institutions (i.e., Emory University, the Georgia Institute of Technology, and the U.S. Centers for Disease Control and Prevention).

Finally, understand the challenges. Work within each research discipline contains barriers, yet we can also find opportunities by being cognizant of these barriers. These barriers can be turned into stepping stones to successfully climb forward. In M2M, we compared the challenges that lie within population, computational, and laboratory sciences. Then we studied examples of when these challenges were turned into opportunities for interdisciplinary research.

Ultimately, these three lessons and the kind of cross-talk described above have helped me feel more comfortable envisioning and enabling interdisciplinary research. Through these lessons, I feel empowered to think openly and creatively of how to tackle the research questions that are most pressing in health today.

Tackle challenges.

I would encourage the faculty to get involved with M2M and to encourage students to apply.
Held at the Rollins School of Public Health and the Emory Conference Center Hotel, the Burroughs Wellcome Fund (BWF) sponsored a student symposium to bring together their sponsored schools in lab and population sciences. Sixty-two students, faculty and administrators and the BWF administrators attended the symposium. Participating schools were: Albert Einstein College of Medicine of Yeshiva University, Boston University; Johns Hopkins Bloomberg School of Public Health; University of Texas Health Science Center at Houston; University of California, Los Angeles, and Emory University’s M2M Program that was the host school.

One student attendee remarked, “I enjoyed the conference very much. It was unique in that it was a mixture of poster and PowerPoint presentations, group work and social activities. I enjoyed meeting other students and learning about their projects and institutions. Networking can never start too early and I was impressed by the work the other students were performing”.

Case Competition on Three Scientific Topics
Students participated in a case competition on topics consisting of: N7N9 Outbreak in China, TMAO-Red Meat and Child Antibiotics. The students were divided into six teams who gave presentations on their assigned cases. The winning team received supplemental professional development funds from BWF. The first-place team was comprised of: Joshua Shak and Alaine Broadaway, Emory; Michael Cho, UCLA; and Ruchi Masand, Yijie Zhai, and Zongxiao He, UTHSC.

Abstracts/Scientific Poster Competition
Thirty-six students submitted abstracts of their research and participated in a scientific poster competition. The competition winners received a backpack containing academic items from the BWF. With faculty and directors serving as judges, the winners and poster topics were:

- Mary Bushman, M2M, Emory University (Within-Host Competition of Malaria Parasites in Humans and the Fitness Cost of Drug Resistance)
- Tiantian Cai, University of Texas Health Science Center at Houston (The Role of ATOH! In Cochlear Development)
- Jessica Rowell, M2M, Emory University (Global DNA Methylation in People Exposed to Polybrominated Biphenyls)

Pictured from left to right: M2M students Amanda Mummert, Catherine Bozio and recent graduate, Joshua Shak.

Symposium photographer, M2M student, Jessica Rowell
<table>
<thead>
<tr>
<th>Dates</th>
<th>Instructor and Topic</th>
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<tbody>
<tr>
<td>January 13</td>
<td><strong>Lead Faculty: Tim Lash</strong>, PhD, Professor, Department of Epidemiology, Rollins School of Public Health. <em>Molecular markers of endocrine therapy failure: resources, results and future directions</em></td>
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<td>January 27</td>
<td><strong>Lead Faculty: Julie Gazmararian</strong>, PhD, MPH, Associate Professor, Department of Epidemiology, Rollins School of Public Health. <em>Health Equity</em></td>
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<td>February 3</td>
<td><strong>Lead Faculty: Stephen T. Warren</strong>, PhD, FACMG, William Patterson Timmie Professor of Human Genetics and Charles Howard Candler Chair in Human Genetics, Emory School of Medicine; Chair, Department of Human Genetics; Chief, Section of Human Genetics, The Emory Clinic; Professor of Biochemistry; Professor of Pediatrics. <em>Unraveling Fragile X Syndrome</em></td>
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<td>February 10</td>
<td><strong>Lead Faculty: Gretchen Neigh</strong>, PhD, Assistant Professor, Department of Physiology, Emory School of Medicine. <em>The Glucocorticoid Receptor: Nexus among systems in health and disease</em></td>
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<td>February 17</td>
<td><strong>Lead Faculty: Mohammed K. Ali</strong>, MBChB, MSc, MBA, Assistant Professor, Department of Global Health, Rollins School of Public Health. <em>Translating ideas into policy and research</em></td>
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<td>February 24</td>
<td><strong>Mandatory Field Trip (Guided Tour)</strong>: CDC David J. Spencer Museum, 1600 Clifton Rd, Main CDC Building. Exhibit: “Health is a Human Right: Race and Place in America”</td>
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<td>March 3</td>
<td><strong>Book Review</strong>: “The Immortal Life of Henrietta Lacks” Discussion Leaders: Dr. Julie Gazmararian and Ben Rambo-Martin</td>
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<td>March 17</td>
<td><strong>Lead Faculty: Solveig Argeseanu</strong>, PhD, MSc, Assistant Professor, Hubert Department of Global Health, Rollins School of Public Health. <em>Social Networks in Health</em></td>
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<td>March 24</td>
<td><strong>Lead Faculty: Alan Sokoloff</strong>, PhD, Assistant Professor, Department of Physiology (Research), Emory School of Medicine. <em>Developmental Basis of Autism Spectrum Disorder: Many Exposures, One Cause</em></td>
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<td>March 31</td>
<td><strong>Lead Faculty: Rafi Ahmed</strong>, PhD, Professor, Microbiology/Immunology, Emory School of Medicine; Director, Emory Vaccine Center. <em>Topic: TBA</em></td>
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<td>April 7 (Rm 6001 CNR)</td>
<td>Article Review Session: Alaine Broadaway</td>
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<td>April 14</td>
<td>Student-Led Session: Amanda Mummert. <em>Topic: TBA</em></td>
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