

## Education

**Ph.D. Candidate, Dept. of Systems and Computational Biology** Expected Jan. 2018  
Albert Einstein College of Medicine, Graduate Program in Biomedical Sciences

**Masters of Science in Biomedical Science** January 2015  
Albert Einstein College of Medicine, Graduate Program in Biomedical Sciences  
Qualifying exam thesis title: "The Influence of the Gut Microbiome on  
Xenobiotic Metabolism"

**Bachelor of Arts in Biology (Major) and Educational Studies (Minor)** May 2012  
Swarthmore College

## Research Experience

**Ph.D. Candidate in the laboratory of Dr. Libusha Kelly** August 2013 - Present  
Albert Einstein College of Medicine, Dept. of Systems and Computational Bio.

- Coordination, processing and library preparation of RNA and DNA from human fecal samples
- Taxonomic and functional classification of metagenomic datasets
- Network analysis of select enzyme classes to identify core and variable phylogenetic lineages

**Post-baccalaureate Research Program in the laboratory of Dr. Ann Stevens** Fall 2012 – July 2013  
Virginia Tech, Dept. of Biological Sciences

- Validation of RNA-Seq predicted OpaR Control of Transcription Factors in *Vibrio parahaemolyticus* through qRT-PCR

**Summer Internship at Merck & Co., Research Adviser: Dr. Russell G. Maus** Summer 2010

- Used HPLC and LC-MS to determine the structure of a degradate found in a Merck product
- Designed experiments demonstrating that the degradation reaction was the result of stainless steel interacting with the product.

**Summer Internship at Merck & Co., Research Adviser: Dr. Haihong Fan** Summer 2009  
Pharmaceutical Analytical Chemistry

- Optimized a method using surface plasmon resonance for a kinetic study of the Argonaute 2 protein-RNA interaction.
- Determined which of many single stranded RNA variations had the best binding ability to the human Ago2 protein.

**Summer Internship at Allozyne (Biotechnology Company), Research** Summer 2008

**Adviser: Dr. Marcello Marelli**

- Identified a site in a GFP-mutant where it is possible to recognize a non-natural amino acid through mass spectrometry.

**Summer Internship at National Institute of Health, Research Adviser: Dr. Maribeth V. Eiden** Summer 2007

Laboratory of Virology,

- Evaluated the pharmacological modulation of cell signaling kinases on viral vector entry

**Summer Internship at Temple University School of Medicine, Research** Summer 2006

**Adviser: Dr. Hong Wang**

Department of Pharmacology

- Genotyped CBS mice for hyperhomocysteinemia mouse model

**Summer Internship at Temple University School of Medicine, Research** Summer 2005

**Adviser: Dr. Nae Dun & Sioke Le Dun**

Department of Pharmacology

- Use of Immunohistochemical Techniques to Localize Visfatin in the Central Nervous System of Mice

## Teaching Experience

**President of the eiSci Science High School Mentoring Program** 2013 -present

Bronx, NY

- Founding member of Einstein Science (eiSci) High School Science mentoring program
- Develop and facilitate science curriculum for 9<sup>th</sup> and 10<sup>th</sup> grade students
- Formerly clinic/lab coordinator

**Student coordinator, mentor and tutor for high school students from** 2008-2012

**Chester County public school district**

Swarthmore, PA

- Developed curriculum to improve reading comprehension, cultural enrichment and college preparation
- Tutoring in math

**Peer tutor for Introductory Biology at Swarthmore College** Fall semester of 2011

Swarthmore, PA

- Paid peer mentor position for which students apply and must receive faculty support 'seconding' the self nomination

## Scholarship

## Publications

- Wallace, B. D., Roberts, A. B., Pollet, R. M., Ingle, J. D., Biernat, K. A., Pellock, S. J., Venkatesh, M.K., **Guthrie, L.**,... Redinbo, M. R. (2015). Structure and Inhibition of Microbiome  $\beta$ -Glucuronidases Essential to the Alleviation of Cancer Drug Toxicity. *Chemistry & Biology*, 22(9), 1238–49.
- Burke, A. K., **Guthrie, L.T. C.**, Modise, T., Cormier, G., Jensen, R.V., McCarter, L.L., and Stevens, A.M. (2015). OpaR Controls a Network of Downstream Transcription Factors in *Vibrio parahaemolyticus* BB220P. *PLoS ONE*, 10(4): e0121863.

## Conferences and Presentations

- **Guthrie, L.**, Gupta, S., Johanna Daily, J., Kelly, L. The gut microbiome drives individual differences in metabolism of anti-cancer drugs. Poster presentation delivered at the New England Science Symposium in April 2016.
- **Guthrie, L.**, Gupta, S., Johanna Daily, J., Kelly, L. Links between microbial metabolism and variable drug response. Poster presentation delivered at the 115<sup>th</sup> General Meeting for the American Society of Microbiology in June 2015.
- **Guthrie, LTC**, Kernell, AL, Kruchko, DH, Jensen, RV, McCarter, LL, and Stevens, AM. 2013. Validation of RNA-Seq predicted OpaR Control of Transcription Factors in *Vibrio parahaemolyticus* through qRT-PCR. Poster presentation delivered at the Mid-Atlantic Microbial Pathogenesis Meeting.
- **Guthrie, LTC** and Marelli, M. 2008. Method for Determining the Efficiency of the Incorporation of Non-natural Amino Acids at Specific Sites on a Target Protein. Poster presentation delivered at the Systems Institute of Biology Summer Interns Poster Session and Swarthmore College Sigma Xi Poster Session.
- **Guthrie, LTC** and Eiden, MV. 2006. The Evaluation of Pharmacological Modulation of Cell Signaling Kinases on Viral Vector Entry. Poster presentation delivered at the NIH Summer Poster Day.
- **Guthrie, LTC** and Wang, H. 2005. Genotyping of CBS mice for hyperhomocysteinemia. Oral and poster presentation delivered at the Minority Trainee Research Forum.

## Research Interests

- Human gut microbiome in health and disease
- Cell signaling
- Microbe-host interactions and symbiosis
- Sociomicrobiology
- Microbial pathogenesis

## Technical Skill

- Bioinformatic and network analysis
- Animal Handling Skills (Anesthetizing Rats, Rat Tissue Perfusion, Sectioning Tissue)
- Analytical Chemistry Skills (HPLC, LC-MS)

- Molecular and Microbiology Skills (DNA Microarray, Protein-RNA interaction analysis using surface plasmon resonance, PCR, Site Directed Mutagenesis, Transformation, Gram-Staining, Western Blotting, Gel Electrophoresis, RT-PCR, PCR, RNA Extraction, Sequencing)

### **Graduate Coursework**

- Strategies for Techniques for Analyzing Microbial Communities (Marine Biological Laboratory)
- Systems Biology Seminar
- Introduction to Systems Biology
- Biochemistry
- Microbes
- Viruses
- Immunology
- Molecular Cell Biology
- Computational Biology of Proteins
- Quantitative Skills for the Biomedical Researches
- Mechanisms of Disease
- Advanced Microbial Genetics (Virginia Tech)
- Life Sciences Biochemistry (Virginia Tech)
- Graduate Seminar: Microbiology (Virginia Tech)