

## Speaker list for the NC Microbiome Consortium Meeting May 15, 2018

### Session 1: From Academia to Industry

#### *Discovery of new microbial metabolites using bioinformatics and coculture*



**Elizabeth Shank, PhD** is interested in understanding how compounds secreted by microbes affect the physiology, metabolism, and survival of their microbial neighbors, and how such interactions influence the stability and dynamics of complex microbial communities. She became interested in these questions as an undergraduate at Penn State, but elected to do her graduate work in protein biochemistry and biophysics at UC Berkeley, where she studied how single protein molecules unfold and refold under mechanical stress. She returned to the question of microbial interactions during her postdoctoral work at Harvard Medical School, laying the foundation for the questions her lab at UNC-CH is now pursuing.

#### *Measuring the microbiome in industrial and academic settings*



**Anthony Fodor, PhD** is a Professor of Bioinformatics and Genomics at UNC Charlotte. He holds a Ph.D. in Physiology and Biophysics from the University of Washington. He has extensive experience in both academic and industrial settings in the analysis and interpretation of the complex, multi-factorial datasets of post-genomic biology. In addition to participating in numerous studies that have linked the state of the human microbial community to health and disease, he has been an active participant of the data analysis team analyzing 16S rRNA data generated from the Human Microbiome Project and, more recently, the Microbiome Quality Control project.

#### *Targeted therapeutics for rational design of the gut microbiota and treatment of *Clostridium difficile* infection*



**Casey Theriot, PhD** is an Assistant Professor in Infectious Diseases at NC State University College of Veterinary Medicine. Dr. Theriot received her undergraduate degree from the University of Georgia, and received her PhD from NC State University in the Department of Microbiology. She then went on to complete a postdoctoral fellowship and independent research position at the University of Michigan Medical School, where she focused on defining the gastrointestinal tract microbiome and metabolome during resistance and susceptibility to *C. difficile* colonization and infection in a mouse model. Dr. Theriot's current research focuses on manipulating the gut microbiota to rationally alter the composition of the bile acid pool in the gut, and restore microbial competition, which has the potential to improve preventative and therapeutic approaches against many human diseases. She has partnered with multiple companies in RTP to test the efficacy of new therapeutics against *C. difficile* *in vitro* and in the mouse model.

## Session 2: Overview of Core Infrastructure in the Triangle

### *Exploring microbial communities through resources at Duke*



**Holly K. Dressman, PhD** is a Research Professor in the Department of Molecular Genetics and Microbiology and the Director of the recently established Duke Microbiome Shared Resource. The Duke Microbiome Shared Resource provides a centralized resource hub to enhance the existing interactions with the Duke Microbiome Center, Duke Cancer Institute, and the Genomic and Computation Biology shared resources to address the role of microbial systems in human healthcare, food production and environmental restoration. This resource will provide access to a variety of services that will enable researchers to focus on microbial communities, immune oncology, cancer research and infectious disease.

### *UNC Research Cores: Reproducibility, Translatability, and Quality Control in Microbiome Studies*



**Andrea Azcarate-Peril, PhD** is an Associate Professor of Medicine and directs the UNC Microbiome Core in the School of Medicine at UNC Chapel Hill. Dr. Azcarate-Peril currently conducts research in modulation of the host-associated microbiota by prebiotics and probiotics. She has extensive experience in physiology and functional genomics of probiotic strains. Dr. Azcarate-Peril uses molecular biology, genomics, and next-generation sequencing tools to address questions relevant to the role of the intestinal microbiota in human health and disease.

### *Precision Metabolomics - a Key Technology for Microbiome Research and Unlocking Microbiota Function*



**Rob Mohny, PhD** is a diversely trained biologist with expertise in metabolomics. Dr. Mohny joined Metabolon in 2006, after working a number of years for an RTP-based screening/drug discovery company where he led several key oncology and inflammation programs. At Metabolon, Dr. Mohny leads the Academic Life Sciences unit, including a team of talented PhD-level scientists and biochemical support personnel that function as the primary scientific and technical liaisons for academic and government client metabolomics projects. He is a co-author of >80 peer-reviewed publications, including many on population health that explore the genetic influences on human metabolism through an integration of comprehensive metabolomic profiling with host and microbial genomics.

*Molecular Education, Technology, and Research Innovation Center (METRIC) @ NC State University:  
Expanding Scientific Discovery and Impact Through the Technology Lens*



**David C. Muddiman, PhD** is the Jacob and Betty Belin Distinguished Professor of Chemistry and Director, Molecular Education, Technology, and Research Innovation Center (METRIC) at North Carolina State University in Raleigh, NC. Dr. Muddiman's research is at the intersection of innovative mass spectrometry technologies, systems biology, and model organisms for diseases and bioenergy, and is funded by the National Institutes of Health, the National Science Foundation, the Department of Energy, and The United States Department of Agriculture.

*NCBiotech Core Facilities Directory*



**Tracey du Laney, PhD** manages several of NCBiotech's Science & Technology Development research grant funding programs that are designed to advance promising scientific discoveries and technologies developed in N.C. colleges, universities, and non-profit institutions towards commercialization. These grants fill critical funding gaps in stages where it is typically difficult to secure funding. Dr. du Laney holds a bachelor's degree in Biomedical Engineering from Duke University, a master's degree in Biomedical Engineering from The University of Texas at Austin, and a Ph.D. in Biochemical Engineering from Duke. Prior to joining the North Carolina Biotechnology Center, Dr. du Laney co-owned/co-founded a niche independent consulting firm in Research Triangle Park specializing in technology assessments and commercialization, grant writing and evaluation, due diligence, and entrepreneurship/start-up strategic planning for life sciences companies.

**Session 3: Panel discussion on IP Technology: What you need to know about developing a product and tech transfer?**



**Moderator: Kultaran Chohan, PhD, LL.M., CLP**, Director of Licensing North Carolina State University

As Director of Licensing, Kultaran leads OTCNV's team of licensing professionals as they work to facilitate the commercialization of university inventions/discoveries. Kultaran earned a Ph.D. in Genetics from NC State University and a LL.M. in Intellectual Property and Technology Law from Washington University in St. Louis, MO. Kultaran personally manages a portfolio of technologies in the areas of biotechnology, ag-biotech, pharmaceuticals, drug delivery, human and animal health, research tools, food industry, and bio-manufacturing. He also serves as a reviewer/panelist with the Small Business Innovation Research and Technology Transfer (SBIR/STTR) grant programs at both the National Science Foundation and the National Institutes of Health.



**Kelly Parsons** is the Associate Director of Technology Commercialization at The University of North Carolina at Chapel Hill. Kelly joined UNC's technology transfer office in 2008. Prior to joining the office, Kelly worked as a Postdoctoral Research Associate in the UNC-Chapel Hill Cystic Fibrosis/Pulmonary Research and Treatment Center studying the effect of chronic bacterial infection on pulmonary innate immunity. Kelly is a member of the Association of University Technology Managers, the Licensing Executives Society, and is a registered patent agent. She earned her B.S. in Biology, with a minor in Chemistry, from Virginia Tech and her Ph.D. in Microbiology and Immunology from Wake Forest University.



**Karthik Gopalakrishnan** has been at Duke University for over 14 years and is involved in various aspects of technology transfer at Duke. At the Office of Licensing & Ventures he has negotiated over 100 licenses with US and international companies, sits on the board of several Duke startups as an observer and is affiliated with MedBlue, an Incubator that seed-funds Duke startups. At Duke, he manages a portfolio that includes inventions in the neurobiology, immunology and imaging chemistry space. In addition he is a BD consultant with an oncology-focused startup.



As a Partner at Womble Bond Dickenson, **Logan Buck** concentrates his intellectual property law practice on patent preparation, prosecution, and opinion work in the fields of biotechnology and other life sciences. He represents a wide variety of clients including major universities, large research hospitals, agricultural biotechnology companies, gene editing companies, and pharmaceutical companies, among others. Logan received his Bachelor's and Ph.D. degrees from NC State University and received his law degree from The George Washington University Law School.

## Session 4: Panel discussion on How to transfer from academia to industry?



**Moderator: Dr. Kirk Francis** grew up on a small family farm in rural Iowa and developed an early interest in science and technology. After studying genetics at Iowa State University, he received graduate degrees in plant breeding from the University of Wisconsin and genetics from North Carolina State University. He continued his research in genetics at the University of North Carolina at Chapel Hill, and later joined BASF. Currently, he leads BASF's Performance Biologicals platform.



**Hunter Cameron** graduated in 2014 from the University of North Carolina at Chapel Hill with a Bachelor of Arts in Philosophy and Biology. While there, he put an interest in computer programming to good use working in Jeff Dangl's lab using bioinformatics to study the microbiome. Currently, Hunter works for BASF as a Bioinformatics Scientist where he applies computational methods to provide data analysis support to various project teams.



**Kestrel McCorkle** is a plant pathologist working on disease assay development and field testing for product candidates. She recently graduated from N.C. State University with a Ph.D. in plant pathology and started working for AgBiome in 2017. As a native North Carolinian, she is excited to be working in the Ag Biotech industry in Research Triangle Park.



**Deb Springer** is a Senior Scientist at Novozymes North America. She earned her Master's in Environmental Biology from The State University of New York College of Environmental Science and Forestry with a focus on Forest Pathology and Mycology. During her Masters and for a few years following she worked as a research technician in Electron Microscopy, Developmental Cell Biology, and Ecology at Upstate Medical University and Syracuse University. She then returned to school for a PhD in Biomedical Sciences, Immunology and Infectious diseases. During her Ph.D. she also worked as an Adjunct professor and running Coach. Prior to starting at Novozymes she was a Postdoctoral fellow at Duke University. During her academic career, she was a national ranked competitive runner and was inducted into the Athletic hall of fame at the College of Saint Rose where she earned her BA. She was hired at Novozymes in 2014 as a fungal biologist and works on discovery, identification, mode of action, and product development. In 2018, she took on an additional role in Technology Sourcing and External R&D. In her free time, she enjoys

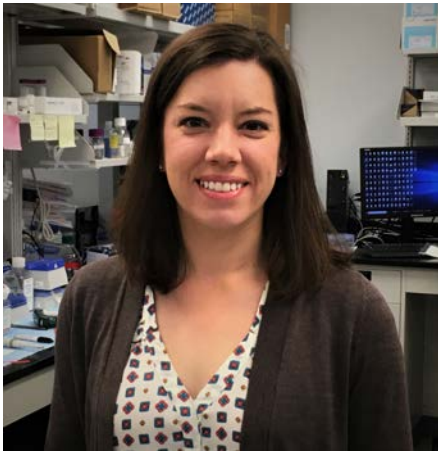
volunteering at Durham Parkrun, mushroom foraging, and gardening.



**Dr. Kurt Selle** is a Scientist at Locus Biosciences. Dr. Selle earned his B.S. in Microbiology at the University of Wisconsin-Madison, and then received his M.S. in Food Science and Ph.D. in Functional Genomics at North Carolina State University. Dr. Selle's doctoral work was completed under the direction of Dr. Rodolphe Barrangou and Dr. Todd Klaenhammer with diverse research projects in lactic acid bacteria genomics and physiology. The primary outcome of his research was capturing large-scale genomic island deletions through selection by bacterial genome targeting CRISPR-Cas systems.



**Dr. Daina Zeng** is Director of Research at Agile Sciences where she manages Agile Sciences' research and development programs focused on developing a novel therapeutic to combat multidrug resistant bacterial infections. Dr. Zeng received her Ph.D. in biochemistry from Duke University School of Medicine where her research focused on designing and evaluating novel inhibitors of outer membrane biosynthesis to be used as antibiotics against multidrug resistant Gram-negative pathogens. She is also a member of American Society for Microbiology, Women in Bio, and Healthcare Businesswomen's Association and is passionate about networking and establishing collaborations to advance life sciences.



**Louise Giffin** earned her Ph.D. in Microbiology and Immunology from UNC Chapel Hill in 2015, and performed her dissertation research in a viral oncology lab. Following graduate school, she transitioned to a small biotech company in Research Triangle Park called Heat Biologics. Heat's technology includes a cell-based allogenic cancer vaccine, which helps to boost patient immune responses to different types of cancer. At Heat Biologics, Louise is a member of the research team and plays a role in developing improved versions of the vaccine, designing assays to test product function, and performing experiments to assess the efficacy of treatments. Louise is also the chair of the RTP chapter of Women In Bio, a national group that promotes career development for women in the life sciences. Outside of work she enjoys gardening, running, and doing DIY home renovations.

### Keynote speaker

**Karsten Zengler, PhD**  
**University of California San Diego; Department of Pediatrics**  
**Division of Host-Microbe Systems & Therapeutics**  
<https://www.zenglerlab.com/>



Karsten studied microbial physiology at the University Goettingen and the Max Planck Institute for Marine Microbiology where he obtained his Ph.D. He continued to work for seven years in the biotechnology industry in San Diego, USA, where he led a team of scientists pioneering high-throughput cultivation for the isolation and recovery of previously unculturable microorganisms. His work has been focused on the understanding of interactions of microorganisms with their environment and host organisms. He spearheaded the field of community systems biology where he combined his knowledge in microbial physiology and molecular biology with computational biology to discover new physiological capabilities, regulatory effects, and novel multidimensional

interspecies interactions. His lab has been on the forefront of developing new protocols for ultra-low input metagenomics and metatranscriptomics approaches, which he is applying to unravel the role of host-microbe interaction in human diseases, such as atopic dermatitis, alcoholic liver disease, and colon cancer. This interdisciplinary approach allows for a deeper understanding of microbial interactions and the prediction of mechanisms in microbiome research. He has founded several companies and is on the advisory board of different companies and institutions.