

Meet the Fellow

Danielle Gregory

Host Laboratory: Michigan State University, Department of Microbiology, Genetics and Immunology and Michigan Department of Health and Human Services, Bureau of Laboratories

Degree:	Bachelor of science in microbiology
Graduated:	May 2023
School:	Clemson University

Tell us about your educational background?
I graduated Clemson University *summa cum laude* with my bachelor’s degree in microbiology with minors in chemistry and biology as well as a biomedicine concentration.

What brought you into laboratory science?
Throughout my undergraduate career, I had the privilege to participate in a variety of research experiences in industry, academia, and government public health laboratories. Each of these experiences cultivated my love for both public health and microbiology. I decided to pursue a PhD in microbiology, genetics, and immunology with the hopes of one day being a public health laboratory director.

How did you hear about the APHL Public Health Laboratory Science Fellowship Program?
I heard about the APHL Public Health Laboratory Science Fellowship both at the annual meeting of American Society of Microbiology (ASM) Microbe 2024 and through previous graduate students in my advisor’s laboratory who had gone to work for the Michigan Department of Health and Human Services, Bureau of Laboratories (MDHHS).

How did this fellowship match or exceed your expectations?
This fellowship has been an amazing opportunity to connect with public health leaders in both the veterinary and human sectors. It has really emphasized to me the importance of a One Health mindset and interdisciplinary communication to safeguard the health of the public. This fellowship has allowed me to learn from experts with decades of Microbiology experience that I could not obtain solely from PhD coursework. It has also served as a very tangible reminder of why we do what we do when graduate school is arduous.

Tell us what you learned from your mentor.
My mentors are the kind of leaders in public health and research that I aspire to be one day. Drs. Shannon Manning and Kim Dodd are masters of inter-disciplinary communication, cutting-edge research, advocacy for women in science, and intentional mentorship. Aside from the training they have contributed to my scientific knowledge, these mentors model to me what it means to be a good listener and how to encourage individuals to reach their full potential. They always ask good questions and are supportive of my ideas, no matter how unrealistic. I am a better scientist, public health researcher, and person because of their leadership.

Tell us about your project assignments/laboratory roles.
My project will investigate the genetic diversity of beta-lactam resistant bacterial populations in animals and humans with clinical infections. Collaborating with both the Michigan State Veterinary Diagnostic Laboratory (MSU VDL) and the MDHHS, I will characterize antibiotic resistant bacterial isolates recovered from dairy cattle in Michigan and determine their ability to transfer resistance. This will be done through both phenotypic and genotypic means, including whole genome sequencing to identify plasmids carrying



resistance determinants. The goal will be to make genetic comparisons to resistant bacterial isolates recovered from both human and animal clinical samples.

How has your fellowship experience inspired you?
Graduate school is hard, tedious, and stressful. The APHL Fellowship is a reminder of the significance of our work. It is a reminder that logically sound research must also be accompanied by advocacy, clear communication, stakeholder buy-in, and a clear vision for promoting the health of the public. It inspires me because it ties the academia-associated desire to understand with public health-associated applications to promote quality of life.

How would you describe the APHL Fellowship to other students?
I think the APHL Fellowship is an excellent way to learn firsthand about non-academia career pathways, and it provides training beyond course work for topics such as quality management systems, accreditation, and laboratory management. Participating in the APHL Fellowship has really illustrated to me that science is a collaborative endeavor, and this has been vital to my training as a PhD student.

Aside from the laboratory and the science, did you gain any other beneficial life experiences? I am so excited to learn from the years of microbiology experience represented by both the MSU VDL and MDHHS. This experience has taught me how to learn what the vision and mission of a public health organization is and identify areas or projects where my expertise can be most beneficial in achieving those visions.

What do you believe the next step will be in your career path?
I would like to one day be a public health microbiology laboratory director.

How would you describe the APHL Fellowship when recommending to others to apply?
The APHL Fellowship is an excellent way to experience what it means to participate in a laboratory that promotes the health of the public. It is an excellent way to further your training as a graduate student as the level of hand-on, real time learning is unmatched.