Postdoctoral Scholar Profile: Dr. John M. Farrow III

NAME: John M. Farrow III, Ph.D.

EMAIL: farrowj@ecu.edu

MENTOR: Everett Pesci, Ph.D.

DEPARTMENT: Microbiology and Immunology

EDUCATION: B.S. – Biology, East Carolina University, 2001
Ph.D. – Microbiology and Immunology, East Carolina University, 2015

SUMMARY: Microbes live in, on, and all around us, and while most are harmless or even beneficial for our health, some can cause serious illnesses. This is especially a concern in healthcare settings, where patients with injuries or compromised immune systems can become susceptible to infection by environmental pathogens that do not normally pose a risk to healthy individuals.

The bacterium Acinetobacter baumannii is one of these opportunistic pathogens that causes a significant number of healthcare-associated infections, and it was also the predominant cause of secondary infections in wounded soldiers during the Iraq war. A. baumannii continues to be a concern due to its ability to develop multi-drug resistance, and the fact that it can be extremely difficult to eradicate once it is established in the hospital setting. Its survival and persistence in the hospital environment is thought to be due partly from this organism’s ability to tolerate desiccation.

I am currently investigating the molecular mechanisms that allow A. baumannii cells to survive drying, and have found that some A. baumannii strains display an extremely desiccation-resistant phenotype. Additionally, this phenotype correlates with the induction of multiple bacterial stress responses. By learning more specifically about the factors that allow A. baumannii to survive drying, we hope to be able to design treatments and develop practices that will be more effective in preventing these infections, and eliminating these bacteria from the hospital environment. These insights may also be helpful in controlling other healthcare-associated infections, food-borne pathogens, and the spread of bacterial diseases via inanimate objects.