MORGAN RICE, NOAH TEAFF, JENNIFER HICKMAN, [1]Department of Natural Sciences and Mathematics, West Liberty University, West Liberty, WV, DONALD PRIMERANO, JAMES DENVIR, Genomics and Bioinformatics Core Facility, Marshall University, Huntington, WV, and DEANNA M. SCHMITT**.** Department of Natural Sciences and Mathematics, West Liberty University, West Liberty, WV. Determining the Role of *Francisella* lipoprotein A (FlpA) in *Francisella tularensis* Susceptibility to Resazomycins.

Antibiotic resistance is one of the top threats to global public health. In the United States, over two million people each year are infected with antibiotic resistant bacteria which results in approximately 23,000 deaths. The development of new antibiotics is essential to combat this crisis and prevent the loss of additional lives. Our laboratory discovered that resazurin exhibits antimicrobial activity against a select family of Gram-negative bacteria including *Neisseria gonorrhoeae, Helicobacter pylori,* and *Francisella tularensis.* Resazurin and derivatives of this compound, resazomycins, can kill *N. gonorrhoeae* and *F. tularensis* in broth culture and inside host cells. One resazomycin, resorufin pentyl ether, reduces vaginal colonization by *N. gonorrhoeae* in a mouse model of infection. To identify potential targets of resazomycins, we performed a high throughput screen to select for resazurin-resistant *F. tularensis* isolates and performed whole genome sequencing on each isolate. Multiple *F. tularensis* isolates had a mutation in the gene FTL_0073 which encodes for *Francisella* lipoprotein A (FlpA). We hypothesized that this protein could be a target of resazomycins or may play a role in uptake of these antibiotics. To address these hypotheses, we generated a *flp*A disruption mutant. First, we evaluated the susceptibility of the *flp*A mutant to resazomycins and preliminary data indicates this mutant is resistant. Next, we will test the *flpA* mutant for changes in outer membrane composition and defects in uptake of resazomycins. Understanding the role of *flp*A in resazomycin susceptibility would facilitate further development of these compounds as potential treatments for tularemia and gonorrhea.