CAITLYN MORNINGSTAR, CLAIRE KELLY, EMILY YOUNG, JORDAN GIBSON, SIENA MCGOVERN, EMMA BEATTY, KENDALL SOUDER, JUSTIN RICE, Department of Biomedical Sciences, West Liberty University, West Liberty, WV, 26074; RYAN J. PERCIFIELD, Department of Biology, West Virginia University, Morgantown, West Virginia; DONALD A. PRIMERANO, Department of Biomedical Sciences, Joan C. Edwards School of Medicine, Marshall University, Huntington, WV; NICOLE GARRISON, and DEANNA M. SCHMITT, Department of Biomedical Sciences, West Liberty University, West Liberty, WV, 26074. Role of FTL_0895 in *Francisella tularensis* Susceptibility to Resazurin.

Resistance to antibiotic treatments coupled with the decline in antibiotic discovery has resulted in a steady increase in deaths caused by once “curable” bacterial infections. Developing new drugs is crucial to prevent more loss of life in the future. We discovered the compound resazurin exhibits antimicrobial activity against gram-negative bacteria including *Francisella tularensis (Ft),* however, certain strains of *Ft* have developed resistance to resazurin. Understanding how *Ft* develops resistance to resazurin will help with defining the mechanism by which resazurin elicits its antimicrobial effect. Whole genome sequencing of resazurin-resistant (Rzr) *Ft* LVS mutants revealed 93% of the isolates sequenced possessed mutations in the coding regions of FTL_0421, FTL_0895, and FTL_1504. The focus of my project was to explore the role of FTL_0895 in resazurin susceptibility. To confirm this gene plays a role in the reduced susceptibility of the Rzr strains to resazurin, a wild-type copy of FTL_0895 was cloned into the *Francisella* shuttle vector pABST and then electroporated into one of the Rzr mutants, Rzr1. Complementation with FTL_0895 did not restore sensitivity of the Rzr1 strain to resazurin suggesting that mutation of this gene alone is not responsible for resistance to resazurin. Therefore, we have cloned FTL_0895 into a different *Ft* shuttle vector pMQ2 so we can complement back Rzr1 with this gene in combination with either FTL_1504 or FTL_0421. Agar dilution and time kill assays will be conducted on the resulting Rzr-complemented strains to determine their susceptibility to resazurin.