STEPHANIE L. HAMMOND, DEVIN SINDELDECKER, JENNIFER HICKMAN, and DEANNA M. SCHMITT. Department of Natural Sciences and Mathematics, West Liberty University, West Liberty, WV. Inhibition of lipoprotein sorting in *Francisella tularensis*: a potential target of resazomycins, a novel family of antibiotics.

Tularemia is a potentially fatal illness caused by the bacterium *Francisella tularensis*. Inhalation of less than 10 bacteria results in an acute pneumonia with an associated mortality rate of 30-60% if left untreated. Due to the potential use of *F. tularensis* as a weapon of bioterrorism and development of antibiotic resistance, new antibiotics are being sought against this pathogen. We have identified a novel family of resazurin-based compounds named resazomycins which exhibit antimicrobial activity against *F. tularensis* and *Neisseria gonorrhoeae*. In order to proceed with *in vivo* testing of resazomycins, their mechanism of action must be determined. A recent study has shown that while *F. tularensis* and *N. gonorrhoeae* are taxonomically distinct from one another, they share a similar lipoprotein sorting system, LolDF. This complex differs from the LolCDE sorting complex commonly found in other Gram negative bacteria which indicates this system may be a target of resazomycins. To determine whether resazurin inhibits the function of LolDF we will express the genes that encode for the *E. coli* lipoprotein sorting system (*lolCDE*) in *F. tularensis* to see if we can confer resistance to resazurin. Experimentation thus far has proven to be unsuccessful in trying to generate this construct since overexpression of *lolCDE* in *E. coli* is lethal. To limit expression of these genes until the plasmid has been transferred into *F. tularensis*, we will explore different inducible expression systems. Future investigations will focus on cloning the *E. coli lolCDE* genes into a *Francisella* shuttle vector containing a tetracycline-regulatable promoter.