AMY L. RAWSON and DEANNA M. SCHMITT, Department of Natural Sciences and Mathematics, West Liberty University, West Liberty, WV 26074. Susceptibility of *Brucella ovis* to resazurin and resorufin pentyl ether.

Antibiotic resistance is one of the world's biggest threats to public health. In the United States alone, there are approximately 2 million new cases of antibiotic-resistant infections annually resulting in 23,000 deaths and billions of dollars in healthcare related costs. The development of new antibiotics is essential to prevent the loss of additional lives from once "curable" diseases. We recently identified a novel family of resazurin-based compounds, resazomycins, which exhibit antimicrobial activity against *F. tularensis* and *N. gonorrhoeae in vitro* and *in vivo*. A common feature of both these bacterial species is possession of a unique lipoprotein sorting system, LolDF. To investigate the relationship between LolDF and susceptibility to resazomycins, we propose performing antibiotic susceptibility testing on a diverse collection of medically important LolDF-possessing bacterial strains. This study focuses on characterizing the efficacy of two resazomycins, resazurin (Rz) and resorufin pentyl ether (RPE), against *Brucella ovis*. *B.ovis* infects sheep causing a clinical or subclinical disease characterized by epididymitis and orchitis resulting in reduced fertility in rams. Additionally, *B. ovis* is occasionally linked with placentitis and abortions in ewes and increased perinatal mortality in lambs. Its significant impact on ram fertility causes a critical economic impact on sheep-producing regions globally. We are currently working to determine the minimal inhibitory concentration (MIC) of Rz and RPE against *B. ovis* and if these antibiotics are effective at killing this bacterium within eukaryotic cells. (Supported by NIH Grant P20GM103434 to the West Virginia IDeA Network for Biomedical Research Excellence and funding from WV-NASA Space Grant Consortium).