

REBECCA BARNES#, DEANNA SCHMITT, TRICIA GILSON, and JOSEPH HORZEMPA, Department of Natural Sciences and Mathematics, West Liberty University, West Liberty, WV, 26074. **The role of the erythrocyte cytoskeleton protein spectrin during invasion by *Francisella tularensis*.**

Francisella tularensis is classified as a Category A bioterrorism agent by the Centers for Disease Control and Prevention. Inhaling as few as ten of these bacteria can cause acute, lethal pneumonia. Studies using mouse models of infection have shown that erythrocyte invasion is a novel feature of *F. tularensis* during infection; however, the mechanism by which this bacterium enters red blood cells is unknown. Cytoskeletal rearrangement of other host cells such as macrophages and hepatocytes is required for entry of *F. tularensis*. Therefore, in this study, we evaluated the role of the major erythrocyte cytoskeletal component, spectrin, in red blood cell invasion. To test this, human erythrocytes were treated with venom from the Blue-bellied black snake (*Pseudechis guttatus*), which disrupts the spectrin in the cytoskeleton. Treatment with this venom significantly reduced the number of intra-erythrocytic bacteria suggesting that spectrin is involved in erythrocyte invasion. Importantly, the concentrations of venom used in this study did not reduce the number of intact erythrocytes. This is the first study showing the involvement of an erythrocyte protein during invasion by *F. tularensis*.