

LUKE D’CUNHA, STUART CANTLAY & JOSEPH HORZEMPA, Department of Biological Sciences, West Liberty University, West Liberty, WV, 26074. Insight into *Francisella tularensis*-erythrocyte interactions.

*Francisella tularensis*, the causative agent of tularemia, is a pathogenic gram-negative bacterium that enters human red blood cells (RBCs). Previous investigations suggest that invasion of RBCs helps *F. tularensis* survive in the gut of arthropods – a transmission vector of this bacterium leading to colonization. Since tularemia is a zoonotic infection, humans are not the primary host of *F. tularensis*. Therefore, we sought to investigate whether *F. tularensis* was capable of invading RBCs of other animals. Using the gentamicin protection assay, we discovered that while *F. tularensis* could enter sheep and chicken erythrocytes, bovine RBCs did not support invasion. Because of previous studies published by our lab, and due to intrinsic differences between human and bovine erythrocyte surface protein Band 3, we hypothesized that RBC membrane protein Band 3 is required for invasion. We used anti-band 3 Fab fragments to physically block the Band 3 RBC surface protein and investigated how that impacted *F. tularensis* invasion. Here, we provide preliminary evidence suggesting that *F. tularensis* uses Band 3 to enter human RBCs. *This study was funded by the National Institute of Allergy and Infectious Diseases (1R15HL147135) and an Institutional Development Award (IDeA) from the National Institute of General Medical Sciences of the National Institutes of Health (P20GM103434), which funds WV-INBRE program.*