Francisella tularensis is a highly infectious bacterium that causes the disease, tularemia. Humans acquire tularemia through inhalation, oropharyngeal exposure, or tick bites. A unique feature of F. tularensis during infection is its ability to invade erythrocytes. Recent evidence indicated that residing within an erythrocyte enhances the ability of F. tularensis to colonize ticks. Further results indicated that residing within erythrocytes protects F. tularensis from the low pH environment associated with the gut cells of a feeding tick. Iron has previously been shown to be utilized by F. tularensis to protect against killing by reactive oxygen species. We hypothesized that F. tularensis was obtaining iron from erythrocytes. This iron was being utilized by F. tularensis for protection against the oxidative stress associated with a low pH environment, such as that found in the gut cells of a tick. We first sought to determine whether F. tularensis was capable of acquiring iron from erythrocytes. Our results indicated that F. tularensis bacteria incubated with red blood cells contained significantly more iron than those incubated in media alone. This suggested that F. tularensis bacteria were capable of acquiring iron from these host cells. Investigations are ongoing that will assess whether additional iron is responsible for protecting the F. tularensis bacteria from the low pH environment of the tick gut cells.