

S 8-5

The 58-kDa major virulence factor, FTT0918, of *Francisella tularensis* is required for utilization of iron

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Aim: This study aimed to characterize the phenotype of $\Delta FTT0918$ and thereby obtain an understanding of the role of FTT0918 that could explain its important contribution to the virulence of *F. tularensis*. FTT0918 is highly similar to the siderophore receptor *fsiE*. To this end, we asked if FTT0918 performs a function in the iron metabolism of SchuS4.

Methods: SchuS4, a strain of *F. tularensis* subsp. *tularensis*, and the isogenic mutants $\Delta FTT0918$ and $\Delta fsiA$ were characterized with regard to growth, gene expression, siderophore production and uptake.

Results: $\Delta fsiA$ did not produce siderophores and showed impaired growth under iron limiting conditions. $\Delta FTT0918$ produced siderophores but showed impaired siderophore uptake and reduced growth under iron limiting conditions. After depletion of the intracellular iron pool, $\Delta FTT0918$ showed impaired growth even in high iron concentrations.

Conclusions: The results demonstrate that FTT0918 plays an important role in the utilization of iron by the highly virulent SchuS4 strain. This occurs under iron-deplete, and likely also under iron-replete conditions and these multiple roles may be an important reason for its major contribution to the virulence of *F. tularensis*.