ABSTRACT

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Determination the mechanism of entry *F. tularensis* into B lymphocytes

Diploma thesis

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Background: Besides processing the research with basics knowledge of the problem, the main aim of the study was the analysis of mechanism of entrance of intracellular bacteria *Francisella tularensis* into B cells.

Methods: The B cells, which we obtained through peritoneal lavage from mice Balb/c, we blocked using antibodies individual complement receptors, B cell receptor and Fcy receptor. The population of the cells was infected by bacteria *F. tularensis* LVS/GFP opsonized by complement and/or by antibodies. Using flow cytometry we measured the percentage of infection of individual subpopulations of B cell B1a, B1b and B2 and we evaluated the influence of blocking and opsonization on the infection.

Results: From the measured data, we can say that the percentage of infected B cells after infection by *F. tularensis* opsonized by complement is increased. This increase was more distinct in subtype of B cells B1b and B2. On the other hand, the opsonization *F. tularensis* by antibodies did not affect the infection. We also found out, that blocking of Fcy receptor has decrease the infection, if we used for infection of B cells bacteria opsonized by complement and antibodies at the same time. When blocking complement receptors, the significant reduction of infection we detected by blocking the receptor CR1/2. Blocking the B cell receptor, the biggest decrease of the infection was in subtype B1a; either we used for infection *F. tularensis* opsonized by complement or antibodies.

Conclusion: The opsonisation of the *F. Tularensis* by complement or antibodies does not decrease the infection of B cells, there is no reduction of entry bacteria into cells. For reducing the infection is advantageous to block the B cell receptor or complement receptor CR1/2, both have great influence on the infection by *F. tularensis*. Blocking the receptor Fcy will reduce the infection only while using the bacteria opsonised by complement and antibodies together.The subtype of B cell B1a was in our experiments with receptors blocking the most sensitive subtype, whether sensitive to infection or reducing the infection after blocking receptors.

Key words: B cells, *Francisella tularensis,* flow cytometry