ABSTRACT

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Detection of antibodies reactive with *F. tularensis* in early phase of infection

Thesis

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Because of its high virulence and mortality *Francisella tularensis* is considered to be a dangerous potential biological weapon and therefore this etiological agent is a suitable object of the primary research. Problems of an antibody response to the infection with intracellular pathogens are currently gaining in importance. Opinions and conclusions of various research teams differ, so this topic is up-to-date.

The aim of this study was to find whether *F. tularensis* induces the antibody immune reaction in an early phase of infection (after 24 and 48 hours). The virulent strain of *F. tularensis* was used. We also intended to validate a feasibility of chosen methodology.

Methods: We prepared a whole-cell bacteria lysate of *F. tularensis holarctica* FSC200. This lysate was separated by 2D electrophoresis with subsequent Western blotting. Proteins were marked by immunodetection using serum of BALB/c mice. Mice sera were collected 24 and 48 hours post challenge with *F. tularensis*. The serum of uninfected mice was utilized as control. Using comparative analysis, we tried to find proteins reacting only with the immunized sera, not with the control sera.

Results: Six independent experiments were realized. There are three proteins in all legible films that were not found in any of the controls. These proteins will be analyzed by mass spectrometry in another study.

Conclusion: We proved that the intracellular infection with *F. tularensis* is capable to induce early specific antibody-mediated response. Detected bacterial proteins can possibly initiate the synthesis of low-affinity antibodies without the direct T-cell help, i. e. without the second signal. These bacterial protein structures are called T-cell independent antigens.