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A recombinant subunit vaccine based on truncated Omp2b protein induces protection against Brucella infection in BALB/c mice

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Objectives: Brucellosis is the most common bacterial zoonosis worldwide and no safe and effective vaccine is available for the prevention of human brucellosis. In humans, brucellosis is mostly caused by *Brucella melitensis* and *Brucella abortus*. According to our *in silico* studies, Omp2b is predicted to be potentially immunogenic antigen conserved in main *Brucella* pathogens. The aim of this study was to design truncated form of Omp2b and to evaluate the immunogenicity and protective efficacy of a recombinant protein vaccine encoding tOmp2b.

Methods: Bioinformatics tools were used to design the truncated protein based on conserved domains and regions of epitopes with strong affinity for MHC molecules. The humoral/cellular immune response and protection levels against challenge with wild *B. melitensis* and *B. abortus* infections were evaluated in rtOmp2b+ adjuvants immunized mice and control groups.

Results: Vaccination of BALB/c mice rtOmp2b provided the significant protection level against both *B. melitenisis* and *B. abortus*. Moreover, rtOmp2b elicited a strong specific IgG response (higher IgG2a titers) and significant IFN-γ/IL2 production.

Conclusion: According to the results, rtOmp2b is able to induce cross-protection against *B. melitensis* and *B. abortus* infections. Therefore, it could be a new potential candidate for the development of Brucella subunit vaccines.

Biography

Maryam Golshani was graduated from the Pasteur Institute with a degree in Medical Bacteriology. Presently, she is a Post doctorate fellow and Junior Research Group Leader at IPI working on new *Brucella* vaccine candidates. Her research mainly focuses on *in silico* investing the immunogenicity of new vaccine targets and *in vivo* evaluating their protective efficacy against *Brucella infection*. She has involved in more than 11 projects and published 11 papers in reputed journals.

Notes:

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Page 55