

عنوان مقاله:

Cloning and molecular characterization of Omp₃₁ gene from Brucella melitensis Rev 1 strain

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خلاصه مقاله:

Brucellosis, caused by the genus Brucella bacterium, is a well-known infection among domestic animals. Considering the serious economic and medical consequences of this infection, various preventive efforts have been made through using recombinant vaccines, based on outer membrane protein (OMP) antigens of Brucella species. The objective of the present study was to clone, analyze the sequence, and predict the epitopes of Omp₃₁ gene as a major B. melitensis antigen. The full-length open reading frame (ORF) for this gene was amplified by specific primers and cloned into the pTZΔYR/T vector. The gene sequence of B. melitensis Rev 1 strain was submitted to NCBI database. The results of phylogenetic analysis showed that Omp₃₁ is almost similar in different Brucella species. Online prediction software programs were also used to predict B- and T-cell epitopes, secondary and tertiary structures, antigenicity, and enzymatic degradation sites. The bioinformatic tools in the current study were confirmed by the results of three different experimental epitope prediction studies. Bioinformatic analysis identified one T-cell and three B-cell epitopes for Omp₃₁ antigen. Finally, based on the antigenicity and proteasome recognition sites, common B- and T-cell epitopes were predicted for Omp₃₁ (amino acids 191-204). Bioinformatic analysis showed that these regions had proper epitope characterization and could be useful for recombinant vaccine development.

کلمات کلیدی:

Brucella melitensis, Omp₃₁, Bioinformatic analysis

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