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A trivalent recombinant vaccine candidate against brucellosis

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Brucellosis is caused by Gram-negative bacteria of the genus *Brucella*, which infect different domestic and wild animals. So far, there is no available vaccine which is safe enough for humans. On this point, subunit recombinat vaccine has become the new breakthrough for combating brucellosis. The main goals of the present study include determining the prophylactic potential of a trivalent protein mixture consisting of BP26, Omp25 and L7/L12 ribosomal protein of *Brucella abortus* as a vaccine candidate against brucellosis. Merit of the Bp26 periplasmic protein is that it is conserved throughout the *Brucella* genus. It induces a strong Th2 response with mild increase in IFN-gamma levels. Ribosomal protein of *Brucella* L7/L12 is highly conserved protein in *Brucella* species and found to be highly immunodominant in the infected cattle. Also, Outer membrane protein 25 (Omp 25) is a highly conserved protein in *Brucella sp.* which is studied to be involved in virulence of *Brucella*. Therefore, the current work deals with the co immunization of mentioned 3 proteins following two different quantitative dose statistics for immunization in the mice; "40µg rL7/L12+40µg rBp26+30µg rOmp25 (Mixture 1)" and "20µg rL7/L12+20 µg rBp26+15 µg rOmp25 (Mixture 2)". Here we show humoral immune response elicited by different mixtures, Mixture 2 (40 µg rL7/L12 + 40 µg rBp26 + 30 µg rOmp25) is similar to Mixture 1 (20 µg rL7/L12 +20 µg rBp26 + 15 µg rOmp25) in multivalent vaccine combination. It was observed that total IgG antibody response in tripartite vaccine was comparable to the mice immunized with Bp26, Omp25 and L7/L12 individually. Good Humoral and cellular immune response was elicited, suggested by higher IgG1 and IgG2 levels in mice immunized with trivalent protein combination.Thus, the simultaneous immunization with three antigens did not appear to diminish immune responses against its components.We also compare the cellular mediated immune response in trivalent vaccine immunized mice to individual protein immunized mice. Also, subunit vaccine is particularly safe for administration in humans and therefore can be used as a vaccine against human brucellosis. Therefore, this study suggests future application of this trivalent protein as an improved vaccine candidate against *Brucella* species infection.

Biography:

Sonal Gupta she is working as a Ph.D research scholar at Jawaharlal Nehru University. She has completed her Masters in biotechnology from the same university. Before that she worked as a research scholar Her research interest is in cloning,Microbiology and Immunology.