A trivalent vaccine candidate against brucellosis

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The current vaccines against brucellosis namely B. abortus Strain 19 and RB51, are able to prevent Brucellosis infection in animals but are still far from ideal in offering complete protection against the disease. Moreover they are infectious to the human hosts as well as pose potential risks to recipient animals e.g. attenuation reversal and virulence in susceptible hosts on administration. Therefore, recombinant subunit vaccines prove to be better alternatives for combating brucellosis. BP26, Omp25 and L7/L12 are proposed to be promising protective antigens by inducing heightened antibody titres in conjugation with strong cell-mediated immune responses against Brucellosis infection. The main goal of the present study is to determine the prophylactic potential of a Combined Subunit vaccine (CSV) against brucellosis consisting of BP26, Omp25 and L7/L12 ribosomal protein of Brucella abortus. On co-immunization of BP26, Omp25 and L7/L12, It was observed that total IgG antibody levels in combined subunit vaccine were comparable to the mice immunized with BP26, Omp25 and L7/L12 individually. Robust humoral and cellular immune response was suggested by higher IgG1 and IgG2a levels in mice immunized with Combined Subunit vaccine candidate (CSV). The effect of formulations on T-helper (Th) cell development was assessed by quantifying the Th1-dependant (IFN-γ, IL-2 and TNF-α) and Th2-dependant (IL-5, IL-10) cytokines. Evidently, the simultaneous immunization with three antigens complimented immune responses against its components. Altogether, this study shows immune responses analysis on co-immunization of BP26, Omp25 and L7/L12 proteins as a vaccine candidate against Brucella species infection.

Speaker Biography

Sonal Gupta is a research scholar working on formulation of recombinant vaccines against infectious diseases such as Brucellosis, anthrax. She completed her MSc in Biotechnology from School of Biotechnology, JNU. Currently she is pursuing PhD in Biotechnology from Jawaharlal Nehru University, New Delhi. Her research interests include studying immunological responses of host in response of bacterial diseases, recombinant vaccines formulation against bacterial infectious diseases.

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