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An HIV-1 polytope vaccine candidate formulated in aqueous and alcoholic extracts of propolis as adjuvant induced comparable immune responses in comparison to golden standard adjuvants

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Using vaccination strategy many of infectious diseases controlled but in some instance vaccines are not effective and needed to improve through novel adjuvants. Today's adjuvants considered as an important part of vaccine formulation. Propolis from honey bee can stimulates the immune system and several studies have shown the modulating effects of propolis on the immune responses. In the current study aqueous and alcoholic extracts of propolis were studied on the HIV-1 multi-epitope vaccine model. Also, the potency of these compounds compared with alum and Freund adjuvants as golden standard adjuvants. Recombinant HIV-1 multi-epitope vaccine is produced in *E. coli* BL21 (DE3) and purified using Ni-NTA column. Experimental Balb/C mice were immunized subcutaneously with vaccines in the presence of 5 mg of aqueous and alcoholic extracts of propolis as adjuvant in separate groups, three times with two-week-intervals under the same conditions with proper control groups. Two weeks after final injection, lymphocyte proliferation was measured by BrdU method, IL-4 and IFN- γ cytokines, as well as specific total IgG antibodies and their iso types IgG1, IgG2a were assessed using ELISA. Results show that the aqueous and alcoholic extracts were able to enhance lymphocyte proliferation, IL-4 and IFN cytokines and antibody responses with dominant IgG1 pattern. In addition, results show that cellular and humoral immunologic parameters show a comparable level to Freund's and alum adjuvants. It seems that component of aqueous and alcoholic extracts can be used as vaccine excipient to improve potency and efficacy of ineffective vaccines such as HIV-1 vaccine.

Biography

Pegah Karimi is has completed her Bachelors in Microbiology from Islamic Azad University of Tehran.