

Immunogenicity of a DNA Vaccine Encoding Ag85a-Tb10.4 Antigens from Mycobacterium Tuberculosis

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Background and Objective: Tuberculosis is a life threatening disease that is partially prevented by BCG vaccine. Development of more effective vaccines is an urgent priority in TB control. Ag85a and Tb10.4 are the members of culture filter protein (CFP) of *M. tuberculosis* that have high immunogenicity. To analyze the immunogenicity of Ag85a-Tb10.4 DNA vaccine by enzyme-linked immunosorbent assay (ELISA).

Materials and Methods:

In this study a previously described plasmid DNA vaccine encoding Ag85a-Tb10.4 was used to examine its capability in the stimulation of immune responses in an animal model. Female BALB/c mice were vaccinated with 100 µg of purified recombinant vector intramuscularly 3 times at two-week intervals and the levels of five cytokines including IFN-γ, IL-12, IL-4, IL-10 and TGF-β were measured.

Results: The levels of IFN-γ and IL-12 for the mice following immunization with Ag85A-Tb10.4 was significantly greater than that of the BCG and control group ($p < 0.05$). However, there was no significant difference in the levels of IL-4, IL-10 and TGF-β between groups (Fig1).

Conclusion:

IFN-γ and IL-12 Th1 cytokines increased significantly in mice vaccinated with Ag85a-TB10.4 DNA vaccine in comparison to the control and BCG groups. Our results may serve as a groundwork for further research into the prevention and treatment of tuberculosis.

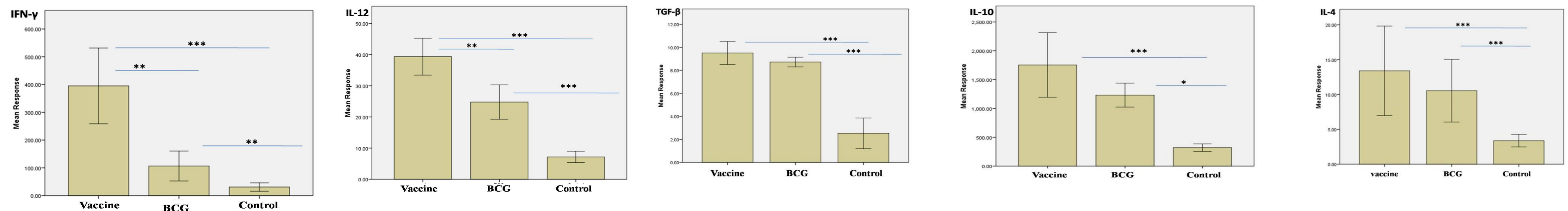


Fig.1: production of IL-10, IL-4, IL-12, IFN-γ and TGF-β in vaccine, BCG and control group at supernatant of 72 h of splenocyte culture. Results are expressed as mean±SD of cytokine production. Significant differences between groups ($P < 0.05$) were noted with asteriks. (*) $P < 0.05$, (**) $P < 0.01$, (***) $P < 0.001$

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