

عنوان مقاله:

Assessment of DNA vaccine encoding *Toxoplasma gondii* microneme complete gene and IL-12 as adjuvant in BALB/c mice

محل انتشار:

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خلاصه مقاله:

Objective(s): *Toxoplasma gondii* is an obligate intracellular protozoan parasite that causes toxoplasmosis in humans and animals. Micronemes (MICs) are effective candidates for DNA vaccine. Materials and Methods: In this study, we evaluated the immune response of BALB/c mice against MIC3 gene of *Toxoplasma gondii* and interleukin 12 (IL-12) as DNA vaccine. The MIC3 gene was cloned into the PTZ57R/T vector before sub-cloning in pcDNA3. Recombinant pc-MIC3 was transformed into *Escherichia coli* (TOP10 strain). The pc-MIC3 plasmid was then transfected into Chinese Hamster Ovary (CHO) cells, and the expression of the MIC3 gene was evaluated by SDS-PAGE and Western blotting. Sixty female BALB/c mice were divided into 6 groups. Each group received 3 intramuscular immunizations on days 0, 21st and 42nd using one of the following stimulants: phosphate-buffered saline, pcDNA3, pCAGGS-IL12, pc-MIC3 (100 µg), pc-MIC3 (50 µg), or combined pCAGGS-IL12 (50 µg) and pc-MIC3 (50 µg). The enzyme-linked immunosorbent assays was applied to evaluate interferon gamma (IFN-γ) and IL-4 cytokines excretion of lymphocytes stimulated with tachyzoites lysate antigen, as well as the total levels of immunoglobulin G (IgG), IgG2a and IgG1 in immunized mice sera. Results: Our results showed that mice challenged with pc-MIC3 (100 µg) had the highest longevity and quantity of immunoglobulin. Moreover, the highest expression level of IFN-γ was found in mice injected with combined pcMIC3 and pCAGGS-IL12 (P<0.05). Conclusion: The MIC3 gene can be an efficient DNA vaccine candidate against toxoplasmosis. While, the single-gene vaccine can confer partial protection to mice against toxoplasmosis, the multigene vaccine can significantly enhance immune responses

کلمات کلیدی:

BALB/c mice, DNA vaccine, Immunization, pCAGGS-IL12, pc-MIC3, *Toxoplasma gondii*

لینک ثابت مقاله در پایگاه سیویلیکا:

