عنوان مقاله:

Encapsulation of Imiquimod Adjuvant and Soluble Leishmania Antigen into Liposomes as a Vaccine in the Cutaneous Leishmaniasis Model

محل انتشار:

بیستمین کنگره بین المللی میکروب شناسی ایران (سال: 1398)

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خلاصه مقاله:

Introduction and Objectives: The current therapy for the treatment of leishmaniasis is unsatisfactory because it has multiple side effects, and resistance has been reported among the parasites that cause these diseases. Attempts to produce vaccines for leishmaniasis need adjuvants to trigger the kind of immune reaction required for protection. In this study, we examined the properties of the TLR7 agonist imiquimod, a vaccine adjuvant, making use of a live model of infection where the immune reactions could be identified prior to and following the challenge of infection. Materials and Methods: The liposomes of EPC containing the imiquimod adjuvant were provided and identified for protein concentration, surface charge, and particle size. Vaccination was done using the soluble Leishmania antigen (SLA) as a first-generation vaccine's model in the liposomal state to vaccinate BALB/c mice against the challenge of leishmania major. BALB/c mice were vaccinated subcutaneously, three times at a two-week interval. Parasite burden, footpad swelling, IgG isotype, as well as the level of IL-4 and IFN-γ were assessed as the protection criteria. Results: The group of mice vaccinated by Lip+Imiquimod+SLA demonstrated a lower amount of footpad swelling and parasite burden than the buffer group. In addition, the greatest amount of IFN- γ and the smallest amount of IL-4 production was noticed in the splenocytes of the mice vaccinated by the formulation of Lip+Imiquimod+SLA. Conclusion: These results imply that imiquimod added to the formulation of liposomes is able to modulate the immune reaction of the BALB/c mice vaccinated preferably to a Th1 reaction rather than a Th2 reaction; it can also lead to partial protection against the challenge of Leishmania.

کلمات کلیدی:

Leishmaniasis, vaccine, Imiquimod, Liposome, Immune response