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The role of liposome charge on immune response generated in BALB/c mice immunized with recombinant major surface glycoprotein of Leishmania (rgp٦٣)

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Abstract

Liposomes as a lipid-based system have been shown to be an effective adjuvant formulation. In this study, the role of liposome charge in induction of a Th١ type of immune response and protection against leishmaniasis in BALB/c mice was studied. Liposomes containing rgp٦٣ were prepared by Dehydration-Rehydration Vesicle (DRV) method. Neutral liposomes consisted of dipalmitoylphosphatidylcholine and cholesterol. Positively and negatively charged liposomes were prepared by adding dimethyldioctadecylammonium bromide (DDAB) or dicetyl phosphate (DCP) to the neutral liposome formulation, respectively. Female BALB/c mice were immunized subcutaneously with negatively, positively charged or neutral liposomes encapsulated with rgp٦٣, rgp٦٣ in soluble form or PBS, three times in ٣ week intervals. The extent of protection and type of immune response generated were studied in different groups of mice. The group of mice immunized with rgp٦٣ encapsulated in neutral liposomes showed a significantly ($P < ٠,٠١$) smaller footpad swelling upon challenge with Leishmania major compared with positively or negatively charged liposomes. The mice immunized with neutral liposomes also showed a significantly ($P < ٠,٠١$) the lowest splenic parasite burden, the highest IgG٢a/IgG١ ratio and IFN-γ production and the lowest IL-٤ level compared to the other groups. The results indicated that a Th١ type of immune response was induced in mice immunized with neutral liposomes more efficiently than positively charged liposomes and conversely negatively charged liposomes induced a Th٢ type of immune response.

Reaxys Database Information

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Author keywords

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Indexed Keywords

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