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Vaccine development

CHIMERIC INFLUENZA VIROSOME

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Influenza virosome is highly efficient formulation of vaccine candidate mimicking the natural antigen presentation route of the influenza virus as well as the antigen of interest. The virosome has been used as immunomodulatory carrier for some commercial vaccines. We have shown that the virosome delivers the plasmid DNA containing the genes of interest to induce protective immunity in animal model. In this study we constructed a new chimeric influenza based virosome vaccine containing hemagglutinin (HA) and neuraminidase (NA) proteins derived from the A/PR/8/1934(H1N1) and A/X/47 (H3N2) viruse and evaluated their efficiency in mice. A single intramuscular administration of chimeric virosome provided complete protection against lethal challenge with the A/PR/8/1934 as well as A/X/47 (H3N2). Chimeric virosome induced predominant IgG1a antibody responses and high hemagglutination inhibition (HAI) titers against both strains. HAI titers after chimeric virosome vaccination were the same level to those induced by the inactivated influenza vaccine. Chimeric virosome immunized mice displayed considerable less weight loss and had significantly reduced viral load in their lungs compared to controls. The chimeric virosome can be used as a new vaccine formulation to prevent the influenza virus infection, especially in pandemic situation.