



COMPOSITION, VACCINE AND METHOD FOR TREATING INFLUENZA A

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Market Needs: Influenza poses a persistent public health concern with annual epidemics incurring serious morbidity and mortality. As a seasonal event, influenza is estimated to cause 3 to 5 million cases of severe illness with up to 650,000 respiratory deaths every year. Vaccination efforts against the mutation-prone virus are encumbered by the viruses' tendency to undergo antigenic shift and antigenic drift, where reassortment of viral genes and point mutations at the receptor binding proteins can impair protectivity from pre-existing antibodies. As such, current hemagglutinin (HA)-based vaccines require annual updates, and they are susceptible to low protectivity in cases where the vaccines do not match with the circulating virus strains. Towards addressing the shortcomings of current influenza vaccines, a variety of vaccine designs based on both B cell and T cell-based immunogens have been proposed for universal influenza vaccination.

Our Technology: This invention serves as a platform technology for the preparation of influenza virus vaccines, applicable in vaccine development. We have constructed a nanoshell vaccine that co-delivers viral antigens and immune adjuvants, which can precisely target lymphatic tissues to activate follicular dendritic cells (FDC). Due to its induction of a large amount of type I interferon (IFN), it promotes a Th1-type immune response. A single inoculation of this vaccine provides mice with protection against lethal influenza virus infection and prevents lung damage.

Strength: A universal influenza vaccine only requires one dose administration

Competing Products: None

Intellectual Properties: patent filed

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