

P023

# **HUMORAL IMMUNITY OF BALB/c MICE IMMUNISED WITH A HUMAN INFLUENZA A VACCINE BASED ON M2e DISPLAYED ON THE VIRUS-LIKE PARTICLES OF NODAVIRUS**

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Influenza A viruses (IAVs) are the etiological agents of the "flu", which kills over half a million people annually. Various types of vaccines have been developed, including inactivated, live attenuated, and recombinant vaccines. However, these vaccines are mainly based on the viral haemagglutinin (H) and neuraminidase (N) glycoproteins, which are prone to mutations. As a result, current flu vaccines must be reconstituted yearly to match the contemporary circulating variants. To overcome the need for frequent updates and yearly revaccination, the highly conserved matrix 2 ectodomain (M2e) protein of IAVs can be used to develop a universal vaccine against the flu. Therefore, in the present study, the M2e sequences were linked to the recombinant capsid protein of a prawn nodavirus. The recombinant protein of approximately 60 kDa produced in bacteria was purified using immobilised metal affinity chromatography. The purified protein formed virus-like particles (VLPs) as observed under a transmission electron microscope. BALB/c mice were immunised subcutaneously with these VLPs, and their humoral immune responses were studied. Collectively, the results demonstrated that the newly developed VLPs have the potential to serve as a universal flu vaccine.

Keywords: flu, universal vaccine, virus-like particles, recombinant protein, nodavirus capsid protein