Background: Globally, prevention and control of seasonal influenza has faced many challenges in the selection of a vaccine composition that antigenically matches circulating viruses. A universal influenza vaccine approach that targets small conserved influenza virus epitopes/peptides such as the extracellular domain of Matrix 2 (M2e) and induces broadly reactive antibodies may be helpful for both seasonal influenza outbreaks and pandemics. Here we report the ability of two composite peptide vaccines, individually and in combination, to induce broadly reactive antibodies that have binding and functional activity across several contemporary influenza strains in Group 1 and 2.

Methods: Mice were immunized with peptide composite conjugate vaccines against Hemagglutinin (HA), Neuraminidase (NA) and M2e, individually and in combination. Peptide composite vaccines, conjugated to CRM were administered subcutaneously with adjuvant and at least two booster doses. Serum antibody titers were analyzed using an anti-influenza ELISA for binding activity to peptides and live influenza viruses (H3N2 and H1N1) and functional activity was evaluated in vitro using Microneutralization, Hemagglutination Inhibition (HAI), and Antibody-Dependent Cellular Cytotoxicity (ADCC) assays.

Results: Mice given the peptide composite conjugate vaccines, individually and in combination, had strong humoral responses producing high serum anti-influenza titers post-booster immunization. Anti-influenza serum antibodies demonstrated functional activity against influenza A (H3N2 and H1N1) contemporary strains showing neutralization, HAI and ADCC activity.

Conclusion: Peptide conjugate vaccines were highly immunogenic in mice. Broadly reactive serum antibodies against the peptides and live influenza viruses were detected. These vaccines individually or in combination, induced antibodies that demonstrated functional activity against contemporary influenza strains in Group 1 and 2 and induced functional anti-influenza monoclonal antibodies. A vaccine that targets one or more HA, NA and M2e influenza epitopes may more closely approach the goal for a true universal influenza vaccine. In vivo protection studies are currently being designed.

Disclosures. All authors: No reported disclosures.

2753. Induction of Broadly Cross- Reactive Immune Responses Against A(H3N2) Airuses: Results of a Phase 2 Trial of a Novel Recombinant Hemagglutinin Saponin-Adjuvanted Nanoparticle Seasonal Influenza Vaccine Vivek Shinde, MD, MPH; Yongman Cai, PhD; Joyce S. Plested, PhD; Bin Zhou, PhD; Haisia Zhou, PhD; Mingzhu Zhu, PhD; Nan Wang; Shane Cloney-Clark; Sapeck Agraval, PhD; Michelle S. Spindler, MS, CCRA; Nita Patel, MS; Michael Massare, PhD; Gale Smith, M.D. Nielg. Thomas, PhD; Ilsung Cho, MS; Louis F. Fries, III, MD; Gregory M. Glenn, MD; Novavax, Inc., Gaithersburg, Maryland

Session: 278. Vaccines: Influenza Saturday, October 5, 2019. 12:15 PM

Background: We developed a recombinant saponin-adjuvanted (Matrix-M1) quadravalent hemagglutinin nanoparticle influenza vaccine (qNIV; NanoFlu) for older adults to address two impediments to efficacy of current, predominantly egg-derived, seasonal influenza vaccines: (1) limited protection against antigenic drift and (2) low antibody responses against H3N2 influenza viruses. We hypothesized that the binding avidity and IC50 of a conformational H3N2 virus-reactive trivalent HAI/Vaccines: Influenza 2019:6 (Suppl 2) / posts 2019.

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