Docket #: S24-068

Design of Universal H5 Influenza virus vaccine candidates via Antigen Reorientation

Researchers at Stanford University have developed novel universal vaccine candidates for H5 influenza viruses.

Influenza remains a serious threat to public health. H5 avian influenza strains are among the most concerning despite lack of documented human to human transmission due to their high mortality rates (40-60%). Currently available vaccines are unlikely to confer significant immunity to H5. Additionally, a large portion of public health resources every year are expended to create a seasonal vaccine for influenza viral strains that are circulating in the general population. Taken together, these facts point towards the urgent unmet need for a universal influenza vaccine.

Stage of Development
Research - in vivo

Stage of Research
The inventors have created novel vaccine candidates for H5 influenza viruses. Specifically, the immune response to these vaccine candidates is directed towards specific epitopes that are conserved across strains and are less mutable than epitopes that are traditionally exposed. A modified H5 HA antigen is presented in a defined orientation via electrostatic interactions with the adjuvant such that specific epitopes are exposed and the immune response is therefore directed towards those exposed epitopes.

This in turn will confer immunity to a larger breadth of viral variants. Experiments in mice with these vaccine candidates have shown that these vaccine candidates generate broad immunity to a number of influenza strains.

Applications

- Vaccine candidates for H5 avian influeza
- Vaccine candidates for a breadth of influenza viruses

Advantages

- Generates broad immunity to a number of influenza viral strains via exposure of a conserved epitope

Patents

- Published Application: WO2025222028

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