

# Nasally Administered Adenovector-Based Pandemic Influenza Vaccine

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Zoonotic influenza viruses continue to pose a major pandemic threat, highlighting the need for rapidly adaptable vaccines that induce both mucosal and systemic immunity. We are developing an intranasal adenovirus serotype 5 (Ad5)-vectored influenza vaccine platform optimized for pandemic preparedness.

The vaccine combines complementary hemagglutinin (HA) immunogens: a strain-specific HA-head construct and a conserved HA-stem construct designed to induce broad cross-protective immunity. To enhance cellular responses and antibody durability, the antigens incorporate modular T-helper epitope domains. Influenza-specific antigen designs were generated and cloned into an established Ad5 vector platform previously validated for intranasal vaccination.

We have successfully generated Ad5 vaccine constructs expressing influenza HA-head and HA-stem immunogens. Initial studies are evaluating antigen expression, secretion, and processing in mammalian cells to identify lead candidates for preclinical development. Planned studies will assess intranasal immunization in mice, including mucosal IgA, systemic IgG, T-cell responses, and neutralization breadth against pre-pandemic influenza viruses, including H9N2.

This work establishes a flexible intranasal adenovector vaccine platform designed to provide broad and durable protection against influenza viruses with pandemic potential while supporting rapid vaccine adaptation to emerging threats.

## Keywords

## Professional status of the speaker

Senior Scientist

## Junior scientist status

No, I am not a junior scientist.

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