

Technology Opportunity, Ref. No. UB-25/253

Safe and efficacious prime/boost vaccination strategy for protection of swine against influenza A viruses

Swine influenza A viruses (swIAV) cause an economically important respiratory disease in modern pig production. We developed a new, two-step vaccination strategy that pairs intramuscular injection of recombinant RNA replicon particles with nasal spray administration of a novel live-attenuated influenza vaccine (LAIV). When evaluated in swine, this novel vaccination strategy demonstrated excellent efficacy and safety features.



Keywords	Swine influenza A virus, Influence vaccine
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Reference	Avanthay, R. et al (2024) Evaluation of a novel intramuscular prime/intranasal boost vaccination strategy against influenza in the pig model. PLoS Pathogens 20(8):e1012393. https://doi.org/10.1371/journal.ppat.1012393
Background	Swine influenza A viruses (swIAV) cause an economically important respiratory disease in modern pig production. Continuous virus transmission and antigenic drift are difficult to control in enzootically infected herds using conventional inactivated vaccines.
Invention	<ol style="list-style-type: none">1) Primary immunization of piglets with RNA replicon particles induces a protective immune response even in the presence of maternal antibodies2) No adjuvants required3) Subsequent intranasal immunization with a live-attenuated influenza vaccine triggers a mucosal immune response that prevents replication and shedding of virulent challenge viruses4) The intranasal boost broadens the immune response and provides cross-protection against antigenic-drifted virus strains5) Shedding of LAIV is controlled by the first immunization minimizing the risk of reassortment with field strains
Patent Status	Patent application filed
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