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AN EQUINE HERPESVIRUS 1 (EHV-1) VECTORED H1 VACCINE PROTECTS AGAINST CHALLENGE WITH SWINE-ORIGIN INFLUENZA VIRUS H1N1.

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In 2009, a novel swine-origin H1N1 influenza A virus (S-OIV), antigenically and genetically divergent from seasonal H1N1, caused a flu pandemic in humans. Development of an effective vaccine to limit transmission of S-OIV in animal reservoir hosts and from reservoir hosts to humans and animals is necessary. In the present study, we constructed and evaluated a vectored vaccine expressing the H1 hemagglutinin of a recent S-OIV isolate using equine herpesvirus 1 (EHV-1) as the delivery vehicle. Expression of the recombinant protein was demonstrated by immunofluorescence and western blotting and the in vitro growth properties of the modified live vector were found to be comparable to those of the parental virus. The EHV-1-H1 vaccine induced an influenza virus-specific antibody response when inoculated into mice by both the intranasal and subcutaneous routes. Upon challenge infection, protection of vaccinated mice could be demonstrated by reduction of clinical signs and faster virus clearance. Our study shows that an EHV-1-based influenza H1N1 vaccine may be a promising alternative for protection against S-OIV infection.