

SWINE HEALTH

Title: Characterization of porcine astrovirus infection in the U.S. pig population – NPB #12-189

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Scientific Abstract

Many astrovirus (AstV) species are associated with enteric disease. In this study, the prevalence rates of porcine AstV types 1–5 (PAstV1–PAstV5) in the U.S. pig population were investigated using fecal samples from 509 pigs. Specifically, two multiplex differential PCR assays were developed capable of detection and differentiation of all five known PAstV. Among the 509 pigs tested, 488 (95.9%) came from farms with a history of diarrhea. All of the five known PAstV types were found to circulate in pigs in the U.S., and co-infection of a single pig with two or more PAstV types was frequently observed. A high overall prevalence of 64.0% (326/509) of PAstV RNA-positive samples was detected, with 97.2% (317/326) of the PAstV RNA-positive pigs infected with PAstV4. The first complete genome of a PAstV3 isolate was obtained and showed identities of 50.5–55.3% with mink AstV and the novel human AstVs compared with 38.4–42.7% with other PAstV types. Further *in vitro* growth attempts of PAstV were unsuccessful. In *vivo* inoculation of pigs with PAstV RNA positive material resulted in short PAstV shedding of low magnitude (less than a week) followed by seroconversion. Lesions were not detected in any of the pigs.

These research results were submitted in fulfillment of checkoff-funded research projects. This report is published directly as submitted by the project's principal investigator. This report has not been peer-reviewed.

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