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

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Many astrovirus (AstV) species are associated with enteric disease. In this study, the prevalence rates of porcine AstV types 1–5 (PaV1–PaV5) 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 PaV. Among the 509 pigs tested, 488 (95.9%) came from farms with a history of diarrhea. All of the five known PaV types were found to circulate in pigs in the U.S., and coinfection of a single pig with two or more PaV types was frequently observed. A high overall prevalence of 64.0% (326/509) of PaV RNA-positive samples was detected, with 97.2% (317/326) of the PaV RNA-positive pigs infected with PaV4. The first complete genome of a PaV 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 PaV types. Further in vitro growth attempts of PaV were unsuccessful. In vivo inoculation of pigs with PaV RNA positive material resulted in short PaV shedding of low magnitude (less than a week) followed by seroconversion. Lesions were not detected in any of the pigs.