

Recent experiences with vesicular disease associated with Seneca Valley Virus

University of Minnesota Veterinary Diagnostic Laboratory

Recently, there have been scattered descriptions of coronary band lesions have occurred in pigs from the United States. While these samples tested negative for Foot and Mouth Disease (FMDV), Vesicular Stomatitis Virus (VSV), Swine Vesicular Disease Virus (SVDV), and Vesicular Exanthema of Swine Virus (VESV), Seneca Valley Virus was detected.

Seneca Valley Virus (SVV) belongs to Genus Senecavirus within the *Picornaviridae* family. The clinical signs are characterized by vesicles and coalescing erosions on the snouts and coronary bands in infected sows, nursery, and finishing pigs (Figure 1). Acute mortality in neonatal piglets has also been sporadically reported. Previous attempts to fulfill Koch postulates with SVV have been unsuccessful, and data is lacking on modes of transmission, incubation period, and duration of viral shedding. Viremia associated with SVV is unknown, but the lab has retrieved whole genome sequences of SVV from sow serum. The majority of SVV sequences available from GenBank consist of VP1 gene (Figure 2).

The Minnesota Veterinary Diagnostic Laboratory (MNVDL) has identified SVV by real time PCR from snouts, hooves, lymph nodes, and serum from affected sows that tested negative for FMDV, VSV, SVDV, and VESV. In addition, the virus has been detected in several tissues including brain, liver, spleen, lung, intestine, and heart from acutely dead piglets born from clinically infected sows.

The MNVDL is accepting samples for SVV testing. Samples should include serum, intact vesicles (when possible), fluid from vesicles, tissue from ruptured vesicles, or swabs of vesicles. Furthermore, we would like a full set of tissues from acutely affected piglets with unknown cause of death to investigate the role of SVV in farrowing rooms.

Samples should be kept cold and submitted with ice packs to the MNVDL for testing. Please contact the lab prior to submission since the samples need initial testing for FMDV, VSV, SVDV, and VESV.

A serum neutralization test is under development and may be available shortly.

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*The SVV PCR test is still under validation. We will accept specimens for testing, but will report the results with a disclaimer until the test is validated. Submissions greatly help the validation process.



Figure 1: Clinical signs associated with SVV in sows. (A) Intact vesicle on the snout. (B) Erosive lesion bordering the coronary band in the left rear hoof.

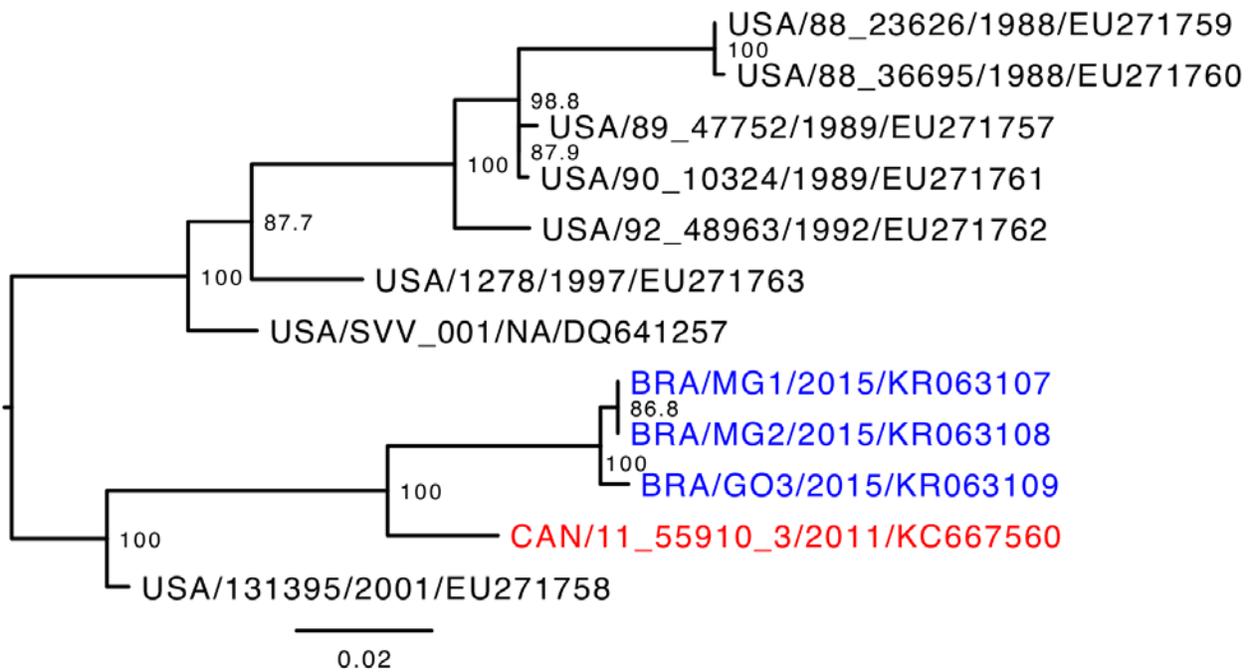


Figure 2. Phylogenetic tree of the partial VP1 gene. Recently identified strains from Brazil are represented in blue, the US strains are represented black, and the Canadian strain is represented in red.

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