Kansas State University Research Foundation
TECHNOLOGY LICENSING PROFILE

Discovery of Novel Porcine Pestivirus in Pigs

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Description: Researchers at Kansas State University have identified a novel porcine pestivirus in pig samples originating from five states. Molecular and serological results suggest that this virus, provisionally named atypical porcine pestivirus (APPV) is a novel, highly divergent porcine pestivirus widely distributed in U.S. pigs, which may be involved in co-infection with PRRSV.

Metagenomic sequencing of PRRSV-positive sera samples identified samples with sequences mapping to the APPV genome. Molecular screening of a collection of PRRSV-negative swine samples failed to identify APPV. Further work is needed to investigate the role of APPV in clinical disease, but recent research has shown that APPV likely causes congenital tremors in pigs.

There are four species in the genus Pestivirus. Bovine viral diarrhea virus type one (BVDV-1), Bovine viral diarrhea virus type two (BVDV-s), classical swine fever virus (CSFV), and border disease virus (BDV), are some of the most significant pathogens affecting ruminants & swine and lead to high morbidity and mortality rates. Such viruses are responsible for significant economical disease in ruminants and swine. Though nothing is known on the ability for the discovery of bat and rat pestiviruses to cause disease, they do suggest a wider pestivirus host range.

The virus and associated information from this research at K-State may eventually be useful in the development of diagnostic assays to detect porcine pestivirus, and vaccines to prevent porcine pestivirus infection.

Advantages: APPV has recently been identified in pigs exhibiting tremors which led to immobility and nearly 100% mortality. Research has shown that APPV causes congenital tremors in neonatal pigs when they are inoculated in utero. As APPV is newly described and a widely distributed swine pathogen, diagnostic tests and vaccines would be desirable. There are currently no vaccines or diagnostics on the market for porcine pestivirus.

Applications:

- Diagnostic assays to detect porcine pestivirus
- Vaccines to prevent porcine pestivirus infection

Patent Status: Patent Pending

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