Kansas State University Research Foundation
TECHNOLOGY LICENSING PROFILE

Porcine Epidemic Diarrhea Virus (PEDV) attenuated live & killed vaccines

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Description: Researchers at Kansas State University are developing a technology that has shown the ability to consistently grow porcine epidemic diarrhea virus (PEDV) isolates at high titer that are trypsin-independent. This advancement could be a breakthrough for PEDV vaccine development.

In the US, the first PEDV outbreaks occurred in 2013. Outbreaks of PEDV have been reported in 30 states with more than 6,400 cases (as of May 2014), causing significant economic and public health concerns in the US. Thus, controling of PEDV has become a major focus in the field of swine research. While killed and live attenuated (highly passaged in Vero cells) vaccines are available in the EU and Asian countries, they are not available in the US. In addition, the vaccine strains in those vaccines may not provide protective immunity to the circulating PEDV strains in the US. Selection of a virus strain for vaccine development is important since it has been suggested that classical PEDV may not protect against infections from newer strains (diversity is up to 10% among PEDV strains). Thus, it is crucial to use current circulating strains for vaccine development.

Administration of a live attenuated vaccine followed by boosting immunization with an inactivated vaccine (or a live attenuated vaccine) in pregnant sows may be the best option in controlling PEDV, because it induces IgA which is transferred to neonatal piglets and protects them from viral infections during the most susceptible period (< 2 weeks of age). When sows already have immunity to PEDV due to natural infection, immunization with an inactivated vaccine (or a live attenuated) may further boost immunity for the protection in neonatal pigs. The K-State PEDV strains (and methods) may be excellent candidates for both inactivated and attenuated vaccines.

Advantages:

- Use of a current circulating PEDV strain in the US
- Production of high viral titers of > 1X10(8) TCID50/ml with novel methods
- Trypsin-independent PEDV

Applications:

- Swine vaccines

Patent Protection: Patent Pending

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