Kansas State University Research Foundation
TECHNOLOGY LICENSING PROFILE

African Swine Fever Virus Subunit Vaccine Candidates and a DIVA Compatible Lateral Flow Diagnostic Device

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Overview: Researchers at Kansas State University are creating African Swine Fever Virus (ASFV) subunit vaccine candidates using next-generation vectors. Two separate vectors are being utilized to create multiple vaccine candidates to improve the probability of creating a safe, efficacious and economical ASFV vaccine. In addition, KSU has generated a novel chimeric antigen for the development of a sensitive, DIVA (differentiating infected from vaccinated animals) compatible lateral flow diagnostic device.

Proof-of-Principle ASFV Study: Before joining K-State, Dr. Mwangi was on faculty with Texas A&M. While at TAMU, he created an ASFV vaccine candidate that induced strong ASFV-specific antibodies, IFN-γ-secreting cells, and CTL responses in preliminary studies. More importantly, this prototype vaccine conferred 56% protection in an ASFV [Georgia 2007/1] swine challenge study. This was achieved with only a few antigens and a replication-incompetent vector.

His team's new approach at K-State will start by incorporating all conserved ASFV antigens that contain putative cytotoxic T lymphocyte (CTL) epitopes within the next generation replicon vectors to determine if higher than 56% efficacy can be achieved in a future swine challenge study. From there, they will use the process of elimination to identify the minimal key protective antigens to refine the vaccine candidates to make them economically viable to produce.

Advantages:

- Potentially more efficacious and confer broad protection by incorporating conserved antigens containing putative CTL epitopes

- A broadly protective subunit vaccine would be safe and will not require high biocontainment for production of DIVA compatible vaccine and lateral flow diagnostic device

Patent Status: Patent Pending

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