



Kansas State University Research Foundation

TECHNOLOGY LICENSING PROFILE

Broad-Spectrum Subunit Vaccine Against Epizootic Hemorrhagic Disease (EHD)

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Description: Researchers at Kansas State University have developed a subunit vaccine technology against Epizootic Hemorrhagic Disease (EHD) using viral recombinant proteins as antigens. EHD is a vector-borne viral disease that causes high mortality in white-tail deer and clinical disease in domestic cattle and other ruminants, causing economic detriment to the deer and cattle farming industry. Recent outbreaks have shown increased virulence of the disease and its spread to an expanded geographical area. To the best of our knowledge, existing vaccines use inactivated virus preparation that can lead to various disadvantages such as: long time required for vaccine production, side effects, limitations to protection against the disease, and the inability to distinguish between vaccinated & infected animals (DIVA). Only autogenous killed vaccines against EHDV are available in the U.S.

To address the above concerns, K-State researchers have developed a subunit vaccine candidate to protect ruminants and cervids from EHD infection. The antigen is comprised of recombinant proteins expressed in a baculovirus system. The vaccine has been tested subcutaneously in mice, and has demonstrated the presence of neutralizing antibodies against different serotypes in the immunized mice. The combination of recombinant proteins from different serotypes is expected to elicit humoral immune response and neutralizing activity against combined serotype viruses, thus providing a commercially-desired broad-spectrum safe and efficacious vaccine. In addition, this vaccine does not use the inactivated virus and hence, it is expected to be safer than autogenous inactivated vaccines and overcome the drawbacks stated above.

Advantages:

- The use of viral recombinant proteins as antigens makes this vaccine safer
- Quicker to prepare than autogenous inactivated vaccines
- Allows for fewer side effects and broader protection than autogenous inactivated vaccines
- Allows for DIVA compatibility
- Expected to reduce the time for effective deployment during outbreak situations
- Demonstrated to elicit immune response in mice in proof of principle studies

Applications: This vaccine can be used to prevent EHD infection in cervids and ruminants

Patent Status: Patent Pending