RESEARCH ABSTRACT

SWINE HEALTH

Title: Development and validation of diagnostic testing detection for antigen and antibody detection for PEDv - **NPB #13-239**

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Scientific Abstract: Porcine epidemic diarrhea virus (PEDV) is major cause of severe diarrhea and dehydration in pigs. Belonging to the *Coronaviridae* family, PEDV is an enveloped, positive-sense, single-stranded RNA virus with a genome size of approximately 28kb. The first detection of PEDV was reported in 1971 from England while Japan, China, South Korea, and Thailand also have reported PEDV infections. The United States first detected PEDV in May 2013 (1-5). The veterinary diagnostic laboratories quickly development sensitive and specific real time RT-PCR (RRT-PCR) assays to detect PEDV in a variety of porcine and environmental samples. However, lack of a reliable method for evaluation of immunity has hindered progress in control and prevention of PEDV. We developed an ELISA using nucleocapsid protein expressed in bacteria and purified. When coated on microtiter plates, antibodies bind to nucleocapsid from immune pigs specifically. Validation was carried out to determine the ranges of test values for negative and positive samples so that evidence of previous exposure to PEDV could be reliably predicted.

These research results were submitted in fulfillment of checkoff-funded research projects. This report is published directly as submitted by the project's principal investigator. This report has not been peer-reviewed.

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