RESEARCH ABSTRACT

SWINE HEALTH

Title: Generation of specimens of precisely known coronavirus infection status for the development and validation of highly-specific porcine coronavirus antibody assays.
- **NPB #15-142**

Investigator: Luis G. Gimenez-Lirola

Institution: Iowa State University

Date Submitted: December 8 2016

Scientific Abstract:

The development of antibody-based assays is particularly important to detect coronavirus infected animals and to confirm previous virus exposure. As reviewed by Saif and Sestak (2006), the coronaviruses share genetic and antigenic traits in common. Thus, the antibody reaction against PEDV may not be automatic proof that the antibody was produced in response to this virus. In the field, pigs are exposed to different coronaviruses that are known to share genetic and antigenic traits that may contribute to false-positive results. For this reason, antibody cross-reactivity (false positives) among the porcine coronaviruses is a major concern in the development of pathogen-specific assays. This is an area that has not been adequately addressed. The problem addressed in this proposal was the development of antibody assays capable of detecting and differentiating antibodies against PEDV, PEDV variants, TGEV, PRCV, or PDCoV. In this study we successfully generated a bank of specimens (serum, oral fluids, feces) from pigs with precisely known coronavirus (PEDV, TGEV, PRCV, PDCoV) infectious status. The primary outcome of this project will be the development of improved, validated diagnostic assays for porcine coronaviruses.