Development of a multiplex Luminex immunoassay for serologic diagnosis and subtyping of swine influenza virus (SIV) infections

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Overview

For serologic diagnosis of swine influenza, most laboratories use ELISA (enzyme-linked immunosorbent assay) based assays. However, the currently used ELISA-based assays don't have the capability to diagnose and, at the same time, subtype different swine influenza infections. The assay to be developed in this project is a multiplex fluorescent microsphere immunoassay to be used to identify the antibody response to SIV infections and classify this antibody response as either a H1 or H3 subtype. It would also be used to identify the antibody response to Type 1 and 2 Porcine Reproductive and Respiratory Syndrome virus (PRRSv) and Porcine Circovirus (PCV2) infections. This work would therefore allow the detection of antibodies due to infection caused by almost all of the viruses involved in the Porcine Respiratory Disease Complex (PRDC).

Highlights

PRDC is caused by the interaction of multiple infectious agents that include Type 1 and 2 PRRSv, SIV, PCV2 and other bacterial pathogens. This has a significant economic impact on North America's swine industry.

The development of the immunoassay, which originally focused on SIV, was modified to include additional virus that are part of the Porcine Respiratory Disease Syndrome (PRDC).

The development and validation of the multiplex immunoassay will continue in 2017-2018.

Implications for the swine industry

A multiplex immunoassay will be developed to 1) rapidly and cost-effectively identify antibody responses to Type 1 and 2 PRRSv, PCV2 and SIV infections and 2) subtype the antibody response to SIV to either a H1 or H3 subtype.

Collaborators

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