

A multiplex assay for the detection of antibodies to relevant swine pathogens in serum

Cristina Aira Pino¹, Maren Penning², Martin Eiden³, Anne Balkema-Buschmann⁴, Sandra Blome⁵, Katrin Strutzberg-Minder⁶, Lissett López¹, Paloma Rueda⁷, and Patricia Sastre⁷

¹Eurofins-Ingenasa

²Friedrich-Loeffler-Institut Bundesforschungsinstitut für Tiergesundheit, Institute of Novel and Emerging Infectious Diseases

³Friedrich-Loeffler-Institut, Germany

⁴Friedrich-Loeffler-Institut Bundesforschungsinstitut für Tiergesundheit

⁵Friedrich-Loeffler-Institute

⁶IVD Innovative Veterinary Diagnostics

⁷INGENASA

April 14, 2021

Abstract

Livestock industry supports the livelihood of around 1.3 billion people in the world, with swine industry contributing with 30 % of total livestock production worldwide. To maintain and guarantee this production, a pivotal point according to the OIE is addressing potential biohazards. To control them, permanent sero-surveillance is crucial to achieve more focused veterinary public health intervention and prevention strategies, to break the chains of transmission, and to enable fast responses against outbreaks. Within this context, multiplex assays are powerful tools with the potential to simplify surveillance programs, since they reduce time, labour, and variability within analysis. In the present work, we developed a multiplex bead-based assay for the detection of specific antibodies to six relevant pathogens affecting swine: ASFV, CSFV, PRRSV, SIV, TB, and HEV. The most immunogenic target antigen of each pathogen was selected as the target protein to coat different microsphere regions in order to develop this multiplex assay. A total of 1544 serum samples from experimental infections as well as field samples were included in the analysis. The 6plex assay exhibited credible diagnostic parameters with sensitivities ranging from 87.0 % to 97.5 % and specificities ranging from 87.9 % to 100.0 %, demonstrating it to be a potential high throughput tool for surveillance of infectious diseases in swine.

Hosted file

A multiplex assay for the detection of antibodies to relevant swine pathogens in serum v.2.pdf available at <https://authorea.com/users/407705/articles/517952-a-multiplex-assay-for-the-detection-of-antibodies-to-relevant-swine-pathogens-in-serum>

