

Adaptation of a commercial PRRS serum antibody ELISA to oral fluid specimens

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Oral fluid samples are increasingly used for the surveillance of PRRSV infection in commercial swine operations using PCR-based assays (Chittick et al., 2011; Kittawornrat et al., 2010). While PCR-based assays are useful for detecting the circulation of PRRSV, antibody-based assays are informative regarding herd immunity and history of prior infection. The feasibility of detecting antibody in oral fluids has already been addressed: antibody-based assays using oral fluid specimens are already widely available in human diagnostic medicine for a variety of pathogens (Prickett et al., 2010). The purpose of the present study was to optimize a commercial PRRS ELISA (HerdChek® PRRS X3 ELISA) to the oral fluid matrix. ELISA parameters assessed in the optimization process included: sample volume, sample dilution, incubation time, secondary antibody isotype (IgM, IgA, IgG_{H&L}, IgG_{Fc}), and secondary antibody dilution. To reduce oral fluid sample-to-sample response variation during this process, 11 oral fluids (“Reference Standards”) were used in the optimization process to measure the effects of changes in parameters. Reference standards were collected from one commercial wean-to-finish barn (1,100 pigs) prior to the day of PRRS vaccination (Ingelvac® PRRS MLV) and on DPV 0, 10, 15, 20, 28, 35, 41, 49, 56, 75, and 91. (Reference standards available upon request.) Results showed that the ELISA was readily adapted to detect IgM, IgA, and IgG in oral fluid specimens. The protocol that we have developed for detection of IgG is readily amenable to the routine performance of the assay in a diagnostic laboratory.

References

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- Prickett JR, Zimmerman JJ. 2010. The development of oral fluid-based diagnostics and applications in veterinary medicine. *Anim Health Res Rev* 11:207-216.