

Performance of commercial *Mycoplasma hyopneumoniae* serum antibody-ELISAs

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Mycoplasma hyopneumoniae (MHP) ELISAs are routinely used for surveillance in swine production systems. This study evaluated six commercial MHP serum ELISAs using samples of known infection status: (1) M hyo ELISA SK 108 BioChek, (2) INgezim M. hyo COMPAC, ©Eurofins Ingenasa, (3) M. hyo Ab Test, IDEXX Laboratories Inc., (4) ID Screen® *Mycoplasma hyopneumoniae* Indirect, IDvet, (5) CIVTEST® SUIS MHYO, Laboratorios HIPRA, S.A., and (6) IDEIA™ *Mycoplasma hyopneumoniae* EIA kit, ©Oxoid Limited.

Serum samples (n = 680) of known status were collected from 50 8-week-old cesarean-derived, colostrum-deprived (CDCD) pigs randomly allocated to 5 treatments: (1) negative control, (2) *M. flocculare* (strain 27399), (3) *M. hyorhinis* (strain 38983), (4) *M. hyosynoviae* (strain 34428), and (5) MHP (strain 232). Serum (2X per week) and oral fluid (daily) samples were collected through 56 days post-inoculation (DPI). MHP PCR testing of oral fluids and lung tissue confirmed productive infection in the MHP group and freedom from MHP infection in other groups.

Analysis of ELISA performance at various cutoffs found that the manufacturers' recommended cut-offs were generally diagnostically specific, i.e., 4 ELISAs produced no false positives on samples of known MHP-negative status. A cumulative analysis of overall misclassification error rates (false positives and false negatives) found that 4 ELISAs performed similarly, although one assay produced more false positives whereas the remaining 3 required a longer time-to-detection in MHP-inoculated animals. Although the temporal antibody response in MHP-inoculated pigs was highly variable, e.g., the first positive responses were observed on 21 DPI, monitoring MHP antibody remains a useful tool for establishing the status of commercial pig populations. However, opportunities for improving time-to-detection and overall diagnostic sensitivity should be pursued.