# Serological Detection of *Mycoplasma synoviae* in Challenged and Contact Exposed Chickens Using a New ELISA

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Summary

Early detection of new *Mycoplasma synoviae* (MS) infections through monitoring programs is essential in controlling/eradicating MS infections. Historically, monitoring programs for MS have been based on the use of rapid plate agglutination (RPA), hemagglutination inhibition (HI), and enzyme-linked immunosorbent assays (ELISAs). However, opinions vary regarding the sensitivity of the RPA and ELISA. Previous studies in which the ELISA showed lower sensitivity were conducted with commercially available MS ELISAs produced using whole cell antigen. Recently, a new MS ELISA based on a recombinant antigen with excellent specificity (>98%) has been approved for use in the U.S.

In this study, the sensitivity of the recently approved Mg/MS ELISA, based on the recombinant antigen, was compared with the MS RPA another Mg/Ms ELISA (c), based on whole cell antigen, for the detection of MS from 7 through 21 days post-challenge (d.p.c). The sensitivity of the ELISAs (recombinant-r, and conventional-c) and RPA were tested using different lots of each assay on the same samples derived from broiler breeders challenged at 4 weeks of age with MS strains WVU 1853 (type strain) and K5664 (atypical US strain) and from comingled broiler breeders.

Both the rMg/Ms ELISA and RPA detected positive birds in the WVU 1853 inoculated group starting 7 days post-challenge (dpc). In contrast, the c Mg/Ms ELISA did not start detecting positives until 9 days after inoculation. Positive birds in the K5664 inoculated group were detected in a small percentage of birds starting at 9 dpc by both the RPA and the rMg/Ms ELISA. In the birds exposed to strains WVU 1853 and K5664 by contact, the rMg/Ms ELISA detected positive birds starting at 7 days, while the RPA detected positive birds starting at 14 dpc. Surprisingly, the cMg/Ms ELISA did not detect positive birds following inoculation or contact exposure with K5664 throughout the course of the study.