

SWINE HEALTH

Title: Development of an Improved *Mycoplasma hyopneumoniae*-Specific ELISA; NPB #11-057

Investigator: F. Chris Minion

Institution: Iowa State University

Date Submitted: February 7, 2013

Scientific Abstract

The goal of this study was to improve serological assays for *M. hyopneumoniae* infected pigs. Our approach was to focus our assay development on antigens that are *M. hyopneumoniae*-specific and to test these in two different formats, a 96 well ELISA based format, and on beads using Luminex technology. To assist in proper screening, we produced swine sera from mycoplasma-infected pigs. The challenge study used CDCD pigs, four to a group and each group was challenged with *M. hyopneumoniae*, *M. hyorhinis*, *M. hyosynoviae*, and *M. flocculare*. The groups were housed separately throughout the experiment and they were monitored from cross infections by PCR. Sera were obtained throughout the experiment so we could follow antibody responses. In addition, oral fluids were also obtained from each room once a month for analysis. Serological responses indicated a slow conversion except for the *M. hyorhinis*-challenged pigs. Cross-reactions were noted in the *M. hyopneumoniae* sera with *M. hyorhinis* Tween 20 antigens and in the *M. flocculare* sera with *M. hyorhinis* Tween 20 antigens. Oral fluids from *M. hyopneumoniae* challenged pigs showed a positive IgA response. The sera from *M. hyopneumoniae*-challenged animals were also tested on a protein array. The results from that study showed some inconsistencies, possibly due to operator error or blocking issues. Eight *M. hyopneumoniae* proteins were purified, and were bound to beads for testing in a Luminex-based assay. These antigens are also under study in an ELISA assay.

These research results were submitted in fulfillment of checkoff-funded research projects. This report is published directly as submitted by the project's principal investigator. This report has not been peer-reviewed.

For more information contact:

National Pork Board • PO Box 9114 • Des Moines, IA 50306 USA • 800-456-7675 • Fax: 515-223-2646 • pork.org
