

SWINE HEALTH

Title: Investigation into the ability of the anti-idiotypic antibody to block PRRS virus infection and characterization of a putative receptor on MARC-145 cells and porcine alveolar macrophages
NBP #05-145

Investigator: En-Min Zhou, PhD (project completed by Dr. Jeffrey Zimmerman)

Institution: Iowa State University

Date Submitted: November 25, 2006

Abstract:

The prevention and control of PRRS has been difficult, in part because our knowledge of the immunity against PRRS virus is limited. We know that antibodies generated during the early phase of infection cannot neutralize the virus, neutralizing antibodies and cellular immune responses appear much later in the course of infection, and animals can remain persistently infected despite an active immune response. Recently, a monoclonal anti-idiotypic antibody (designated Mab2-3H) specific for a monoclonal antibody to the PRRS virus envelope glycoprotein GP5 was produced in the investigator's laboratory. Serological characterization showed that Mab2-3H by functionally and/or structurally mimicking GP5 antigen of PRRS virus inhibited the binding of anti-GP5 antibodies to PRRS virus, directly bound MARC-145 cells and porcine alveolar macrophages (PAM), reacted with a soluble protein prepared from MARC-145 cells and PAM and blocked PRRS virus infection of these cells. This study may lead to the development of an immune therapeutic agent, the anti-idiotypic-based receptor-blocker. The information on the characterized cellular receptor will lead to further elucidation of the mechanism of the receptor-virus interaction.

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 This report has not been peer reviewed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, P.O. Box 9114, Des Moines, Iowa USA

800-456-7675, **Fax:** 515-223-2646, **E-Mail:** porkboard@porkboard.org, **Web:** <http://www.porkboard.org/>