

Title: Prevention of PRRS by antibody administration – **NPB #05-157**

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Industry Summary:

The objectives were to determine if a practical method of producing antibodies to PRRSV could be found which would neutralize all strains of the virus. The naturally occurring ambient strains of PRRSV were inoculated into pigs and induced virus neutralizing antibodies to all North American strains of the virus tested. These cross reacting (heterologous) antibodies were protective against the PRRSV when passively injected into pigs. These results confirm previous studies by Osorio and suggest that passive immunization of swine may be a method for reducing PRRSV infection.

Scientific Abstract:

The goal of our research was to produce polyvalent hyperimmune plasma with high-titers of virus neutralizing (VN) antibody to both homologous and heterologous PRRSV strains, and to evaluate protection provided by passive immunization of 3-week old piglets with the hyperimmune plasma in a live PRRS virus challenge model. The hyperimmunization process was conducted via infection of gilts or horses with mutant strains of live PRRSV. Hyperimmune plasma had VN titers ranging from 1:64 to 1:1024 by fluorescent focus neutralization when tested against strains used in hyperimmunization. VN titers for North American strains ranged from 1:64 to 1:512. Hyperimmune plasma, as well as normal swine plasma, was harvested at necropsy and used in subcutaneous injections of 3-week old piglets. Pigs were challenged with various PRRSV strains 24 hours after receiving plasma. Viremia was either prevented or reduced in pigs receiving hyperimmune plasma as compared to non-immunized challenge controls. These results confirm the previous report by Osorio et al regarding the protective role of neutralizing antibody in reduction and prevention of viremia due to PRRSV.

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 This report has not been peer reviewed

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