

Title: Investigation into the Ability of Anti-Idiotypic Antibodies to Protect Pigs from Porcine Reproductive and Respiratory Syndrome Virus Infection – **NPB #03-164**

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Abstract: Auto-anti-idiotypic (Aab-2) against the monoclonal anti-GP5 antibody (Mab-1) was identified and purified from pigs experimentally infected with PRRSV. Serological characterization demonstrated that Aab-2s represented the internal image of anti-idiotypic and mimicked GP5 antigen of PRRSV and bound MARC-145 cells and porcine alveolar macrophages (PAM) by recognizing a putative viral receptor(s) with approximate molecular weight of 210 KDa. Aab-2s neutralized PRRSV infection of MARC-145 cell presumably by blocking the viral receptor since the neutralization ability required a minimum 30 min and up to 60 hours direct contact between Aab-2s and cells. Further study has shown that Aab-2s significantly reduced PRRSV infection in pigs. These findings indicate that Aab-2s mimicking GP5 antigen recognized a viral receptor on PRRSV permissive cells and in turn blocked PRRSV infection. These results support further studies of developing anti-idiotypic vaccine candidates against PRRSV.

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