

Title: Protective Immunity against Porcine Reproductive and Respiratory Syndrome Virus (PRRSV) Obtained by Passive Administration of Antibodies: Optimization of the Conditions - **NPB# 02-033**

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Abstract: Previous work had demonstrated that transfer of antibodies highly enriched in neutralizing activity to PRRSV protected pregnant sows against reproductive failure and conferred sterilizing immunity in sows and offspring. To study these conditions using a young pig PRRSV challenge model, we used two-week-old piglets as recipients of antibodies injected by the intraperitoneal route, prior to intranasal challenge with PRRSV. Piglets receiving an amount of neutralizing antibodies sufficient to reach a serum titer of 8 consistently did not develop viremia (systemic PRRSV in blood). Importantly, piglets receiving early PI, non-neutralizing antibodies (obtained from serum of infected pigs at ≤ 21 days post-infection) developed viremia similarly to the infected control group, which indicates that protection against viremia is specifically associated to the neutralizing antibodies. In spite of the protection of the neutralizing antibody-transferred animals against viremia, their lungs, tonsils and peripheral lymph-nodes contained replicating PRRSV at the same level as the infection control group. In addition, these animals excreted infectious virus to sentinels at the same rate as the infection control animals. Thus, the presence of anti-PRRSV neutralizing antibodies in serum with a titer of the 8 is enough to hamper viremia but not peripheral tissue seeding and transmission to contact animals. In addition, these experiments cast doubt about the significance that viremia may have in pathogenesis of PRRSV infections.

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