RESEARCH ABSTRACT

SWINE HEALTH

Title: Comparison of the Immune Response of Pigs to either a Modified Live Virus or an Inactivated PRRS Virus Vaccine – **NPB #97-1978**

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Abstract

Experiments were conducted to evaluate the characteristics of the PRRS virus immunity induced in pigs by vaccination with either a modified-live virus (MLV) vaccine (RespPRRS™; Nobl) or an inactivated vaccine (PRRomiSe™; Bayer). The effects of an oil-in-water adjuvant (Imugen II; Oxford Laboratories) on the kinetics and intensity of the immune response to the MLV vaccine were also examined. Pigs within treatment groups (n=5) received two injections (4 weeks apart) of either MLV, MLV mixed with adjuvant, or inactivated PRRS virus vaccine. Following vaccination, the cell-mediated immune (CMI) response was measured using an ELISPOT assay for the detection of PRRS virus-specific IFN-□ secreting cells. The humoral immune response was measured using the IDEXX PRRS ELISA. Two weeks after a single immunization with either the MLV vaccine or the MLV vaccine mixed with adjuvant high levels of humoral immunity were readily detectable. In contrast, the inactivated vaccine did not induce a detectable humoral response even after two immunizations. Booster immunization with either of the two MLV vaccine formulations failed to stimulate a secondary antibody response, instead the antibody titers declined. Following primary immunization with either vaccine the cellular immune response was rather weak and there were no significant differences between any of the groups as measured by the IFN-□ ELISPOT assay. In response to the secondary vaccination, pigs receiving either of the MLV formulations developed a similar and significantly higher frequency of PRRS virus-specific IFN-□ secreting cells than did the pigs receiving the inactivated vaccine. These frequencies however, were still lower than those usually seen in response to immunization with a pseudorabies virus MLV vaccine. These results indicate that a PRRS MLV vaccine is much more efficient than an inactivated vaccine at inducing either humoral or cellular immunity. The addition of an adjuvant to a PRRS MLV vaccine does not seem to rescue it from its poor ability to induce virus-specific IFN-□-secreting cells.