

SWINE HEALTH

Title: In Vivo PRRSV Recombination Studies - NPB #99-071

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Abstract:

The research focus of this grant was to explore whether PRRSV recombination would occur in freshly isolated porcine alveolar macrophages, the host cell, and in swine. Two vaccines, RespPRRS[®] and Prime Pac[®] PRRS were used to test this objective, as previous work done in this laboratory had shown that recombination between these two PRRSV strains occurred readily in immortalized MA-104 cells (5). In the course of this study, we found evidence that the two vaccine strains underwent recombination in host macrophages, but that because one vaccine grew more efficiently on macrophages and quickly overtook the dual-infected cells, the recombination events were less frequent using this cell culture method and the rate of recombination could not be estimated with any confidence. The results imply that viral recombination between two vaccines is an infrequent event in host macrophages. When both vaccines were coadministered (i.e., in the same syringe) into young swine, little nascent virus could be directly detected circulating in the hosts and therefore precluded any assessment of viral recombination. The outcome suggests that primary swine hosts of two different PRRSV vaccines do not immediately show evidence of viral recombination.

Nevertheless, evidence of viral recombination in the field has been documented (5). Therefore, it is imperative that the results obtained in this proposal be explained. Conceivably, later than 2 weeks (the sampling timeline for this proposal) viral recombinants may be detected, as persistence is a hallmark of PRRSV infection. Secondary hosts, infected by dual-vaccine shedding, may also provide a demonstration of PRRSV recombination. One might also surmise that highly virulent field strains, capable of replicating to a greater extent in swine, may have the capacity to undergo viral recombination at a pronounced rate.

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 This report has not been peer reviewed

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