

**Title:** Studies on PRRSV vaccination: interleukin-12 to enhance the immune response to killed vaccine and combination vaccination with MLV and killed vaccine - **NPB # 02-127**

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**Abstract:** The efficacy of PRRSV vaccines remains controversial. The objective of this study was to investigate whether interleukin (IL) -12 could be used to enhance the immune response to a killed PRRSV vaccine (KV) and if a combination of a KV following administration of a modified live PRRSV vaccine (MLV) would result in a more rapid immune response compared to either vaccine alone. The study consisted of 5 groups of pigs inoculated with IL-12 only, KV only, KV + IL-12, MLV only, and KV following MLV, and a non-inoculated control group. Pigs were challenged with PRRSV at 42 days post vaccination (dpv) to evaluate protective immunity. The study demonstrated that IL-12 slightly enhanced the efficacy of KV as demonstrated by increased antibody levels measured by IDEXX ELISA and increased number of interferon-gamma producing cells. Interestingly, the combination of vaccines (KV following MLV) appeared to induce stronger antibody and lymphocyte proliferative responses compared to vaccination with either vaccine alone. This vaccination strategy resulted in higher serum neutralizing antibody levels than either vaccine alone on 42 dpv, although the difference was not statistically different. The magnitude of CD4<sup>+</sup>, CD8<sup>+</sup>, CD4<sup>+</sup>CD8<sup>+</sup> lymphocyte proliferative responses were slightly higher in the combined vaccination group on 28 dpv and 7 days post infection (dpi) compared to all of the other groups. In addition, the combination vaccination reduced the magnitude and duration of viremia following PRRSV challenge.

The results of this study suggest that a protocol combining MLV and KV could increase the immune responses compared to either vaccine alone.

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