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**Detection and Duration of Porcine Reproductive and Respiratory Syndrome Virus
in Semen, Serum, Peripheral Blood Mononuclear Cells and Tissues
from Yorkshire, Hampshire and Landrace Boars.**

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Porcine Reproductive and Respiratory Syndrome Virus (PRRSV) has previously been identified in boar semen and several studies have confirmed transmission of the virus via this route. Therefore, to prevent transmission of PRRSV through semen, identifying the duration of PRRSV shedding in semen is important. However, even when the same PRRSV strain and dose has been given experimentally, individual boar variability in the duration of viremia and shedding of PRRSV in semen has been observed. This would suggest there are host factors which determine the duration of shedding and that PRRSV persistence is not strictly related to viral strain differences. To determine whether there are host genetic factors, particularly litter and breed differences related to persistence of PRRSV, 3 litters from 3 purebred swine breeds were used for this study. We also determined whether PRRSV could be detected for a longer period of time in serum, semen or peripheral blood mononuclear cells and if PRRSV could still be detected in tissues after these antemortem specimens were PRRSV negative for a minimum of 2-3 weeks. Three Hampshire, 3 Yorkshire and 2 Landrace PRRSV naïve boars were obtained and inoculated intranasally with a wild-type PRRSV isolate (SD-23983). All boars within each breed were from the same litter and were within 9 days of age between litters. Serum and peripheral blood mononuclear cells were collected twice weekly from each boar and analyzed for the presence of PRRSV by virus isolation and the polymerase chain reaction. Serum was also used to obtain virus neutralization titers and ELISA S/P values. Semen was collected twice weekly from 7 to 8 boars and analyzed by the polymerase chain reaction.

After a minimum of 2-3 weeks of PRRSV negative specimens, each boar was euthanized and 21 tissues plus saliva, serum, feces and urine were collected. All postmortem specimens were evaluated by virus isolation. Specimens which were PRRSV negative by virus isolation were then evaluated by the polymerase chain reaction. The mean number of days +/- the standard deviation for the duration of PRRSV shedding in semen was 51 +/- 26.9; 7.5 +/- 4.9; and 28.3 +/- 17.5 for Landrace, Yorkshire and Hampshire boars, respectively. Due to small sample sizes and large standard deviations, the differences in duration of PRRSV shedding semen between breeds were not considered significant. However, there was a pattern, which suggested Yorkshire boars were more resistant to PRRSV shedding in semen compared to Landrace boars, requiring further investigation using a larger numbers of boars. PRRSV was detected for the longest period of time in semen compared to serum or peripheral blood mononuclear cells in 4 of 7 boars. Viremia could be detected for the longest period of time in serum compared to peripheral blood mononuclear cells in 6 of 8 boars. After 2-3 weeks of PRRSV negative serum, semen or peripheral blood mononuclear cells, PRRSV could still be detected in the tonsil of 3 of 8 boars by virus isolations, indicating that boars still harbor PRRSV within the tonsil even though antemortem specimens are PRRSV negative.