RESEARCH ABSTRACT
SWINE HEALTH

Title: The Comparative T-cell Repertoire Response in PRRSV, SIV and PCV2 Infected Piglets
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T lymphocytes play important roles in viral immune responses. This study addressed this topic by comparing the proportional usage of four major TCRVβ families in isolator piglets infected with PRRSV, PCV-2 and SIV. We also compared the ratio of expression of B and T cell receptors in selected tissues of the same animals. Data to date indicate that there is no preferential usage of TCRVβ4,-5,-7 or -12 in any of the porcine viral disease studied but there are changes in some of these compared to sham controls. Surprisingly, real-time PCR indicated that these families comprised <20% of TCRVβ usage in the piglets examined which is inconsistent with preliminary results. This and peculiar data on T:B cell ratios obtained by the same method raises concerns about the real time PCR method; studies on this subject are ongoing. Assuming the real-time data to be reliable, none of the viral infections skew the Vβ family usage in the manner that would be expected for a T cell superantigen effect. Using real-time PCR we failed to demonstrate that B cells are preferentially expanded in PRRSV infections. This observation conflicts with previous data and data on Ig levels that indicate this infection is a B cell proliferation disorder. In this study B cells proliferation in PRRS was supported by 10-20 fold elevation of IgG, IgM and IgA in serum and bronchial alveolar lavage (BAL) when compared to infection with PCV-2 and SIV.

We believe these limited studies reject the notion of an unusual effect of the three porcine viruses we studied on the T cell repertoire while some data confirm earlier studies that PRRS is a B cell lymphoproliferation disorder in isolator piglets. Future studies should target the role of B cells in this disease and further test the validity of quantitative PCR.