

SWINE HEALTH

Title: Immunomodulation of humoral immunity in PRRSV-infected piglets – **NPB#03-118**

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Abstract: The employment of the isolator piglet model allows the direct effect of environmental factors, including infectious agents, on host physiology to be identified. This NPB-supported research shows that PRRSV induces immunodysregulation that results in autoimmunity which in turn causes kidney pathology and damages the vascular endothelium. PRRSV causes polyclonal activation of the pre-immune B cell repertoire in the absence of specific antigens. Since this repertoire also encodes autoantibodies that are deleted in normal development, PRRSV somehow interferes with the normal development of self-tolerance. The immunopathology we have described in a recent article in the *Journal of Immunology* (Lemke et al., 2004) is not unique to isolator piglets but occurs in conventional neonates as well. The immune dysregulation we describe does not impair the piglet's ability to make specific antibodies to foreign antigens, including to PRRVs, especially during the primary response. Whether it affects secondary response is less certain.

The mechanism responsible for the dysregulation we describe remains unknown. While certain factors released from PRRSV-infected macrophages may directly stimulate B cells, we provide preliminary evidence that certain T-cell clones are selectively expanded in PRRSV infections but not in controls. It seems therefore important to determine the cause of the immunopathology (immunodysregulation) as part of any program that attempts to eradicate PRRSV as a major threat to pork production in the world.

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