

## SWINE HEALTH

**Title:** Investigation Into the Pathogenesis of Post-weaning Multisystemic Wasting Syndrome - **NPB #98-225**

**Investigator:** Bruce W. Brodersen, DVM, MS, PhD

**Institution:** University of Nebraska

**Co-Investigators:**

F. A. Osorio, DVM, PhD,

J. A. Galeota, BS,

A.R. Doster, DVM, PhD

R.A. Hesse, PhD

**Abstract:**

Post-weaning multisystemic wasting syndrome (PMWS) is a recently recognized entity in swine. Its presence has been reported on several continents. A consistent finding with these reports is identification of a porcine circovirus in affected pigs. The objective of this study was to attempt to develop an experimental PMWS model involving inoculation of conventionally raised pigs. Inocula included a field isolate of porcine circovirus-type 2 (PCV2) in the form of a tissue homogenate from a naturally occurring case of PMWS and from cell-culture-propagated PCV2 isolated from a clinical case of PMWS. Pigs were inoculated intranasally. Fifty-six conventionally raised pigs were divided into non-inoculated control, virus-inoculated and contact control groups. Non-inoculated pigs were kept isolated from other treatment groups. Contact control pigs were non-inoculated, but housed in rooms with inoculated pigs. Pigs were serially sacrificed weekly. Sera were serially collected for determination of humoral response to infection. Tissues were collected for histopathologic examination, *in situ* hybridization, and virus isolation.

Clinical signs suggestive of PMWS were not observed. Histologic lesions consistent with PMWS were seen in pigs from all treatment groups, excluding pre-inoculation control pigs. A distinct serologic response was detected in pigs approximately two weeks after inoculation. Contact control pigs as well as strict control pigs became infected based on the results. Results indicate inoculation of pigs with either cell culture-propagated virus or tissue homogenates from natural cases of PMWS can produce a neutralizing antibody response, which is comparable to natural horizontal infection observed in the contact control pigs. Histologic lesions of PMWS can be reproduced by PCV infection.

*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 This report has not been peer reviewed*

**For more information contact:**

**National Pork Board, P.O. Box 9114, Des Moines, Iowa USA**

800-456-7675, Fax: 515-223-2646, E-Mail: [porkboard@porkboard.org](mailto:porkboard@porkboard.org), Web: <http://www.porkboard.org/>