

SWINE HEALTH

Title: Comparative analysis: The pathogenesis of disease induced in piglets by group A, B and C rotaviruses, singularly or concurrently – **NPB #11-043**

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Scientific abstract

Rotavirus is a common diarrheic pathogen in neonatal swine and can be detected using new diagnostic PCR methods. The objective of this study was to compare viral shedding and microscopic intestinal changes of rotavirus serogroups A, B, and C singularly or in all combinations in caesarian-derived, colostrum-deprived (CDCD) neonatal pigs. A second objective was to refine a possible in vitro culture of serogroups C and B. Forty-eight, one-day old CDCD piglets were randomly divided into eight groups with six pigs each. Piglets were gastrically inoculated with similar quantities of total virus. Fecal swabs were collected every 12 hrs and three piglets in each group were sacrificed at 24 or 72 hrs post infection (hpi) for microscopic intestinal evaluation of five predetermined sections. Viral shedding was detected in all groups by 24 hpi, and was generally sustained until necropsy excluding serogroup B infected pigs. Serogroup C virus was detected more frequently and in higher quantities compared to the coinfecting serogroup in combinational groups. Significant differences in villous height were determined at 24 and 72 hpi between sham and inoculated groups. Serogroups B and C resulted in diffuse small intestinal atrophy; however serogroup A infection was more restricted to the jejunum at 24 hpi. Significant crypt depth differences were also apparent at 72 hpi. Serogroup C, but not B was adapted for in vitro cell culture using MA-104 cells. Results of this study, suggest serogroup C rotaviruses can be cultured in vitro, and serogroups B and C are able to infect the entire small intestinal tract early in the course of infection as compared to the serogroup A virus used in this study.

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 This report has not been peer-reviewed.

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