# RESEARCH ABSTRACT

SWINE HEALTH

**Title:** Comparison of the efficacy of vaccines based on subtype PCV2a or PCV2b in their ability to protect against PCV2b or PCV2a/b challenge – **NPB #11-055**

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**Scientific Abstract:**

Essentially all of the current commercial porcine circovirus type 2 (PCV2) vaccines are based on genotype 2a (PCV2a) and are effective in protecting against PCV2b challenge which is the current predominant genotype in the global pig population. The objective of this study was to compare PCV2a- and PCV2b-based on their ability to control PCV2b viremia under experimental conditions. Sixty-three pigs were randomly assigned to one of eight groups. At day 0 (D0), 16 pigs were vaccinated with an experimental live-attenuated chimeric PCV2 vaccine based on genotype 2a and 16 with genotype 2b. Challenge was done at D28 using PCV2b or a combination of PCV2a and PCV2b, porcine reproductive and respiratory syndrome virus (PRRSV) and porcine parvovirus (PPV) to mimic what commonly occurs in the field. The experiment was terminated at D49. Pigs vaccinated with PCV1-2b had significantly higher levels of PCV1-2 viremia and shedding of PCV1-2 in feces and nasal secretions but also a more robust humoral immune response as evidenced by significantly higher ELISA S/P ratios compared to PCV1-2a vaccination. Regardless of challenge, PCV1-2b vaccination significantly reduced the prevalence and amount of PCV2 viremia compared to PCV1-2a vaccination. Interestingly, in non-vaccinated pigs concurrent PCV2a infection resulted in clinical disease in 1/8 pigs and increased macroscopic lung lesions compared to pigs challenged with PCV2b alone further supporting the idea that concurrent PCV2a/PCV2b infections is necessary for optimal PCV2 replication.