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Janice Storebo
Sarah Summerbell

**Layout and CD-ROM**
David Brown
Tina Smith

**Logo Design**
Ruth Cronje, and Jan Swanson;
based on the original design by Dr. Robert Dunlop

**Injection site histologic lesions induced by commercial PCV2 piglet vaccines**

**R. Christmas, J. Kolb**
Boehringer Ingelheim Vetmedica, Inc., St. Joseph, MO

## Introduction and Objectives

Vaccines against PCV2 virus infection have recently been introduced into both the European (2004) and North American (2006) markets. Adjuvants are incorporated into many licensed vaccines to enhance the immune response. Some adjuvants may contain mineral oil or other inflammatory substances which, while stimulating the immune response, may also lead to injection site lesions or anaphylaxis. This study was performed to compare the tissue reactivity at 14 days post-vaccination of three piglet vaccines licensed in the United States.

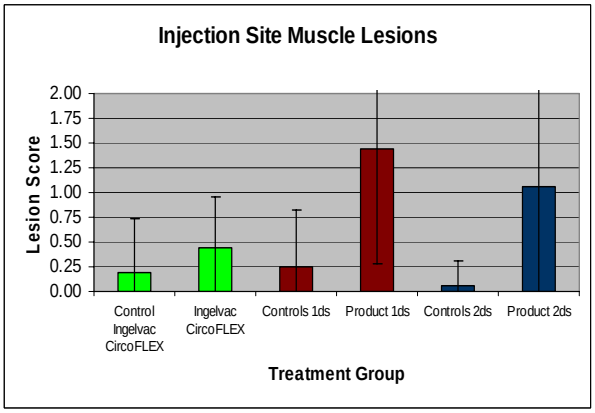
## Materials and Methods

Forty-eight weaned feeder pigs, approximately 18 to 21 days of age, were individually identified and randomly allocated to three treatment groups (n=16 per group) in a blinded, internal control study. The three groups included Ingelvac® CircoFLEX™ (Boehringer Ingelheim Vetmedica, Inc, St. Joseph, MO), a one dose vaccine, another one dose commercial vaccine, and a two dose commercial vaccine. Piglets were vaccinated according to manufacturer's instructions. A saline injection of equal volume was made on the opposite side of the neck to serve as an internal control. Piglets were humanely euthanized 14 days following the final injection (first dose for one dose vaccines, second dose for the two dose vaccine). An injection site tissue sample was harvested and placed into 10% buffered neutral formalin and sent to the Iowa State University Veterinary Diagnostic Laboratory. Tissues were processed and blindly scored on a 0-5 scale using the following criteria: score0-no lesion; score1-scattered lymphocytes & macrophages, mild perivascular cuffs; score2-mild scattered moderate nonsuppurative inflammation; score 3-moderate multifocal pyogranulomatous inflammation; score 4-severe diffuse inflammation; score5-massive necrosis or severe pyogranulomatous inflammation.

## Results

No significant difference ($p>0.05$, paired t-test) was detected between the internal saline controls (score 0.19) and vaccine injection sites in the Ingelvac CircoFLEX treated pigs (score 0.44). Pigs in the other one dose vaccine group (score 1.06) and the two dose vaccine group (score 1.44) had significantly higher lesion scores than their internal control injection sites ($p<0.01$). Ingelvac CircoFLEX pigs had significantly lower lesion scores than the other vaccine groups ($p=0.02$, ANOVA). The control sites for all three groups were not significantly different from one another (mean score 0.17; Figure 1).

Figure 1 – Injection site lesion scores




## Conclusions

The injection sites were examined earlier than labelled withdrawal times, but clearly demonstrated different levels of reaction. Piglets receiving Ingelvac CircoFLEX had significantly lower lesion scores than the other vaccines, and were not significantly different than saline injected internal control sites. The other two vaccines had lesions that were significantly worse than internal control sites and the Ingelvac CircoFLEX group. Injection site lesions may be sustained and warrant extended withdrawal times. Sustained lesions could potentially result in reduced carcass value at harvest or reduced weight gain following vaccination.