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## **EVALUATION OF SERUM VITAMIN B<sub>9</sub> AND B<sub>12</sub> CONCENTRATIONS IN PIGS INFECTED WITH PORCINE REPRODUCTIVE AND RESPIRATORY SYNDROME VIRUS**

N. Grützner<sup>1</sup>, T. Opriessnig<sup>2</sup>, R.M. Heilmann<sup>3</sup>, J.S. Suchodolski<sup>4</sup>, J.M. Steiner<sup>4</sup>.

<sup>1</sup> *Institute of Agricultural and Nutritional Sciences, University of Martin Luther Halle-Wittenberg, Germany;* <sup>2</sup> *The Roslin Institute and The Royal (Dick) School of Veterinary Studies, University of Edinburgh, Midlothian, United Kingdom;* <sup>3</sup> *Small Animal Internal Medicine, College of Veterinary Medicine, University of Leipzig, Germany;* <sup>4</sup> *Gastrointestinal Laboratory, Veterinary Medicine & Biomedical Sciences, Texas A&M University, College Station, United States.*

### **Introduction**

Vitamin (Vit.) B<sub>9</sub> and B<sub>12</sub> are essential components for genomic stability. Serum concentrations of both vitamins are altered in human patients with viral infections. Decreased Vit.B<sub>12</sub> concentrations have been described in patients with enveloped RNA virus infections, an investigation in pigs infected with a DNA virus (porcine circovirus type 2) showed no effect on serum Vit.B<sub>9</sub> or B<sub>12</sub> concentrations (unpublished data). No published data are available on the vitamin B status in pigs infected with an RNA virus. We aimed to evaluate serum Vit.B<sub>9</sub> and B<sub>12</sub> concentrations in pigs infected with porcine reproductive and respiratory syndrome virus (PRRSV), an enveloped RNA virus.

### **Material & Methods**

Serum samples from pigs (n=9) were used as part of an unrelated study. Pigs were infected with PRRSV strains (VR2385 [n=4] and NC16845 [n=5]) and serum samples were collected prior to the PRRSV strain inoculation and on day 3, 6, and 9 post-inoculation. Concentrations of serum Vit.B<sub>9</sub> and B<sub>12</sub> were measured using immunoassays validated for pigs. An ANOVA and RM-ANOVA were used to compare serum Vit.B<sub>9</sub> and B<sub>12</sub> concentrations in pigs prior to and 3, 6, and 9 days after inoculation with PRRSV.

### **Results**

Serum Vit.B<sub>9</sub> concentrations increased from prior (medians: 92.8 µg/L) to days 3 (128.0 µg/L), 6 (175.2 µg/L) and 9 (185.6 µg/L;  $p=0.0044$ ), whereas Vit.B<sub>12</sub> concentrations decreased from prior (medians: 196 ng/L) to days 3 (188 ng/L), 6 (184 ng/L), and 9 (158 ng/L;  $p=0.0092$ ). Repeated measures analysis confirmed those increases and decreases for serum Vit.B<sub>9</sub> ( $p=0.0018$ ) and B<sub>12</sub> ( $p=0.0001$ ) concentrations, respectively. No difference was observed between the two PRRSV strains for either vitamin ( $p>0.05$ ).

### **Discussion & Conclusion**

Pigs with an enveloped RNA virus infection showed decreases of Vit.B<sub>12</sub> concentrations similar to humans. However, larger studies are warranted to confirm differences in Vit.B<sub>9</sub> and B<sub>12</sub> concentrations in pigs with PRRSV infection.