EFFICACY OF AN INTRADERMAL HOMOLOGOUS AUTOGENOUS PRRS VIRUS VACCINE ADMINISTERED AT 3 DAYS OF AGE AGAINST A HOMOLOGOUS PRRS CHALLENGE

Ladinig A.[1], Düerlinger S.[1], Kreutzmann H.[1], Rümenapf T.[2], Christiaens I.[3] Neto R.[4], Williemsen M.[4]

1 – University Clinic for Swine, University of Veterinary Medicine Vienna
2 – Institute of Virology, University of Veterinary Medicine Vienna
3 – Poulpharm, Belgium
4 - Kemin Biologics, USA

INTRODUCTION & OBJECTIVE

Porcine reproductive and respiratory syndrome virus (PRRSv) is one of the most significant pathogens in the pig industry. Comercial vaccines´efficacy depends on homology with the field strain, with increasing sequence homology, the likelihood of conferring good protection decreases. The objective of this study was to evaluate the protective effect in piglets of homologous transdermal PRRSV vaccines produced by Kemin-Aptivax™, after experimental infection with PRRSV AUT15-33.

MATERIALS & METHOD

Animals:

Forty-eight PRRS negative piglets were included in this study and selected at birth, the piglets were transferred to the University of Veterinary Medicine, Vienna two weeks prior to challenge to be housed in the Biosafety level 2 for the groups challenged with PRRSv.

Piglets were randomly allotted to 1 of 3 groups, a summary of the trial design is presented in table 1. Positive control (PC) (not vaccinated, challenged), negative Control (NC) not vaccinated and non-challenged) and Vaccinated challenged (VC) vaccinated intradermally at 3 days of age (day -38 of the trial) with KEMIN® AptiVax™ Barricade PRRS AUT15-33. Challenge was administered intranasally at day 0 (piglets 41 days of age) with PRRSV AUT15-33 $1x10^5$ TCID50.

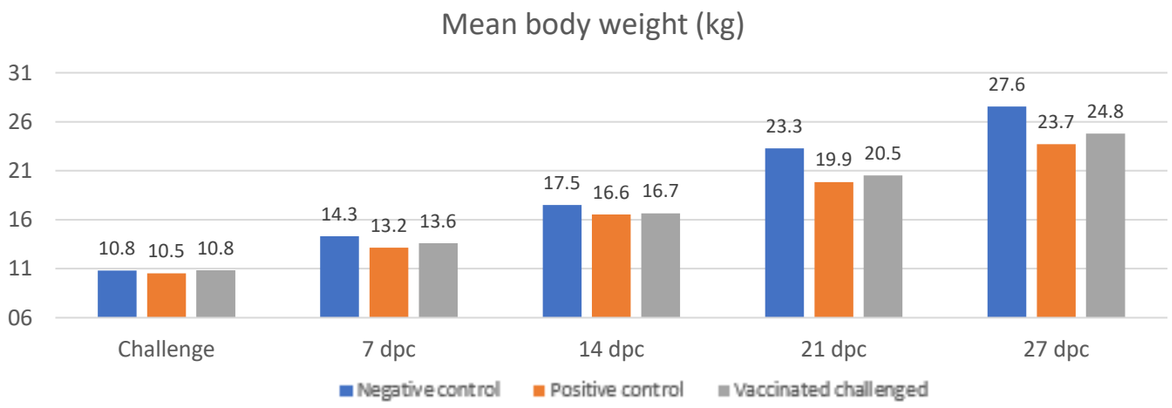
Table 1: Experimental design for each treatment group

GROUP	N° of piglets	VACCINE REGIME	CHALLENGE
		3 days of age	41 days of age
NV	16	-	-
PC	16	-	PRRS
VC	16	Barricade	PRRS

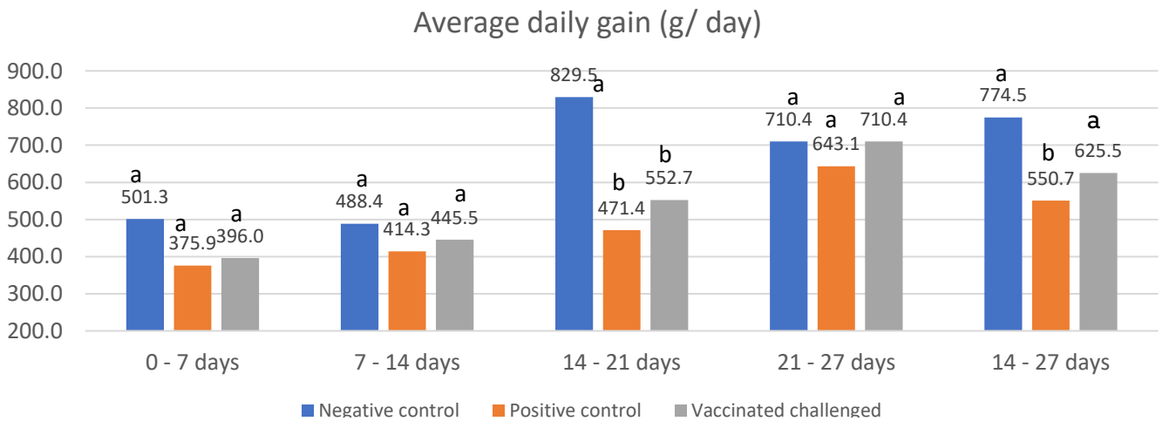
Clinical signs in piglets and rectal body temperature (RBT) were assessed daily. Body weight was assessed on days -38, -24, -15, 0, 7, 14, 21 and 27 and average daily gains were calculated. Necropsies were carried out at 10 and 27 days post-challenge. Serum samples and nasal swabs were collected on study day 0, 3, 5, 7, 10 and 14.

RESULTS

Physical performance

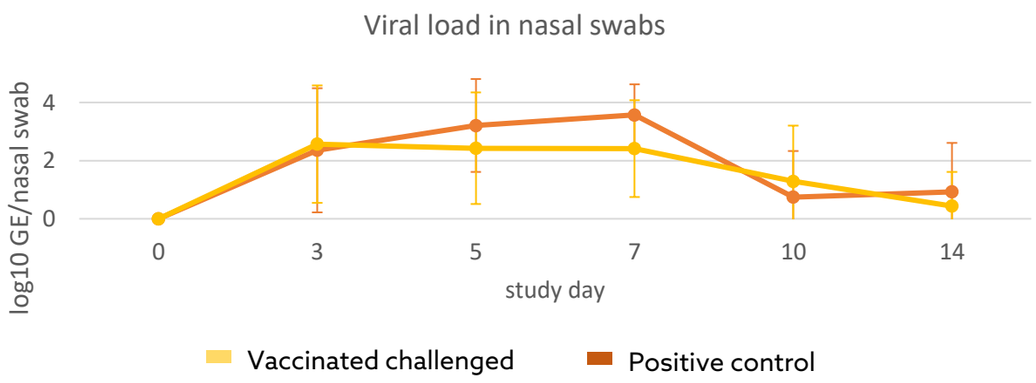


No significant differences in the mean body weight, numerically higher weights for vaccinated piglets than for unvaccinated challenge

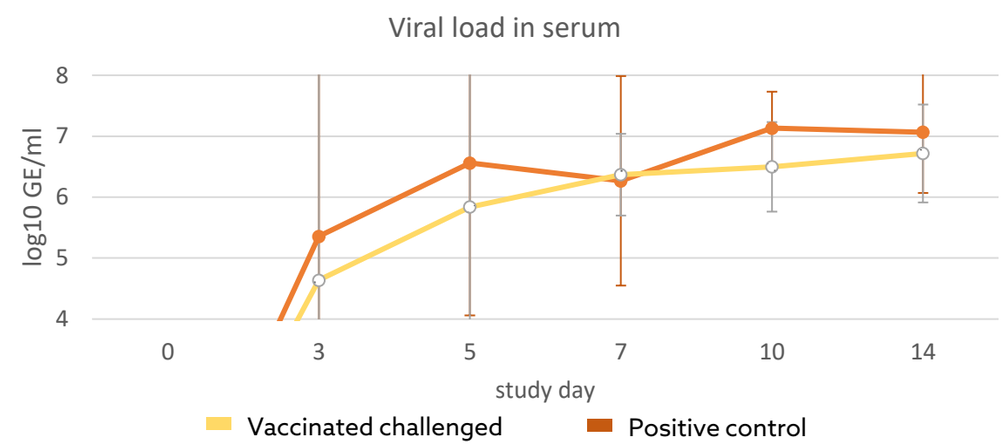


Growth in intradermally vaccinated piglets was similar to unchallenged control piglets from 14 to 27 days post challenge and improved the growth performance in vaccinated piglets compared to unvaccinated piglets following a PRRS challenge.

Viral load in serum, nasal swabs and tissue samples



- Reduction of the viral load in nasal swabs at day 5 and 7 in the Barricade vaccinated group



- Better control of PRRS viral load in serum

CONCLUSION

In the conditions of this study, use of a PRRS autogenous vaccine to immunise piglets intradermally at 3 days of age against challenge with a pathogenic PRRSV 38 days later demonstrated to be effective in maintaining good performance levels in piglets challenged with a pathogenic PRRSV strain early in life.

IPVS & ESPHM
JUNE 4-7, 2024 LEIPZIG, GERMANY

References

TD-23-9190