

# “EFFICACY OF INTRADERMAL VACCINATION WITH UNISTRRAIN® PRRS IN PIGLETS AFTER A HETEROLOGOUS CHALLENGE AT 24 WEEKS POST-VACCINATION”

Simon-Grifé<sup>1</sup>, M.; Fenech<sup>1</sup>, M.; March<sup>1</sup>, R.; Roca<sup>1</sup>, M.; Busquet<sup>\*1</sup>, M.; Sitjà<sup>1</sup>, M.

\*Corresponding author (marta.busquet@hipra.com)

<sup>1</sup>HIPRA, Amer (Girona), Spain.

## INTRODUCTION

The aim of this study was to demonstrate that UNISTRRAIN® PRRS administered by the intradermal route (ID) with a suitable device was as effective as when administered with a conventional intramuscular injection (using needle and syringe) in piglets after a heterologous challenge at 24 weeks post-vaccination.

## MATERIALS AND METHODS

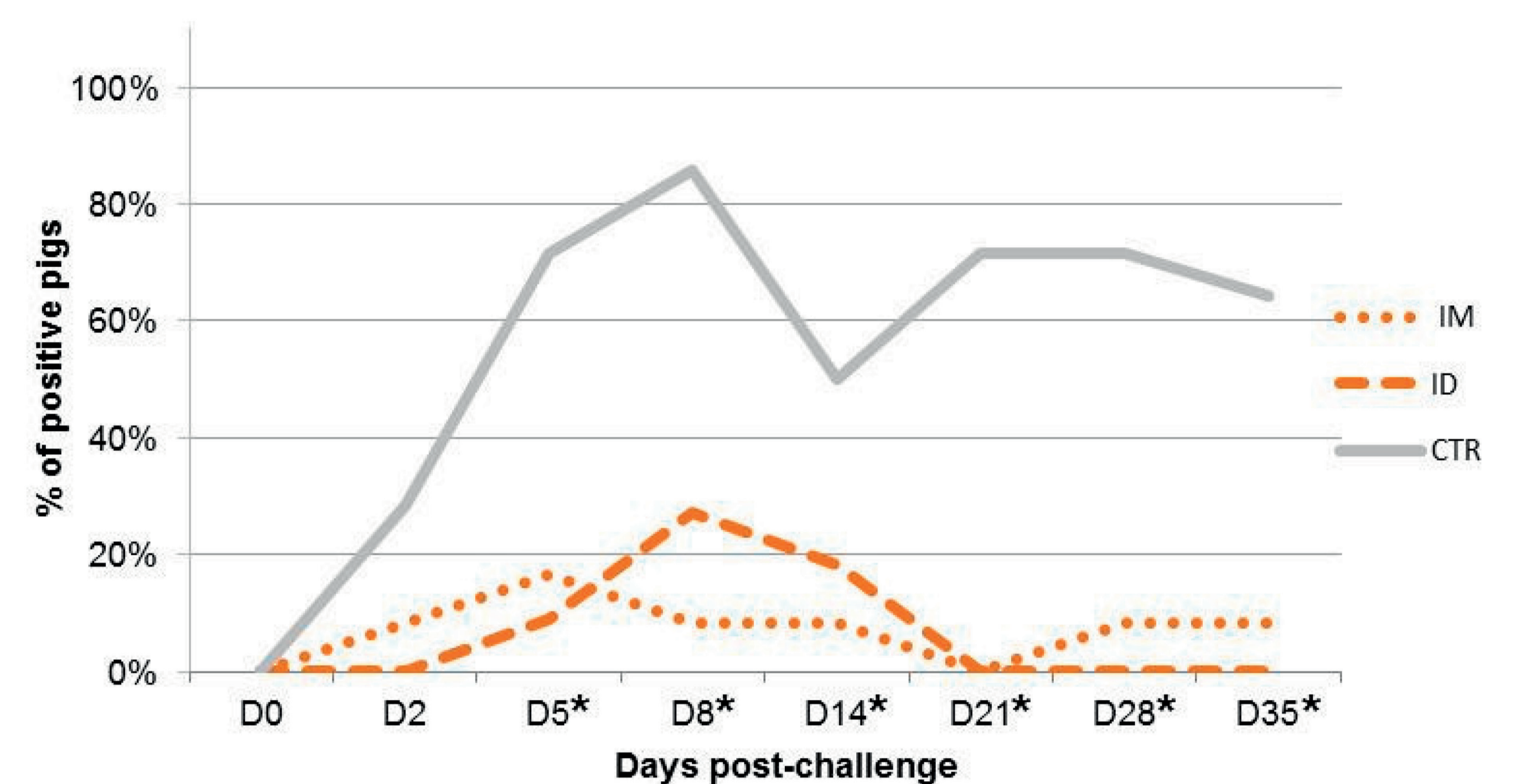
Thirty-seven 2-week-old piglets, clinically healthy and free from virus and antibodies against PRRS, were randomly assigned to three different groups: ID vaccinated group (n=11), intramuscularly (IM) vaccinated group (n=12) and control group (CTR; n=14). Animals in the ID group were immunised intradermally with UNISTRRAIN® PRRS (0.2 ml/dose;  $10^{3.5}$  CCID<sub>50</sub>/animal) administered with a suitable device. Animals in the IM group were immunised intramuscularly with UNISTRRAIN® PRRS (2 ml/dose;  $10^{3.5}$  CCID<sub>50</sub>/animal; administered with needle and syringe. The animals in the CTR group received 2 ml of PBS using the same strategy as in the IM group. At 26 weeks of age, all piglets were challenged by the intranasal route with a heterologous pathogenic strain of European genotype I of the PRRSV (89% ORF5 homology;  $10^{6.39}$  CCID<sub>50</sub>/animal). Animals were examined daily after challenge during the following 35 days. Virus detection was performed by real time RT-qPCR (at 2, 5, 8, 14, 21, 28 and 35 days post-challenge) and the Area Under the Curve (AUC) of viraemia was calculated from the challenge to the end of the study. AUC and length of the viraemia were analysed using a non-parametric Mann-Whitney U test ( $p < 0.05$ ) and percentage of viraemic animals using a two-tailed chi-square test/Fisher exact ( $p < 0.05$ ).

## RESULTS

Vaccinated groups had a significantly lower serum viral load, as determined by AUC (IM= $0.0 \times 10^0$  CCID<sub>50</sub>/ml; ID= $0.0 \times 10^0$  CCID<sub>50</sub>/ml), when compared to non-vaccinated pigs (CTR= $3.1 \times 10^4$  CCID<sub>50</sub>/ml).

In the vaccinated groups, a significant reduction in the number of viraemic animals was observed at: 5, 8, 14, 21, 28 and 35 days after challenge (Figure 1).

Figure 1. Virus detection in serum.



\*Statistically significant differences between groups ( $p < 0.05$ ).

The length of the viraemia after challenge (Table 1) was also statistically lower in the vaccinated groups compared to non-vaccinated pigs.

Table 1. Length of viraemia after challenge.

Group	IM	ID	CTR
Days of viraemia*	Mean	6.8 <sup>a</sup>	29.1 <sup>b</sup>
	SD	12.3	9.3

<sup>a,b</sup> Different superscripts indicate statistically significant differences between groups ( $p < 0.05$ ).

## CONCLUSIONS

The obtained results allow us to conclude that the duration of immunity of the UNISTRRAIN® PRRS vaccine was achieved 24 weeks after vaccination. In addition, UNISTRRAIN® PRRS administered in piglets by the intradermal route with a suitable device had a comparable effect on the fast clearance of the virus to IM administration using a traditional syringe and needle. UNISTRRAIN® PRRS administered ID or IM appears to be a useful tool to decrease viraemia and thus achieve a reduction in the infection pressure of PRRSV on an infected farm.



Laboratorios Hipra, S.A.  
Avda. la Selva, 135  
17170 Amer (Girona)  
Spain

Tel (34) 972 43 06 60  
Fax (34) 972 43 06 61  
hipra@hipra.com  
www.hipra.com