# CELL-MEDIATED IMMUNE RESPONSE AGAINST PRRS VIRUS IN GILTS VACCINATED WITH UNISTRAIN® PRRS ALONE OR IN COMBINATION WITH ERYSENG® PARVO

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## INTRODUCTION

Current knowledge of Porcine Reproductive and Respiratory Syndrome virus (PRRSV) immunology is still limited. However, it seems clear that modified live vaccines (MLV) are a reasonable choice for the immunization of pigs, since the cell-mediated immune (CMI) response raised after vaccination may be partly responsible for limiting the duration of viraemia, and consequently the spread of the virus[1,2]. Recently, a new vaccines combination containing MLV-PRRS and inactivated Porcine Parvovirus and Swine Erysipelas (UNISTRAIN®PRRS + ERYSENG® PARVO) has been licenced, which is safe and effective against PRRS[3], Porcine Parvovirus and Swine Erysipelas[4]. The objective of the study was to assess the CMI response against heterologous PRRSV infection *in vitro* in gilts vaccinated with UNISTRAIN® PRRS alone or in combination with ERYSENG® PARVO following a common vaccination scheme in commercial farms.

## MATERIALS AND METHODS

Sixteen PRRS-naïve healthy gilts, 6-month-old, were randomly allocated to three groups: group A (n=6, UNISTRAIN® PRRS + ERYSENG® PARVO, 2 ml/dose IM), group B (n=6, UNISTRAIN® PRRS, 2ml/dose IM) and group C (n=4, control group, 2 ml PBS/dose IM). Animals were vaccinated at days 0, 21 and 147 of the study. Blood samples were collected at days 0, 21, 29, 42, 147 and 154. Heterologous CMI responses against two European strains -type I- (3262 and 3267: strains immunologically different in *in vitro* as well as *in vivo* tests)[5,6] and one North American strain -type II- (VR-2332) were measured by IFN-γ ELISPOT (Table 1). PRRSV antibodies were evaluated by ELISA (Civtest SUIS PRRS EU and Idexx PRRS X3). Kruskal-Wallis test was used to compare CMI response at each sampling day. Significance was set at $p<0.05$.

Table 1. Similarity (%) of the vaccine strain with the isolates used for the ELISPOT assay.

| | Non-structural proteins (ORF1a and ORF1b) | Structural proteins (ORF2-7) |
|---|---|---|
| 3262 | 89.1 - 90.9 | 83.8 - 94.7 |
| 3267 | 99.1 - 99.7 | 99.4 - 100 |
| VR-2332 | 58.2 -63.5 | 64.2 - 72.4 |

## RESULTS

Before vaccination, all gilts were negative for PRRSV antibodies. After vaccination, seroconversion was demonstrated in all the immunized pigs (group A and B), whereas those in control group remained negative throughout the study. Regarding CMI, a higher response was recorded in groups A and B compared to control group ($p<0.05$) for all evaluated strains (Fig 1). For group A, the peak of IFN-γ-SC was at 29 days for all strains. Then, a decrease of IFN-γ-SC was observed and, finally, the booster effect was observed in all isolates at day 154 (7 days after 3rd shot of vaccine) (Fig 1). As expected, IFN-γ-SC mean values for all strains were null or <5 in the control group.

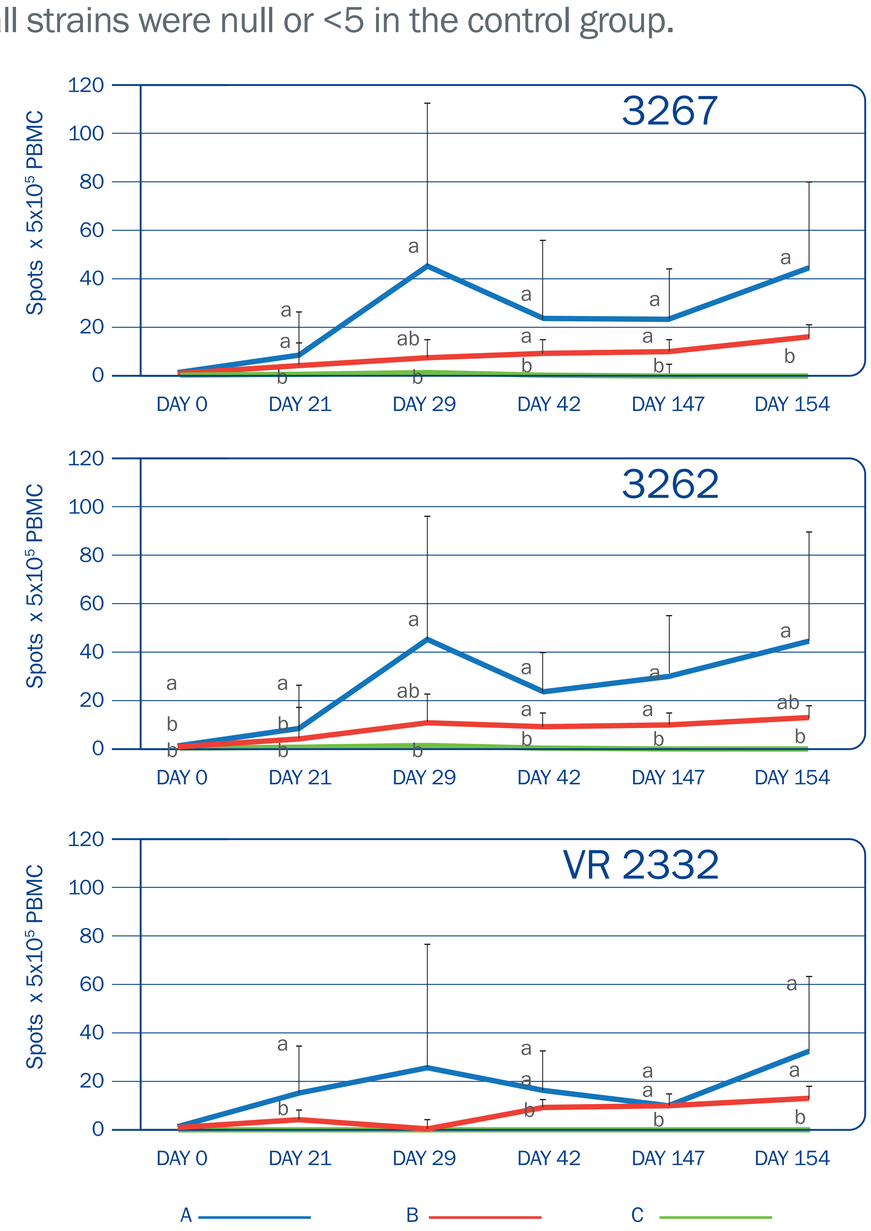


Figure 1. IFN-γ-SC per $5x10^5$ PBMC against 3262, 3267 and VR-2332 strains, respectively. Different superscript letters indicate statistically significant differences ($p<0.05$) among groups.

## DISCUSSION

Most of PRRS vaccination programs in commercial farms consist of a primary immunization with vaccination and revaccination 3-4 weeks apart and, then, a booster dose every 3-4 months. Results of the present study suggest that UNISTRAIN® PRRS administered alone or combined with ERYSENG® PARVO induces a significant specific CMI response against heterologous PRRSV strains after a common vaccination scheme with primary vaccination and revaccination 4 months later.

**REFERENCES**
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