



VPH-003

## BIOSAFETY TEST OF COMMERCIAL PORCINE PLASMA TREATED WITH UV RADIATION WHEN INOCULATED INTRAPERITONEALLY IN PIGLETS

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### Introduction

The objective of this study was to assess the risk of virus transmission to piglets using both liquid native and ultraviolet C (UV-C) irradiated plasma at different doses. Biosafety tests evaluated Porcine circovirus type 2 (PCV2) and Porcine reproductive and respiratory syndrome virus (PRRSV) as usual contaminant indicators because their importance in swine industry.

### Materials and methods

A 8-L batch of plasma containing  $2.71 \times 10^4$  PCV2 DNA copies/mL (Ct= 30,96) and a Ct = 35.35 for PRRSV, seropositive against both viruses, was selected. This batch was divided in 3 sub-batches: non-irradiated, irradiated at 3000 J/L, and irradiated at 9000 J/L. A total of 37 PRRSV and PCV2 negative piglets were divided into 5 groups. All treatments were administrated intra-peritoneally: Group 1 (negative control received PBS); Group 2 (plasma UV-C irradiated at 9000 J/L); Group 3 (plasma UV-C treated at 3000 J/L); Group 4 (native non-UV-C irradiated plasma); and Group 5 (positive control was inoculated with PCV2 at a dose of 100 TCID<sub>50</sub>/mL). After inoculation animals were blood sampled at 0, 14, 28, 50, and analyzed by qPCR for PCV2 and qRT-PCR for PRRSV, and antibodies against PCV2 and PRRSV.

### Results

Group 1 remained free from PRRSV and PCV2 and showed no seroconversion against those viruses. All piglets from group 5 (inoculated with PCV2) got infection and seroconversion against PCV2. Piglets injected with UV-C irradiated plasma at both doses (groups 2 and 3) did not experience infection/seroconversion by PCV2 or PRRSV. Piglets injected with raw plasma (group 4) got infection by PRRSV but not PCV2.

### Discussion and conclusions

Results demonstrated that UV-C treatment is a useful step to reduce load of PRRSV and PCV2 in liquid plasma. Therefore, UV-C radiation should be considered as an intermediate additional safety feature for the manufacturing process of SDP.