Title: EVALUATION OF THE IMMUNOGENICITY OF PEPTIDES DERIVED FROM CAPSID PROTEIN OF *PORCINE CIRCOVIRUS 2*

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Abstract:

Porcine circovirus 2 (PCV-2) is associated with several swine diseases which are called Porcine Circovirus Associated Diseases (PCVADs). Currently, there is a great interest in the PCV-2 immunology, especially related to the properties of the viral capsid protein (cap-PCV2). This protein is related to the viral immunogenicity and it is the main target in the production of vaccines against PCV-2. In this context, the aim of this study was to assess the immunogenicity of four peptides derived from epitope regions of the cap-PCV2, previously selected by phage display technique. The peptides 51–CTFGYTIKRTVT-62 (S14), 127-CDNFVTKATALTY-138 (S34), 164-CKPVLDSTIDY-173 (C12), 79-CFLPPGGGSNT-88 (F1) were synthesized by Peptide 2.0 Inc® and conjugated with Keyhole Limpet Hemocyanin to immunization assays. Mice balb/c male, aged from 5-6 weeks, were divided in groups of 5 animals, each group were immunized with 100 µg of the respective peptide diluted in phosphate buffer (PBS) pH 7.2. Positive control group (cap) was inoculated with 100 µg of the PCV-2 recombinant capsid protein and the negative control group was inoculated with PBS. The animals were immunized by subcutaneously way on the 0, 15 and 30 days. Blood samples were collected at time 0 and 45 days postinoculation. The serological response was evaluated by indirect ELISA using the recombinant protein of the PCV-2 as antigen. The data was performed by relation of s/p ratio. The animals inoculated with the selected peptides showed different humoral responses, having the C12 peptide showed higher induction of IgG (1.84±1.1) and IgG1 (2.16±1.36) antibodies as compared to the negative control (0.22±0.12 e 0.0±0.01, respectively). In the antibody induction evaluation of the Ig2a, the group F1 had a higher concentration of antibodies (0.35±0.19) as compared to the negative control (0.09±0.14). The characterization of immunogenic regions of the PCV-2 capsid protein may help the vaccine development and diagnosis.

Keywords: immunogenicity, peptide, *porcine circovirus 2*

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