Poster

Production of antigens and development of candidates for vaccines against porcine circovirus 2 (PCV2).

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ABSTRACT

Porcine circovirus (PCV2)-associated disease is one of the most worrisome diseases affecting the porcine sector, causing significant economic losses. Although the currently available vaccines reduce infections and virulence, they are not effective in eradicating the virus. In addition, the high rate of mutation of the virus together with the selective pressure exerted by these vaccines have favoured the appearance of new strains and changes in the dominant genotype of the virus. Recombinant vaccines emerge as a viable alternative to the use of attenuated viruses. However, they are not capable of inducing a potent cellular immune response capable of neutralizing the virus. ADL BIONATUR SOLUTIONS is developing recombinant vaccines based on the expression of neutralizing epitopes of the PCV2 capsid protein fused to sequences for inducing specific cellular immunity. This project has been focused on the production of antigens/candidates for vaccines against PCV2. The antigens could be also used to develop technical tools in order to analyze the in vivo efficacy of the vaccines in raising the humoral and cellular components of the immune response.

Methods: The production of the antigens was performed in the FLYLIFE platform, based on the use of insect cells as biofactories for the production of proteins of interest. The expression of the protein was driven by a baculovirus vector infecting larvae of the insect Trichoplusia ni. In addition, a protocol was designed to obtain the antigens under the requirements of concentration and purity for immunity tests.

Results: After the expression of the antigens in the larvae of the insect, different conditions of solubilization and purification were analyzed, which allowed obtaining the antigens with a 60-78% of purity. Currently, immunity assays are being carried out in mice to verify an improvement in the immune response of the vaccine candidate against PCV2.

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