

Poster

Development of recombinant PRRS vaccine candidates produced by using the baculovirus expression system



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Keywords: PRRS; recombinant protein; baculovirus; Trichoplusia ni.

ABSTRACT

The Porcine Respiratory and Reproductive Syndrome (PRRS) is one of the viral diseases with the greatest impact in the swine industry, causing great economic losses due to causes abortions, infertility, pneumonia and even mortality in the farms.

Currently there are two types of commercial vaccines based on live modified PRRS virus (MLV) or based on killed virus (KV). These vaccines are not able to tackle the disease. On one hand, they cannot raise universal immunity against the circulating serotypes of the virus, and, on the other hand, they are unsafe because of the risk of mutating into virulent forms when interacting with circulating viruses.

For this reason, ADL-Bionatur Solutions is developing an alternative recombinant vaccine, aimed to be safer than current vaccines and with greater protective capacity and universality. To do this, the design of the vaccine candidates has been based on potentiating the cell-mediated component of the immune response, while addressing humoral immunity against more conserved antigens of the virus.

The expression of vaccine candidates was carried out by using the ADL-Bionatur' FLYLIFE platform, which allows the expression of recombinant proteins in larvae of *Trichoplusia ni* (T.ni) infected with a baculovirus expression vector. For this purpose, recombinant baculoviruses were generated and the expression of the proteins of interest was studied in T.ni. Subsequently, the solubilization and purification protocols were optimized for optimizing the recovery of the proteins of interest.

The results showed that the proteins of interest were correctly expressed in larvae of T.ni. The solubilization and purification protocols were developed and optimized allowing a good recovery performance and a purity higher than 80%, which will allow carrying out in vivo efficacy assays.

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