



IMMUNOLOGY & VACCINOLOGY

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DEVELOPMENT A POTENTIAL IMMUNOGENIC RECOMBINANT HEMAGGLUTININ-NEURAMINIDASE PROTEIN OF PORCINE RUBULAVIRUS

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Introduction

Blue eye disease caused by *Porcine rubulavirus* (PorPV) is an endemic viral infection of swine causing neurological and respiratory disease in piglets, and reproductive failure in sows and boars. The hemagglutinin-neuraminidase (HN) glycoprotein of PorPV is the most abundant component in the viral envelope and the main target of the immune response in infected animals. In this study, we expressed the HN-PorPV-recombinant (rHN-PorPV) protein in an *E. coli* system and analyzed the immune responses in mice.

Material & Methods

The HN gene was cloned from the reference strain PorPV-La Piedad Michoacan Virus (GenBank accession number **BK005918**), into the pDual expression vector. The rHN-PorPV protein concentration was quantified in a bio analyzer (Agilent Technologies, Inc. Copyright©). The immunogenicity of the rHN-PorPV protein was tested by inoculation of BALB/c mice with AbISCO-100® as adjuvant.

Results

The expressed protein was identified at a molecular weight of 61.7 kDa. Three-dimensional modeling showed that the main conformational and functional domains of the rHN-PorPV protein were preserved. The antigenicity of the expressed protein was confirmed by Western blot with a monoclonal antibody recognizing the HN, and by testing against serum samples from pigs experimentally infected with PorPV. Analysis of the humoral immune responses in mice showed an increased level of specific antibodies 14 days after the first immunization, compared to the control group ($P < 0.0005$).

Discussion & Conclusion

The results show the ability of the rHN-PorPV protein to induce an antibody response in mice. Due to its immunogenic potential, the rHN-PorPV protein will be further evaluated in pig trials for its suitability for prevention and control of blue eye disease.