ASSESSMENT BY IMMUNOPROTEOMIC STUDIES OF THE IMMUNE RESPONSE DEVELOPED BY DIFFERENT SUBUNIT VACCINES AGAINST GLÄSSER'S DISEASE

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Haemophilus parasuis has emerged in the last years as one of the main causes of nursery mortality in modern swine husbandry, causing a severe systemic disease known as Glässer's disease. Control of this disease has traditionally been achieved by the use of commercial or autogenous bacterins, but these vaccines usually only prevent the disease caused by the homologous serovar, and more inconsistent results have been described when testing cross-protection. In addition, variable results have been achieved using some outer membrane proteins (Omps) in subunit vaccines.

We have developed two vaccines based on nine native Omps with affinity to porcine transferrin (NPAPT) from *H. parasuis*, serovar 5, Nagasaki strain: one was adjuvanted with a mineral oil (Montanide IMS 2215 VG PR) and administered intramuscularly ($NPAPT^{IM}$), whereas the other one was adjuvanted with a neuraminidase from *Clostridium perfringens* and administered intratracheally ($NPAPT^{IT}$). Both vaccines were compared to two other subunit vaccines, consisting of recombinant transferrin-binding protein (rTbp) A or B fragments from Nagasaki strain, and to a commercial bacterin (Porcilis-Glässer$^{\dot{O}}$). Five groups of colostrum-deprived piglets were immunized with these vaccines, one group per each vaccine, and a group of nonvaccinated control piglets were challenged intratracheally with a lethal dose ($3´10^8$ CFU) of Nagasaki strain. The rTbpA and rTbpB vaccines showed a minimal protection, whereas two NPAPT and commercial vaccines protected strongly. Immunoproteomic studies was applied to the three better protected groups, and $NPAPT^{IT}$ was that rendering the strongest immune response and against the highest number of proteins in the native Omp pool. Some of the proteins showing a scarce concentration in the pool (Omp2 or ABC transporter) yielded a high immune response but, contrarily to that expected, Tbps did not. In conclusion, these proteins could be effective candidates to prevent Glässer's disease by using subunit vaccines.