We are delighted that the International Pig Veterinary Society Congress 2004, decided to select South Africa as the host country for the 20th IPVS Congress. The Pig Veterinarians of South Africa will ensure that this congress lives up to the best traditions of previous congresses; incorporating an interesting and topical scientific programme, fascinating accompanying persons tours and an excellent social programme, allowing delegates the opportunity to network with their overseas colleagues.

This, the first IPVS congress on the African continent, will undoubtedly be of enormous benefit in generating solutions to the emerging pig veterinary challenges, especially those related to exotic and changing viral diseases, decreased use of antimicrobials and nutritional advances. The congress is important to further pig veterinary science in South Africa, to encourage younger veterinarians to join the pig industry, as a vehicle to generate funds for research and to improve the pig industry in Southern Africa.

South Africa is a magnificent and beautiful country, and offers tourists value for money. Thus, pre and post congress tours will be a major attraction for delegates to come to South Africa. Durban, in KwaZulu Natal, is a vibrant multi-cultured city with magnificent beaches, easily accessible game parks, theme villages and a moderate winter climate making it an ideal tourist destination. We urge our colleagues throughout the world to use this opportunity to get a glimpse of the continent’s rich and fascinating wonders and to enjoy the hospitality of their African friends.

Dr Peter Evans  
Chairman: Local Organising Committee: IPVS 2008
Abstract No: P.20-24

**EXPRESSION OF 4 TRUNCATED FRAGMENTS OF PASTEURELLA MULTOCIDA TOXIN IN ESCHERICHIA COLI AND THE EVALUATION OF THEIR IMMUNOGENICITY AS VACCINE CANDIDATES**

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**Introduction**

The *P. multocida* toxin (PMT) is the major virulence factor associated with porcine atrophic rhinitis (AR). The aim of this study was to clarify the region of the immunogenic fragment of PMT via the expression of partially truncated fragments for further immunologic studies. To accomplish this, the partial truncated proteins, which were divided into 4 fragments based on the hydrophilicity, were expressed in vitro.

**Materials and Methods**

The toxA gene was divided into 4 fragments according to its hydrophilicity and the coding regions of the #1, #2, #3, and #4 fragments of PMT were cloned into BamHI-KpnI digested pRSET, which generated pRSET-toxA #1, pRSET-toxA #2, pRSET-toxA #3, and pRSET-toxA #4. The constructs were transformed into the E. coli BL21(DE3)pLysS host cells once the sequences had been verified. Protein expression was induced by adding IPTG and purified under denaturing conditions using a Probond™ purification system. The immunogenicity of each fragment was calculated as the IgG titer using ELISA.

**Results**

The recombinant proteins (100 µg of each 4 protein per mouse) were administered and the immunogenicity was analyzed by ELISA. An analysis of the IgG levels against each fragment in the sera demonstrated that the mice immunized with the #1 and #4 fragments generated significantly higher antibody titers (5.2-11.2 folds) (Fig. 1, P<0.01). The protective efficacy of recombinant protein immunization was examined using a bacterial challenge study. Table 1 shows there was a lower mortality in the #1 fragment-immunized mice. Two of the four (50 %) mice, which were immunized with the #1 fragment were protected from the symptoms of the disease, and remained alive after being challenged with 1x 10⁷ *P. multocida* type D cells, whereas the same challenge dose caused death in the #2, #3, #4, and control mice during the 7 day observation period. The surviving mice were sacrificed, and the amount of bacteria recovered was measured. However, none of the peritoneal fluids from the surviving mice (#1 fragment-immunized) tested positive for *P. multocida*.

**Discussion**

This is the first report showing the immunogenic region of PMT. This study identified the most immunogenic region of PMT. This can be used as the basic information for the development of a vaccine, which will improve the effect of *P. multocida* vaccination. In conclusion, the development of *P. multocida* PAR might be reduced if the protective level of the antibodies can be increased around the time of weaning by applying the most immunogenic truncated recombinant protein as a vaccine candidate.

**Table 1**

Effects of the partial truncated protein vaccination against an experimental infection of mice with *P. multocida* type D

<table>
<thead>
<tr>
<th>Groups</th>
<th>No. mice</th>
<th>Mortality (%)</th>
<th>P. multocida recovery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>4</td>
<td>4/4 (100)</td>
<td>N/A*</td>
</tr>
<tr>
<td>#1 immunized</td>
<td>4</td>
<td>2/4 (50)</td>
<td>0/2**</td>
</tr>
<tr>
<td>#2 immunized</td>
<td>4</td>
<td>4/4 (100)</td>
<td>N/A*</td>
</tr>
<tr>
<td>#3 immunized</td>
<td>4</td>
<td>4/4 (100)</td>
<td>N/A*</td>
</tr>
<tr>
<td>#4 immunized</td>
<td>4</td>
<td>4/4 (100)</td>
<td>N/A*</td>
</tr>
</tbody>
</table>

*: not available, **: survived

**References**