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 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
CONSTRUCTION AND CHARACTERIZATION OF \( \triangle \text{CRP} \) MUTANT OF SALMONELLA CHOLERAESUIS

AZ Guo\(^1\), YD Xu\(^2\), WH Liu\(^2\), AQ Jia\(^2\), HC Chen\(^2\)

\(^1\)Huazhong Agricultural University, WUHAN, China
\(^2\)National Key Lab of Agric. Microbiol., WUHAN, China

Introduction and Objectives
Salmonella Choleraesuis is the pathogen of paratyphoid fever of 2-4-month-old piglets and has important status in swine industry and public health. Salmonella was also used as an oral live vaccine vector. The attenuated strain, C500 is a Chinese attenuated Salmonella Choleraesuis strain which was selected in the medium with thallium acetate (1). Although C500 has a good immunogeneity, it remains some residue virulence and the genetic background is unknown. This work was aimed to develop a safer vaccine to S. Choleraesuis and a more efficient live vaccine vector.

Materials and Methods
Attenuated S. choleraesuis C500 and the parent virulent strain C78-1 were purchased from China National Center of Veterinary Tissue Culture Collection. E. coli X7213 (\(\text{Thi}^{-1}\ \text{thr}^{-1}\ \text{leuB}^{-}\ \text{fhuA}^{21}\ \text{lacY}^{1}\ \text{glnV}^{44}\ \text{asdA}^{4}\ \text{recA}^{1}\ \text{RP4} 2\text{-}\text{Tc}\ \text{Mu}\text{[Xapr]}\ \text{Km}^{\circ}\)), and suicide plasmid pRE112 (\(\text{oriT}\ \text{oriV}\ \text{asd}\ \text{Cm}^{r}\ \text{SacB}^{r}\)) were sent by Dr. Roy Curtiss. The crp deletion mutant of C500 strain was constructed by conjugative transfer of unmarked deletion using the counterselectable suicide vector. Transconjugation DNA was mobilized from E. coli X7213 to C500 using a filter mating technique as described by (2,3).

Macconkey agar supplemented with 1% various carbohydrates was used to detect the phenotypes of crp mutant and C500. The growth kinetics in vitro was determined by OD\(_{600}\) value. The LD\(_{50}\)s were determined by Reed and Muench method. Four groups of 5-8-week-old female BALB/c mice were orally (p.o.) inoculated with C500 and crp mutant. Thirty days later, mice that survived were challenged p.o. with 10\(^1\)-10\(^4\) LD\(_{50}\) of C78-1. Another 20 mice were p.o. given saline buffer as control. Morbidity, mortality and health were observed for another 45 days after challenge.

Results and Discussion
E. coli donor strain X7213(pREcrp) was mated with C500. The Cm resistant conjugants were identified by PCR using the set primers, one was inside 5’end and another inside 3’end. The PCR products had two bands, one was the wide-type crp and another crp. After the second crossover, the PCR product had only one band, either crp or crp. Because the crp mutant eliminated the ability to synthesize cAMP receptor and ferment carbohydrate and small peptide (4,5,6), the crp mutant failed to ferment carbohydrate such as maltose, glucose, rhamnose, mannose, xylose, etc. The colonies (1.0mm) after growing 24 h at 37 on LB agar medium were smaller than those of C500 (2.0mm). The crp mutant grew more slowly and the mean generation time (MGT) of crp mutant (41.3min) was longer than C500 (27.9min). The growth of crp mutant was more slowly than that of C500 (Fig. 1).

![Figure 1 The growth curve of OD\(_{600}\)nm of crp mutant and C500](image)

The virulence of crp mutant was reduced than C500 shown by LD\(_{50}\). The LD\(_{50}\) of C500 and crp mutant were determined to be approximately 4.0\times10\(^6\) CFU and 9.5\times10\(^7\) CFU respectively. The result of protection assay demonstrated that deletion of crp gene in C500 did not affect significantly its immunogenicity. All the negative control mice were died after p.o. 100 LD\(_{50}\) of C78-1, while C500 and the crp mutant immunized mice survived.

In conclusion, this study indicated that the crp mutant kept the good immunogenicity but was further attenuated. The data suggested that the mutant was potentially a better attenuated vaccine and an oral live vaccine vector for pigs.

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References