

# 利用益生菌重組研發豬瘟疫苗

製劑研究組

謝政橘 助理研究員

## 摘要

豬瘟病毒（Classical swine fever virus）屬於黃病毒科（*Flaviviridae*）瘟疫病毒屬（*Pestivirus*）的成員，是一個小的、具有包膜、單股 RNA 病毒。該病毒可引起急性，亞急性或慢性的豬瘟疾病。豬瘟（Classical swine fever）是豬的一種高度傳染性和嚴重影響經濟的病毒性疾病。此疾病的嚴重程度隨病毒株在豬隻年齡和豬群的免疫狀態有所不同。因此，發展有效的疫苗來對抗豬瘟是有必要的。益生菌是指應用於人類或其他動物，藉由改善體內微生物相平衡、有益於宿主的活菌。其機制可影響生物體內的免疫系統反應，包括體液，細胞或先天免疫。重組益生菌可以傳遞異源抗原至免疫系統已有研究，可增加使用益生菌作為安全口服疫苗的可行性。目前，已利用乳酸菌菌株重組，來表達豬瘟病毒特異性細胞毒性 T 細胞抗原決定位 E290，未來將進一步進行動物實驗和抗體檢測試驗。

# **Research on Recombinant Probiotics Expressing Classical Swine Fever Virus**

Cheng-chu Hsieh

## **Abstract**

Classical swine fever virus (CSFV), a member of the genus Pestivirus of the family Flaviviridae, is a small, enveloped, single - stranded RNA virus. Classical swine fever (CSF) is a highly contagious viral disease of pigs and cause significant economic losses in pork industry. The disease may run an acute, subacute, chronic onset or inapparent course, depending on a variety of virus and host factors. The severity of this disease varies with the strain of the virus, the age of the pig, and the immune status of the herd. Therefore, to develop a more efficacious vaccine against CSF is of great importance. The term "probiotic" originally referred to live microorganisms, when administered in adequate amounts, confer a health benefit on the host. Their conception of probiotics involved the notion that substances secreted by one microorganism stimulated the growth of another microorganism. They influence several components of the immune response including humoral, cellular or innate immunity. The recombinant probiotics delivering heterologous antigens to the immune system has been investigated, suggesting the potential use of probiotics as safe oral vaccines. In this study, the CSFV - specific cytotoxic T lymphocyte epitope E290 peptide has been expressed in the genetically engineered *Lactobacillus* strain. Animal trials and antibody detection test will be done in the future.