# 山羊傳染性化膿性皮膚炎活毒減毒疫苗及抗體檢測試劑研發

製劑研究組

黃天祥 研究員兼組長

## 摘要

羊隻以試製之 CE 減毒活毒疫苗皮內接種免疫後，僅於接種部位呈現 5 至 6 日輕微紅腫，未造成全身性感染。免疫後 4 週以 CE 痂皮乳劑接種攻毒，所有免疫羊隻均可耐過強毒攻毒，接種部位僅呈輕微病變，未造成擴散或死亡。CE 減毒活毒疫苗經連續 2 代迴毒試驗，接種羊隻僅於口唇接種部位呈現 2 週輕微紅腫，無全身性病變而健存。此外，將 B2L 及 F1L 基因分別架構至 pET24a，於 E.coli 誘導表達並經純化後以 IMS 1313 佐劑製成混合次單位疫苗，再以每劑量各含 20 μg 及 60 μg 之 B2L 和 F1L 混合次單位疫苗肌肉注射免疫羊隻，進行次單位疫苗效力試驗，結果試驗羊隻均可耐過強毒攻毒。攻毒後，經 CE 混合次單位疫苗免疫羊隻之攻毒接種部位病變較攻毒對照羊隻輕微，且病變恢復時間也提早 2 週以上。經 B2L 及 F1L 混合次單位疫苗免疫羊隻，補強免疫後 7 日，以研發之 B2L 及 F1L ELISA 檢測套組均可檢測出血清內 CE 特異性抗體。本計畫後續將完成開發台灣本土型 CE 減毒活毒疫苗以解決防疫所需及降低羊隻感染 CE 之經濟損失，並開發安全性高之 B2L 和 F1L 混合次單位疫苗，以供乾淨場羊隻免疫用。

# Development of Contagious Pustular Dermatitis attenuated live vaccine and its antibody detection kit

Tien-Shine Huang

## Abstract

Goats that received a dose of trial contagious pustular dermatitis (contagious ecthyma; CE) attenuated live vaccine by intradermal inoculation developed only redness and swelling on the inoculation sites for 5-6 days post inoculation without any lesion spreading and systemic infection. Four week after vaccination, the vaccinated goats were challenged with virulent CE crust emulsion, and all the vaccinated animals were protected from the infection disease except for the mild lesions on the virulent virus inoculation sites. For the virulence reversion test，the attenuated vaccine virus has been back-passage to goats for two successive times, and each goat for the back-passages showed only mild redness and swelling on the inoculation sites of lips for 2 weeks and showed no systemic infection. In the meantime, both B2L and F1L genes of CE virus have successfully been constructed into plasmid pET24a, induced for expression, and purified, respectively. After purification, both B2L and F1L recombinant proteins were mixed and emulsified with adjuvant IMS1313 for intramuscular vaccination test of goats with each dose containing 20 or 60μg of B2L-F1L mixture subunit trial vaccine. Goats, either vaccinated with 20μg or 60μg of mixture subunit trial vaccine, their serum antibodies against B2L and F1L proteins turned to positive on 7 days post boost vaccination, and were protected from virulent virus challenge with milder lesions and 2-weeks earlier recovering of the lesions on the challenging inoculation sites comparing to the control animals. This project is aiming to develop a CE live vaccine and a highly bio-safety bivalent subunit vaccine for the prevention and control against CE epidemics in the field.