

豬瘟 E2 次單位試製疫苗之免疫效力評估

豬瘟研究組

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摘要

豬瘟 (Classical swine fever) 是由豬瘟病毒所造成之高傳染性豬隻疾病。豬瘟病毒為有封套的正股 RNA 病毒，歸類於 Flaviviridae 科、Pestivirus 屬。豬瘟病毒之 E2 醣蛋白為主要誘發感染豬隻產生中和抗體的結構蛋白。本實驗經由建構重組病毒表達豬瘟病毒 E2 醣蛋白及人工合成 E2 醣蛋白胜肽，以研發可區別診斷免疫與自然感染之豬瘟疫苗。本實驗採用腺病毒表現系統表達豬瘟病毒 E2 醣蛋白，將重組腺病毒感染豬腎臟細胞所表達之 E2 醣蛋白經由管柱純化，可由間接螢光染色法及西方墨點法偵測到表現蛋白。將腺病毒表達之 E2 醣蛋白與合成 E2 醣蛋白胜肽分別免疫豬隻，血清中和試驗結果顯示表達 E2 醣蛋白可誘發豬隻產生中和抗體 (256 倍或以上)，而合成胜肽則僅能產生低抗體力價或無抗體產生。攻毒試驗結果顯示免疫表達 E2 醣蛋白對豬隻具保護效力，免疫合成胜肽之豬隻則無法耐過。

Immunization of swine with developed E2 subunit vaccine of

classical swine fever virus

Hog Cholera division

Chia-Yi Chang

Abstract

Classical swine fever (CSF) is a highly contagious disease of swine. Classical swine fever virus (CSFV) is the causative agent of this disease. CSFV is an enveloped, positive-stranded RNA virus that belongs to the genus *Pestivirus* within the family *Flaviviridae*. E2 is the major envelope glycoprotein and represents an important target for the induction of neutralizing immune response against the viral infection. In this study, the efficient and safer marker vaccines were developed by using recombinant E2 protein and synthesized peptide of E2. Glycoprotein E2 expressed in adenovirus transduced PK-15 cells was purified by his-tag column and could be detected by IFA and Western blot. Pigs were immunized with either recombinant E2 protein or peptide. The results of SN test of pig sera showed that neutralizing antibody could be detected from pigs immunized with expressed E2 protein. However, the immune response of pigs with immunization of peptide could not be detected. The challenge of CSFV showed that the immunization of pigs with expressed E2 glycoprotein could induce protection against CSFV, whereas the pigs with immunization of peptide could not survive from the challenge.