

臺灣重要豬隻病毒性疾病檢診所需資材之建立與運用

豬瘟研究組

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摘要

豬瘟 (Classical swine fever; CSFV) 以及豬生殖與呼吸綜合症病毒 (porcine reproductive and respiratory syndrome virus; PRRSV)，為台灣地區豬隻重要病毒性疾病。但是目前該 2 種病毒以細胞培養所增殖之病毒力價仍偏低，不利後續之相關試驗研究。本次研究主要以限制性稀釋 (Limit dilution) 及細胞選殖等方法選殖出具有高感受性細胞株，以產生較高力價之病毒，並建立豬隻血清抗體檢測所需資材 (細胞)。同時收集國內各養豬場不同豬齡豬隻血清，探討豬隻血清抗體陽轉以及抗體產生之時程，提供防疫所需資訊，以期健全動物防疫及確保農業安全。新篩選之 PK15 細胞及 MARC-145 細胞分別接種豬瘟 LPC 病毒以及 PRRSV 病毒後，其增殖病毒力價分別為 $10^{7.0}$ 以及 10^8 TCID₅₀/mL，新篩選之 PK15 細胞及 MARC-145 細胞增殖病毒力價明顯提昇。

Establishment and application of materials for monitoring of important swine viral pathogens in Taiwan

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Abstract

Classical swine fever virus (CSFV) and porcine reproductive and respiratory syndrome virus (PRRSV) are the important swine viral diseases in Taiwan. However, the cell lines, which are widely used for CSFV and PRRSV, are not efficient and heterogeneous in terms of permissivity to viral infection. In order to acquire cell lines that can reliably produce CSFV and PRRSV in high titers, parent cells will be re-cloned by limiting dilution for CSFV and PRRSV propagation, respectively. In addition, this project intends to establish the necessary materials for the detection of antibodies of CSFV and PRRSV in pigs and to collect the serum of different ages of swine in domestic pig farms to analyze the positive course of serum and the time course of antibody production in pigs to provide necessary information for epidemic prevention, and improve animal epidemic prevention and ensure agricultural safety. Firstly, to acquire a homogeneous porcine kidney cell line that can reliably produce CSFV-LPC in high titers, cell clones that show high permissive phenotype to CSFV-LPC infection were derived from heterogeneous PK15 parent cells by limiting dilution and cell cloning. Maximum virus titers in PK15 newly generated cells was 10^7 tissue culture infective dose 50 (TCID₅₀)/ml. Secondly, high permissive African green monkey kidney cells (MARC-145) cell line was cloned by limiting dilution to propagate PRRSV. Maximum PRRSV virus yield in MARC-145 was 10^8 TCID₅₀/mL.