

口蹄疫 Multiplex Luminex 抗體檢測試劑之研發

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摘要

本試驗主要利用原核表現系統生產重組蛋白藉以建立區別診斷之 FMDV Multiplex Luminex (multi-analyte profiling; xMAP) 之抗體檢測法。自理想化之 xMAP 檢測法可有效地於單一豬血清樣品中同時檢測口蹄疫病毒之結構蛋白 (FMDV-SP) 及非結構蛋白 (FMDV-NSP) 抗體。經以感染、無特定病原及免疫等不同豬隻血清樣品進行 xMAP FMDV-SP 抗體檢測之診斷敏感性分別可達 81.4-96.7 %，然診斷特異性約可達 93.0-96.5 %。於 FMDV-NSP 抗體檢測部份其診斷敏感性約達 90 % 及診斷特異性可達 95.3-99.1 %。以田間血清於 xMAP FMDV-SP 抗體檢測結果，顯示 xMAP 與血清中和抗體試驗無相關性。另以豬水疱病 (SVD) 抗體進行測試，結果顯示本方法不會與豬水疱病 (SVD) 抗體產生非特異性反應。

Development of a Multiplex Luminex for detecting of antibodies to foot-and-mouth disease virus

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Abstract

The aim of this study was to generate recombinant proteins from prokaryotic cell expression system for the differential detection of antibodies to FMD virus by multiplex Luminex (multi-analyte profiling; xMAP) assay. After optimization of the Luminex assay, it detected antibodies to both structural protein (SP) and non-structure protein (NSP) of FMD virus in a single serum sample. To detect SP antibodies in sera of infected pigs, naive pigs, and vaccinated pigs, diagnostic sensitivity (DSn) and diagnostic specificity (DSp) of the assay were 81.4-96.7% and 93.0-96.5%, respectively. To detect NSP antibodies, the DSn was 90% and DSp ranged 95.3-99.1%. In detecting SP and NSP antibodies in field pigs, the results demonstrated that xMAP had no relationship with virus neutralization test. The results indicated that the Luminex assay has potential in detecting antibodies to FMDV SP-VP1 and NSP-3ABC and in distinguishing FMDV-infected pigs from those infected with SVDV.