

豬水疱病抗體檢測方法之比較

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摘要

豬水疱病 (SVD) 係一種高傳染性疾病，隸屬於 *Picornaviridae* 家族中之腸病毒 (Enterovirus) 屬成員，至今仍為單一血清型，會造成豬隻口鼻腔黏膜、乳頭及蹄部出現水泡或潰瘍為特徵，而抗原性相當接近於柯薩奇病毒 B5 (Coxsackievirus B5, CVB5)。豬水疱病最重要是與口蹄疫在臨床上無法區別。病毒中和試驗 (VNT) 和 ELISA 常被使用，其中 VNT 是可接受的標準試驗，較不利的條件是需要組織培養設備和花費 2 至 3 天才能完成，且常與其他腸病毒交叉反應而影響判讀十分困擾。目前常使用於豬水疱病抗體檢測有單株抗體 (5B7 及 UK-72) 競爭型試劑套組 (MAC-ELISA) 兩種，當有疑陽性反應時，繼以 VNT 確效。經六頭攻毒試驗豬所收集 48 支血清以豬腎細胞株完成 VNT 抗體力價之評估，及比較 5B7-MAC-ELISA 抗體檢測 S/N(%) 值的結果可達 95% 以上的一致性。另以三頭攻毒試驗豬收集 30 支血清組應用於二種原核表現系統之 SVDV-VP1 重組蛋白進行抗體檢測，經間接型 ELISA 結果顯示診斷特異性及敏感性均可達 >95% ，與 5B7-MAC-ELISA 試劑套組比較後發現一致性 >95 % 及 Kappa 值 >90 %，且不會與口蹄疫病毒產生非特異性的抗體反應。

Comparison of Methods for Detecting Antibodies against Swine Vesicular Disease

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Abstract

Swine vesicular disease (SVD) is a highly contagious disease of pigs. Swine vesicular disease virus (SVDV) is classified as the genus *Enterovirus* in the family *Picornaviridae*. All SVDV isolates are classified in a single serotype. Infection of SVDV in pigs is characterized by vesicles that progress to erosions in the mouth, muzzle, nares, teats, and feet. Antigenically, SVDV is related to the human Coxsackievirus B5. Although SVDV infection usually results in low mortality, diagnosis of SVD is important because this disease is clinically indistinguishable from other vesicular diseases, particularly foot-and-mouth disease (FMD). For SVD diagnosis, virus neutralization test (VNT) and ELISA are the techniques commonly used. The VNT is the standard test, but it has the disadvantage that it takes 2 to 3 days and requires tissue culture facilities. In addition, cross reaction between SVDV and other enterovirus often interferes the interpretation of the VNT. Currently, competitive ELISAs employing monoclonal antibody 5B7 and UK-72 is used for detecting antibodies against SVDV, and the VNT is used as a confirmatory test. In our study, 48 sera samples collected from six SVDV infected pigs were detected parallelly by the VNT and the ELISA employing monoclonal antibody 5B7 (5B7-MAC-ELISA), and the agreement between their results was up to 100%. To evaluate an in-house VP1 structural protein (SP) based indirect ELISA for the detection of anti-SP antibody in swine serum, 30 sera collected from three SVDV infected pigs were tested by the indirect ELISA. Both the diagnostic specificity and sensitivity of the indirect ELISA were more than 95%, and the agreement between the results of our indirect ELISA and the 5B7-MAC-ELISA was high, where the value was more than 95% and the Kappa value in statistics was more than 90%. It was highlighted this assay's specificity, since the absence of cross-reaction to the antibodies against FMDV.