

Detection of classical swine fever virus by a surface plasmon resonance assay

ABSTRACT

Test sera from vaccinated pigs at different time-frame were used to assess the sensitivity and specificity of an optimized Surface Plasmon Resonance (SPR)-chip-based detection method. Biomolecular interaction between Classical Swine Fever Virus (CSFV) and serum antibody were investigated in relative time using Biacore SPR system. An amount of 8860.93 RU of CSFV in 10mM sodium acetate of pH 5.0 was fixed on CM5 dextran matrix sensor chip. Serum from vaccinated animals was allowed to run over the whole CSFV in triplicate. The relative response from serum of 5th week and 7th week old swine towards the immobilized CSFV reacted variably. The 10 fold diluted serum response unit of 94.24 ± 11.34 RU indicated a limited immune response at week 5. However in week 7, the highest response in the serum at same dilution demonstrated a 2 fold increase at 189.33 ± 2.57 RU. Regeneration with glycine-HCl at pH 2.0 enabled successful baseline reversion after each analysis. The herein established, whole virus immobilized SPR-chip could serve as a prototype for a rapid and sensitive CSFV diagnosis assay.

Keyword: SPR technology; Chip-based viral assay; Virus; Hyper immune serum