

Phylogenetic characterization of genes encoding for viral envelope glycoprotein (ORF5) and nucleocapsid protein (ORF7) of porcine reproductive & respiratory syndrome virus found in Malaysia in 2013 and 2014

ABSTRACT

Background: Porcine reproductive and respiratory syndrome (PRRS) is one of the most expensive diseases of modern swine production & results in annual economic losses and cost the industry over 600 million USD in U.S. alone and billions of dollars worldwide. Two atypical PRRS cases were observed in 2013 and 2014 characterized by late-term abortion, fever and sudden increase in sow mortality which persisted for a prolonged period of time. Methods: Lungs, lymph nodes and other samples were collected for disease investigation. Sequencing of the viral envelope glycoprotein (ORF5) and nucleocapsid protein (ORF7) of PRRSV was done using the BigDye Terminator v3.1 cycle sequencing kit chemistry. The phylogenetic tree was constructed by using the Maximum Likelihood method, generated by Mega 6.06®. Results: Analysis of the ORF5 and ORF7 showed high degree of sequence homology to PRRSV parent vaccine strain VR-2332, RespPRRSV and other mutant/chimeric virus strains. Conclusions: Our study suggests that recombination events between vaccine strains and field isolates may contribute to PRRSV virulence in the field.

Keyword: Porcine reproductive and respiratory syndrome virus; PRRSV; Genetic characterization; ORF5 gene; ORF7 gene