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Molecular epidemiology and evolutionary characteristics of PRRSV emerging in southwestern China during 2012-2014

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Porcine reproductive and respiratory syndrome virus (PRRSV) is an important swine pathogen causing tremendous economic losses to the swine industry. To analyze the molecular epidemiology and evolutionary characteristics of PRRSV in the Sichuan province, southwestern China, a total of 208 positive clinical samples collected from 58 pig farms administrated live-attenuated vaccines during 2012-2014. 36 sequences of NSP2 hyper variable region and 37 ORF5 sequences were sequenced and analyzed. The results showed that the amino acid identities of the two genes amongst these sequences were 51.4-100% and 83.1-99.0%, respectively. Meanwhile, a novel pattern of deletion in NSP2 was also observed for the first time. The phylogenetic analysis on the two genes indicated that all the new PRRSV isolates could be divided into 2 out of 3 subgroups. The majority of strains were clustered in subgroup with the representative strain JXA1 and that the HP-PRRSV strains containing the 30-aa deletion in NSP2-coding region were still the dominant virus in the field. Further phylogenetic and recombination analysis based on the full-length genome revealed that SCwhn14DY with an additional 35-aa deletion in NSP2 belonged to the Chinese HP-PRRSV variant which may have originated from natural mutation. This study significantly enhances our understanding on the genetic diversity and evolutionary relationship of PRRSV in southwestern China.

Biography

Kang Runmin has completed her PhD from Sichuan University and working in Sichuan Animal Science Academy. She is currently a Research Assistant. She has mainly studied on host susceptibility of various swine breeds to infection of porcine reproductive and respiratory syndrome virus through viral challenge study and transcriptomic analysis of lungs of various swine breeds infected with porcine reproductive and respiratory syndrome virus through viral challenge study. She has published more than 3 papers in reputed journals.

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