

A PORCINE MYELOMONOCYTIC CELL LINE, 3D4/31 IS SUSCEPTIBLE TO PRRSV INFECTION IN VITRO

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PRRS virus has been characterized into two genotypes, North American (NA) and European (EU). It has been reported that MA-104 and Marc-145 cells were the only permissive continuous cell lines to PRRS virus infection where the EU PRRS virus required further adaptation for propagation. Thus, primary culture of porcine alveolar macrophage (PAM) isolated from SPF piglet has been used for EU PRRS virus isolation. In this study, we have examined a continuous porcine alveolar macrophage cell line, 3D4/31, which previously reported to support several porcine virus replication, for its permissiveness to both NA and EU typed PRRS virus infection. Results showed that 3D4/31 is permissive to PRRS virus infection as evidence by positive findings from indirect immunofluorescence staining for intracellular viral antigens; electron microscopy for intracellular viral particles and plaque assay to confirm the infectivity of viral particles. In addition, both NA and EU PRRS virus produced a significant cytopathic effect on 3D4/31 cells at 72hr post-infection and cell death analysis was confirmed by DNA fragmentation and cell titre luminescence assay. As 3D4/31 is a myelomonocytic cell line, our data also demonstrated that the immunological indicators, e.g. IFN- γ and IL-6 as analyzed by RT-PCR, were enhanced during infection. In summary, 3D4/31 cells line is a useful in vitro model for PRRS virus isolation, particularly the EU genotype and for studying the biology and persistent infection of PRRS virus. It has been reported that PAM susceptibility to PRRS virus varies from different genetically diverse lines of pigs, therefore, the continuity advantage of 3D4/31 cells line overcome the problems of instability of PRRS virus isolation due to the discontinuous nature of PAM.