Different clinical, virological, serological and tissue tropism outcomes of two new and one old Belgian type 1 subtype 1 porcine reproductive and respiratory virus (PRRSV) isolates -

Different clinical, virological, serological and tissue tropism outcomes of two new and one old Belgian type 1 subtype 1 porcine reproductive and respiratory virus (PRRSV) isolates

In this study, the pathogenic behavior of PRRSV 13V091 and 13V117, isolated in 2013 from two different Belgian farms with enzootic respiratory problems shortly after weaning in the nursery, were compared with the Belgian strain 07V063 isolated in 2007. Full-length genome sequencing was performed to identify their origin. Twelve weeks-old pigs were inoculated intranasally (IN) with 13V091, 13V117 or 07V063 (9 pigs/group). At 10 days post inoculation (dpi), 4 animals from each group were euthanized and tissues were collected for pathology, virological and serological analysis. 13V091 infection resulted in the highest respiratory disease scores and longest period of fever. Gross lung lesions were more pronounced for 13V091 (13%), than for 13V117 (7%) and 07V063 (11%). The nasal shedding and viremia was also most extensive with 13V091. The 13V091 group showed the highest virus replication in conchae, tonsils and retropharyngeal lymph nodes. 13V117 infection resulted in the lowest virus replication in lymphoid tissues. 13V091 showed higher numbers of sialoadhesin-infected cells/mm(2) in conchae, tonsils and spleen than 13V117 and 07V063. Neutralizing antibody response with 07V063 was stronger than with 13V091 and 13V117. It can be concluded that (i) 13V091 is a highly pathogenic type 1 subtype 1 PRRSV strain that replicates better than 07V063 and 13V117 and has a strong tropism for sialoadhesin-cells and (ii) despite the close genetic relationship between 13V117 and 07V063, 13V117 has an increased nasal replication and shedding, but a decreased replication in lymphoid tissues compared to 07V063.

General information
Publication status: Published
Organisations: National Veterinary Institute, Section for Virology, Ghent University
Number of pages: 17
Publication date: 2015
Peer-reviewed: Yes

Publication information
Journal: Veterinary Research
Volume: 46
Article number: 37
ISSN (Print): 0928-4249
Ratings:
BFI (2015): BFI-level 2
Scopus rating (2015): CiteScore 2.66 SJR 1.537 SNIP 1.179
Web of Science (2015): Impact factor 2.928
Web of Science (2015): Indexed yes
Original language: English
Electronic versions:
art_3A10.1186_2Fs13567_015_0166_3_1_.pdf
DOIs:
10.1186/s13567-015-0166-3
Source: Findit
Source ID: 274580836
Research output: Contribution to journal › Journal article – Annual report year: 2015 › Research › peer-review