Porcine reproductive and respiratory syndrome virus: Interlaboratory ring trial to evaluate real-time reverse transcription polymerase chain reaction detection methods

To compare the real-time reverse transcription quantitative polymerase chain reaction (RT-qPCR) assays used for the diagnosis of Porcine reproductive and respiratory syndrome virus (PRRSV), a Europe-wide interlaboratory ring trial was conducted. A variety of PRRSV strains including North American (NA) and European (EU) genotype isolates were analyzed by the participants. Great differences regarding qualitative diagnostics as well as analytical sensitivity were observed between the individual RT-qPCR systems, especially when investigating strains from the EU genotype. None of the assays or commercial kits used in the ring trial could identify all different PRRSV strains with an optimal analytical and diagnostic sensitivity. The genetic variability of the PRRSV strains, which is supposed to hinder the diagnostic of the RT-PCR because of mutations at the primer binding sites, was also confirmed by sequencing and subsequent phylogenetic analysis. In summary, a major problem in PRRSV diagnostics by RT-qPCR is false-negative results. To achieve maximum safety in the molecular diagnosis of PRRSV, the combined usage of different assays or kits is highly recommended.

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