



VIRAL DISEASES

VVD-007

PRRS VIRUS SURVEILLANCE; ROLE OF VIRUS SEQUENCING AND VIRUS DETECTION BY PCR

S. Daly¹, P. Buholzer², S. Moine¹, A. Räber².

¹ *ThermoFisher Scientific, Lissieu, France;* ² *ThermoFisher Scientific, Schlieren, Switzerland.*

Porcine reproductive and respiratory syndrome (PRRS) is a highly infectious disease, endemic in pigs throughout the world. PRRS is caused by a single stranded positive-sense RNA enveloped virus with a high mutation rate leading to greater heterogeneity of the nucleotide sequence between individual strains. The genetic diversity of the virus increases the risk of reduced sensitivity for diagnostic nucleotide detection methods. The aim of the present study was to monitor circulating PRRSV strain throughout Europe using sequencing technologies, in order to update our real-time PCR test and improve its sensitivity.

Thermo Fisher Scientific has established different partnerships to collect 102 EU-PRRSV positive samples in 10 different countries. Sequencing strategy applied depends on PRRS viral load and quality of the sampling process (sample collection, storage, shipment). Sequences obtained have been aligned by bioinformatics to identify most conservative region on EU-PRRSV genome. Based on this bioanalysis, an updated PRRSV molecular or real-time PCR or detection test method has been developed, the Applied Biosystems™ VetMAX PRRSV EU & NA 2.0 kit. To demonstrate kit's performance, verification studies have been carried out internally on 210 field samples and with 2 external partners.

Results obtained show a highly specific kit for PRRS virus. Concerning inclusivity on 200 EU-PRRSV field samples, determined positive by external laboratory or internally by sequencing, the kit shows a diagnostic sensitivity of 99 %, covering PRRSV circulating strain from all over Europe and United States.

The monitoring of circulating European PRRSV strains, using sequencing technologies enables to sequence RNA directly isolated from field samples. Sequencing approaches offer the possibility to identify new PRRSV strains, allowing to increase performance of diagnostic tool for PRRSV detection. The newly real-time RT-PCR kit VetMAX PRRSV EU & NA 2.0 has been designed to reinforce the efficacy of PRRSV surveillance program in the field.