ISWAVLD 2023
International Symposium of the World Association of Veterinary Laboratory Diagnosticians
29 JUNE-1 JULY 2023 Congress Centre Lyon
Towards the veterinary diagnostics of the future

Main topic : Animal Health

A new RT- PCR for of Classical Swine Fever Virus detection in Swine and Wild boar, allowing for parallel testing with the ID Gene ASF qPCRs.

GREATREX A. [1], DESPOIS L. [1], SAVARIT L. [1], BIANCHINI E. [1], LIMOZIN A. [1], COMTET L. [1]

[1] Innovative Diagnostics, Grabels, France

Background and Objectives.
Classical swine fever (CSF) is a contagious viral disease of domestic and wild swine, caused by the CSF Virus (CSFV), a single-stranded RNA virus, member of genus pestivirus like Bovine Viral Diarrhea Virus (BVDV) and the Border Disease virus (BDV) which affects Sheep.
Reliable and accurate diagnostics are the key for rapid implementation of control measures to detect and prevent the spread of CSFV.
Innovative Diagnostics has developed a rapid and specific RT-qPCR for detection of CSFV RNA, the ID GENE™ Classical swine fever Virus duplex. Its protocol is compatible with those of our two ID Gene™ African Swine Fever qPCR kits, allowing, from the same extracts, for a parallel testing on the same qPCR run of CSFV and ASFV, which share similar clinical patterns.

Material and Methods.
The test, which targets the non 5' UTR region, was performed as per kit's instructions. Results are obtained in 65min with a rapid amplification protocol.
Analytical specificity was evaluated on 21 Classical swine fever virus (CSFV) strains provided by the Friedrich-Loeffler-Institut (FLI), 11 CSFV isolates from National Reference
Laboratory (ANSES - Ploufragan, France) and 62 other pathogens involved in animal disease including BVDV and Porcine reproductive and respiratory syndrome virus (PRRSV).
Limit of detection of the PCR (LDPCR) was determined with a synthetic RNA fragment and Method Detection Limit (MDL) was determined by using negative swine blood, serum and spleen samples spiked with the modified live virus vaccine (PESTIFFA - Boehringer).
Diagnostic specificity and sensitivity were evaluated on 66 samples.

Results.
All tested CSFV strains were successfully detected by the ID Gene qPCR, without any cross reaction with other pathogens, giving 100% inclusivity and exclusivity.
The LDPCR (95%) was 4 copies/PCR and the MDL obtained on swine blood was 4.103 copies/ml with automated extraction method (ID Gene™ Mag Fast Extraction Kit).
The measured diagnostic sensitivity and specificity were 100%.

Conclusion.
The RT-PCR kit shows high analytical performance. It is easy-to-use, with a single reaction mix containing an internal control. If differential diagnosis is needed, samples can be processed on the same plate in parallel with our ASF PCRs (ID Gene® African Swine Fever Duplex and ID Gene® African Swine Fever Triplex). The kit was Approved in Germany by the Friedrich-Loeffler-Institut (FLI C-106). Along with the ID Screen® CSF Competition ELISA, which allows for the detection of anti-E2 CSFV antibodies, Innovative Diagnostics offers a full range for CSF diagnosis and vaccination monitoring.