

Workflow for CSF diagnosis in case of CSF suspicion

Referring to Commission Delegated Regulation (EU) 2020/689, article 9, clinical signs, post-mortem lesions or histological findings indicative for classical swine fever (CSF), results of diagnostic analysis indicating the likely presence of CSF or an epidemiological link with a confirmed CSF case present criteria for suspicion of CSF. The competent authority is responsible to establish if the case is a suspect.

In case of suspicion of CSF, diagnostic analysis of CSF must be performed. The detection of viral genome by real-time reverse transcriptase (RT)-PCR in blood, sera, tissue, fluids and swabs is a highly sensitive and nowadays a standard technology. A variety of commercial real-time RT-PCR kits or published protocols are available. In comparison to virus isolation in cell culture, the results are much faster generated. Moreover, samples obtained from wild boars are often of limited quality resulting in cytotoxic effects in cell culture. Based on the high sensitivity of real-time RT-PCR, false-positive results obtained by e.g. contamination during RNA extraction or pipetting of the RT-PCR mixture need to be excluded and can be monitored by including various controls (see recommendations described in the *Manual of Diagnostic Tests for Detection of CSF*, published on the website of the EURL for CSF).

According to the WOAHP Manual of Diagnostic Tests and Vaccines for Terrestrial Animals (Chapter 3.9.2 Classical swine fever), the first positive test results of a suspected **primary CSF case** need to be confirmed by sample analysis using additional diagnostic assays. Virus isolation or a second (real-time) RT-PCR using a different protocol or test kit compared to the first applied real-time RT-PCR represent the first choice for confirmatory diagnostics, followed by the detection of neutralizing antibodies against CSFV or a CSFV-specific antigen ELISA (Figure 1).

In case the samples were tested negative for CSFV genome or antigen, but a suspicion that CSFV is possibly circulating due to an epidemiological link with a suspected or confirmed case, serological sample analysis must be conducted. Antibodies against CSFV are developed within the second and third week after infection and may persist for years. Based on this the application of serological tests is limited with regard to a very recent infection in a pig holding. Antibodies can be detected in serum, plasma, meat juice, and exudates of body cavities.

CSF antibody ELISAs can be performed in a short time by analyzing a large number of samples. However, its application is restricted on a herd level. Doubtful or positive results need to be

confirmed by virus neutralization test including also other pestiviruses for differential diagnosis. Due to these limitations, CSF antibody ELISAs are not recommended in case for confirmation of clinical CSF cases (WOAH Manual of Diagnostic Tests and Vaccines for Terrestrial Animals; Chapter 3.9.2 Classical swine fever).

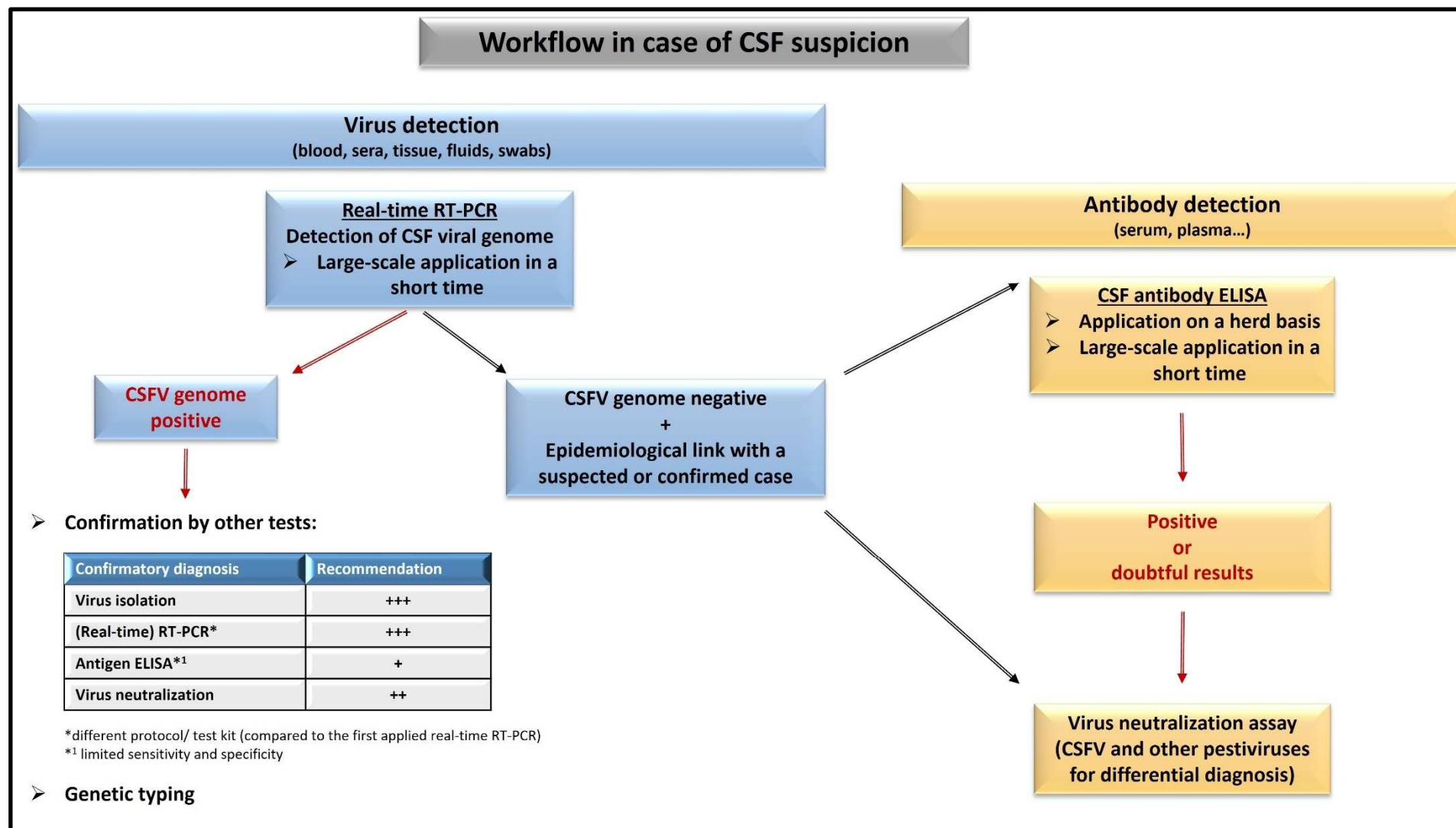
References:

COMMISSION DELEGATED REGULATION (EU) 2020/689 of 17 December 2019; supplementing Regulation (EU) 2016/429 of the European Parliament and of the Council as regards rules for surveillance, eradication programmes, and disease-free status for certain listed and emerging diseases.

Manual of Diagnostic Tests for Detection of CSF, published on the website of the EURL for CSF: <https://www.tiho-hannover.de/en/clinics-institutes/institutes/institute-of-virology/eu-and-woah-reference-laboratory/diagnostic-methods>.

WOAH Manual of Diagnostic Tests and Vaccines for Terrestrial Animals, Chapter 3.9.2 – Classical swine fever (infection with classical swine fever virus)

Figure 1: Workflow for early detection of classical swine fever



The workflow for CSF diagnosis in case of CSF suspicion has been composed by the EU Reference Laboratory for CSF, Institute of Virology, University of Veterinary Medicine Hannover, Foundation.

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