

WOAH Reference Laboratory Reports Activities 2023

Activities in 2023

This report has been submitted : 18 juin 2024 11:56

Laboratory Information

Name of disease (or topic) for which you are a designated WOAHO Reference Laboratory:	Classical swine fever
Address of laboratory:	Bünteweg 17, 30559 Hannover
Tel.:	+49-511 953 88 40
E-mail address:	109670@tiho-hannover.de
Website:	www.tiho-hannover.de/kliniken-institute/institute/institut-fuer-virologie/eu-and-woah-reference-laboratory
Name (including Title) of Head of Laboratory (Responsible Official):	Prof. Dr. Paul Becher, Director
Name (including Title and Position) of WOAHO Reference Expert:	Prof. Dr. Paul Becher
Which of the following defines your laboratory? Check all that apply:	Academic institution

TOR1: DIAGNOSTIC METHODS

1. Did your laboratory perform diagnostic tests for the specified disease/topic for purposes such as disease diagnosis, screening of animals for export, surveillance, etc.?
(Not for quality control, proficiency testing or staff training)

Yes

Diagnostic Test	Indicated in WOAHO Manual (Yes/No)	Total number of test performed last year	
		Nationally	Internationally
Indirect diagnostic tests			
Comparative neutralizing peroxidase-linked assay (antibodies against CSFV and BDV/ BVDV for discriminating serology testing)		0	4
Enzyme-linked immunosorbent assay (antibodies against CSFV)		0	1
Direct diagnostic tests			
Virus isolation (CSFV)		0	0
Reverse-transcription polymerase chain reaction (CSFV/ Panpesti)		0	2
Genetic Typing (CSFV phylogenetic analysis)		0	0
Enzyme-linked immuosorbent assay (CSFV)		0	0

TOR2: REFERENCE MATERIAL

2. Did your laboratory produce or supply imported standard reference reagents officially recognised by WOAHO?

No

3. Did your laboratory supply standard reference reagents (nonWOAH-approved) and/or other diagnostic reagents to WOAHO Members?

Yes

TYPE OF REAGENT AVAILABLE	RELATED DIAGNOSTIC TEST	PRODUCED/ PROVIDE	AMOUNT SUPPLIED NATIONALLY (ML, MG)	AMOUNT SUPPLIED INTERNATIONALLY (ML, MG)	NO. OF RECIPIENT WOAHP MEMBER COUNTRIES	COUNTRY OF RECIPIENTS
Reference sera for genome detection techniques	Reverse-transcription polymerase chain reaction	produced & provided	0	4	1	PORTUGAL,
RNA (extracted from CSFV positive samples or RNA transcript)	Reverse-transcription polymerase chain reaction	produced & provided	0	0.05	1	SWEDEN,
Permissive cell line for cell-culture based techniques	NPLA; Virus isolation	produced & provided	0	240	1	AUSTRIA,
Monoclonal antibodies (hybridoma cell-culture supernatant)	NPLA; Virus isolation	produced & provided	0	70	6	AUSTRIA, CZECH REPUBLIC, FINLAND, POLAND, ROMANIA, SPAIN,
Reference sera for Antibody detection techniques	NPLA; ELISA	produced & provided	0	21	3	FINLAND, FRANCE, LITHUANIA,

4. Did your laboratory produce vaccines?

No

5. Did your laboratory supply vaccines to WOAHP Members?

No

TOR3: NEW PROCEDURES

6. Did your laboratory develop new diagnostic methods for the designated pathogen or disease?

No

7. Did your laboratory validate diagnostic methods according to WOAHP Standards for the designated pathogen or disease?

No

8. Did your laboratory develop new vaccines for the designated pathogen or disease?

No

9. Did your laboratory validate vaccines according to WOAHP Standards for the designated pathogen or disease?

No

TOR4: DIAGNOSTIC TESTING FACILITIES

10. Did your laboratory carry out diagnostic testing for other WOAHP Members?

Yes

NAME OF WOAHP MEMBER COUNTRY SEEKING ASSISTANCE	DATE	WHICH DIAGNOSTIC TEST USED	NO. SAMPLES RECEIVED FOR PROVISION OF DIAGNOSTIC SUPPORT	NO. SAMPLES RECEIVED FOR PROVISION OF CONFIRMATORY DIAGNOSES
BELGIUM	2023-11-03	Neutralizing peroxidase-linked assay; Antibody ELISA and reverse-transcription polymerase chain reaction	1	0

11. Did your laboratory provide expert advice in technical consultancies on the request of an WOAHP Member?

Yes

NAME OF THE WOAHP MEMBER COUNTRY RECEIVING A TECHNICAL CONSULTANCY	PURPOSE	HOW THE ADVICE WAS PROVIDED
SWITZERLAND	Alternative sample matrices for the detection of antibodies by commercial CSFV antibody ELISAs	Remote
IRELAND	Biosafety issues (e.g. decontamination of equipment)	Remote
AUSTRIA	Cell lines for BDV-specific neutralizing peroxidase-linked assay	Remote

CANADA	Neutralizing peroxidase-linked assay	Remote
THE NETHERLANDS	Multiplex qRT-PCR for the detection of CSFV and ASFV genome Alternative sample matrices	Remote
FINLAND	Batch release of CSFV antibody ELISAs	Remote
CZECH REPUBLIC	Request on reference material: pan-pesti specific antibodies	Remote
ITALY	Internal validation of ELISA kits and reference sera for CSF virus neutralization	Remote
SWEDEN	Establishment of an APPV real RT PCR	Remote

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

12. Did your laboratory participate in international scientific studies in collaboration with WOA Member countries other than the own?

Yes

Title of the study	Duration	PURPOSE OF THE STUDY	PARTNERS (INSTITUTIONS)	WOAH MEMBER COUNTRIES INVOLVED OTHER THAN YOUR COUNTRY
DISCONTTOOLS	ongoing	Update on current knowledge on CSF situation, diagnosis and control, gap analysis	APHA, United Kingdom; USDA, Plum Island, USA Intervet International, MSD Animal Health, The Netherlands Boehringer Ingelheim Vetmedica GmbH, Germany; Friedrich-Loeffler-Institut (FLI), Greifswald – Island Riems, Germany Laboratory of Microbiology, Department of Disease Control, Faculty of Veterinary Medicine, Hokkaido University, Japan	GERMANY JAPAN THE NETHERLANDS UNITED KINGDOM UNITED STATES OF AMERICA

13. In exercising your activities, have you identified any regulatory research needs* relevant for WOA Member countries?

No

TOR6: EPIZOOLOGICAL DATA

14. Did your Laboratory collect epidemiological data relevant to international disease control?

Yes

IF THE ANSWER IS YES, PLEASE PROVIDE DETAILS OF THE DATA COLLECTED:

- Country Reports on CSF Situation & Laboratory Diagnosis from EU - and Non-EU Member States countries
- CSF Wild Boar Data of EU - and Non-EU Member States countries
- EURL Classical- & African swine fever in Wild Boar Surveillance Database (developed by the Friedrich-Loeffler-Institute)

15. Did your laboratory disseminate epidemiological data that had been processed and analysed?

Yes

IF THE ANSWER IS YES, PLEASE PROVIDE DETAILS OF THE DATA COLLECTED:

- Country Reports on CSF Situation & Laboratory Diagnosis from EU - and Non-EU Member States countries
- CSF Wild Boar Data of EU - and Non-EU Member States countries
- EURL Classical- & African swine fever in Wild Boar Surveillance Database (developed by the Friedrich-Loeffler-Institute)

16. What method of dissemination of information is most often used by your laboratory? (Indicate in the appropriate box the number by category and list the details in the box)

a) Articles published in peer-reviewed journals:

1

Huang Y.-L., Meyer D., Postel A., Tsai K.-J., Liu H.-M., Yang C.-H., Huang Y.-C., Chang H.-W., Deng M.-C., H.-W., Wang F.-I., Becher P., Crooke H., and Chang C.-Y., Identification of neutralizing epitopes on the D/A domain of the E2 glycoprotein of classical swine fever virus, 2023, *Virus Res.* doi: 10.1016/j.virusres.2023.199209.

b) International conferences:

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Leveringhaus E., Poljakovic R., Becher P., Postel A. The porcine low-density lipoprotein (LDLR) plays an important role in Classical swine fever (CSFV) infection, 32nd Annual Meeting of the Society for Virology, Ulm, Germany, 28.-31.03.2023, poster presentation.

Huang Y.-L., Meyer D., Postel A., Tsai K.-J., Liu H.-M., Yang C.-H., Huang Y.-C., Chang H.-W., Deng M.-C., H.-W., Wang F.-I., Becher P., Crooke H., and Chang C.-Y. Characterization of classical swine fever virus specific epitopes on the D/A domain of glycoprotein E2, Novi Sad, Serbia, 26.04.-28.04.2024, oral presentation.

Leveringhaus E., Poljakovic R., Becher P., Postel A. The porcine low-density lipoprotein (LDLR) plays an important role in Classical swine fever (CSFV) infection, Novi Sad, Serbia, 26.04.-28.04.2024, oral presentation.

Becher P. Virus-host interactions, diagnosis and control of classical swine fever virus and other porcine pestiviruses, Asian Pig Veterinary Society Congress 2023, Taipei, Taiwan, 30.07.-02.08.2023, keynote lecture.

Meyer D. Results of the Interlaboratory Comparison Test 2022-2023 -Serology Panel. Workshop on Laboratory Diagnosis of ASF and CSF, Madrid, Spain, 21.-22.11.2023, oral presentation.

Meyer D. Results of the Interlaboratory Comparison Test 2022-2023 - Virology Panel. Workshop on Laboratory Diagnosis of ASF and CSF, Madrid, Spain, 21.-22.11.2023, oral presentation.

Meyer D, Becher P. Report of the CSF EURL activities in 2022-2023. Workshop on Laboratory Diagnosis of ASF and CSF, Madrid, Spain, 21.-22.11.2023, oral presentation.

Postel A. The low-density lipoprotein receptor. An important host factor for CSFV infection. Workshop on Laboratory Diagnosis of ASF and CSF, Madrid, Spain, 21.-22.11.2023, oral presentation.

Becher P. Diagnosis and control of Classical swine fever virus and other porcine pestiviruses in Europe. International Symposium on Classical Swine Fever and Other Important Swine Infectious Diseases, Wuhan, China, 28.-29.11.2023, keynote lecture.

c) National conferences:

d) Other (Provide website address or link to appropriate information):

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Information on CSF:

<https://www.tiho-hannover.de/kliniken-institute/institute/institut-fuer-virologie/eu-and-woah-reference-laboratory>

Virus database:

<https://www.tiho-hannover.de/kliniken-institute/institute/institut-fuer-virologie/eu-and-woah-reference-laboratory/databases>

CSF / ASF WILD BOAR SURVEILLANCE DATABASE:

<http://public.csf-wildboar.eu>

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

17. Did your laboratory provide scientific and technical training to laboratory personnel from other WOAHP Members?

Yes

a) Technical visit : 0

b) Seminars : 0

c) Hands-on training courses: 1

d) Internships (>1 month) 0

Type of technical training provided (a, b, c or d)	Country of origin of the expert(s) provided with training	No. participants from the corresponding country
C	IRELAND	2

TOR8: QUALITY ASSURANCE

18. Does your laboratory have a Quality Management System?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)	
ISO 17025	Certificate_DAKkS_2020	DAkkS Urkunde englisch_2020.pdf

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Isolation, propagation and quantification of CSFV in cell culture	DAkkS/ ILAC-MRA
Detection of CSFV antigen by ELISA	DAkkS/ ILAC-MRA
Detection of antibodies directed against CSFV by ELISA	DAkkS/ ILAC-MRA
Detection of antibodies directed against CSFV by neutralization assay	DAkkS/ ILAC-MRA
Detection of antibodies directed against Border Disease Virus (BDV) by neutralization assay	DAkkS/ ILAC-MRA
Detection of antibodies directed against Bovine Viral Diarrhea Virus (BVDV) by neutralization assay	DAkkS/ ILAC-MRA
Detection of CSFV genome using RT-PCR (and subsequent preparation for genotyping)	DAkkS/ ILAC-MRA
Detection of CSFV genome and detection of genome of other pestiviruses using real-time RT-PCR (SYBR Green)	DAkkS/ ILAC-MRA
Detection of CSFV genome using real-time RT-PCR with TaqMan probe	DAkkS/ ILAC-MRA
Detection of CSFV genome using virotype CSF RT-PCR-Kit	DAkkS/ ILAC-MRA
Isolation, propagation and quantification of BVDV, BDV and other pestiviruses in cell culture	DAkkS/ ILAC-MRA

20. Does your laboratory maintain a "biorisk management system" for the pathogen and the disease concerned?

Yes

A biological risk analysis is performed by the head of the laboratory together with the management of laboratory biological risk. Biosafety and laboratory biosecurity measures are implemented and summarized in the corresponding operating instructions of the laboratory.

TOR9: SCIENTIFIC MEETINGS

21. Did your laboratory organise scientific meetings related to the pathogen in question on behalf of WOAHP?

No

22. Did your laboratory participate in scientific meetings related to the pathogen in question on behalf of WOAHP?

No

TOR10: NETWORK WITH WOAHP REFERENCE LABORATORIES

23. Did your laboratory exchange information with other WOAHP Reference Laboratories designated for the same pathogen or disease?

Yes

24. Do you network (collaborate or share information) with other WOAHP Reference Laboratories designated for the same pathogen?

Yes

NETWORK/DISEASE	ROLE OF YOUR LABORATORY (PARTICIPANT, ORGANISER, ETC)	NO. PARTICIPANTS	PARTICIPATING WOAHP REF. LABS
WOAHP-Terrestrial Manual , Chapter CSF	Update of the vaccine part and justification for the listed diagnostic methods in the chapter CSF of the WOAHP Terrestrial Manual	7	China, Japan, UK, Germany, Spain, Chinese Taipei, Poland, Canada

25. Did you organise or participate in inter-laboratory proficiency tests with WOA Reference Laboratories designated for the same pathogen?

Yes

PURPOSE OF THE PROFICIENCY TESTS: 1	ROLE OF YOUR REFERENCE LABORATORY (ORGANISER/ PARTICIPANT)	NO. PARTICIPANTS	PARTICIPATING WOA REF. LABS/ ORGANISING WOA REF. LAB.
Validation of diagnostic protocols: Real-time RT-PCR Conventional RT-PCR Antigen ELISA, Virus isolation, Sequencing, Virus Neutralization assay Antibody ELISA	Organizer	32	Poland
Validation of diagnostic protocols: Real-time RT-PCR Conventional RT-PCR Antigen ELISA, Virus isolation, Sequencing, Virus Neutralization assay Antibody ELISA	Organizer	4	Chinese Taipei

26. Did your laboratory collaborate with other WOA Reference Laboratories for the same disease on scientific research projects for the diagnosis or control of the pathogen of interest?

Yes

TITLE OF THE PROJECT OR CONTRACT	SCOPE	NAME(S) OF RELEVANT WOA REFERENCE LABORATORIES
Characterisation of monoclonal antibodies against pestiviruses	Testing of novel monoclonal antibodies against Classical Swine fever Virus using different pestivirus strains (including various genotypes of CSFV) Epitope mapping studies of different pestiviral monoclonal antibodies	Veterinary Research Institute, Tamsui, New Taipei City, Taiwan
Characterisation of monoclonal antibodies against pestiviruses	Testing of monoclonal antibodies using pestivirus strains that were discovered in ruminants, pigs or in non-ungulate hosts.	Animal and Plant Health Agency, Surrey, United Kingdom

TOR11: OTHER INTERLABORATORY PROFICIENCY TESTING

27. Did your laboratory organise or participate in inter-laboratory proficiency tests with laboratories other than WOA Reference Laboratories for the same pathogen?

Yes

Purpose for inter-laboratory test comparisons ¹	Role of your reference laboratory (organizer/participant)	No. participating laboratories	Name of the Test	WOAH Member Countries
Determining laboratory's capability to conduct specific diagnostic tests: Antigen ELISA Real-time RT-PCR Conventional RT-PCR, Sequencing Virus isolation Virus Neutralization assay Antibody ELISA	Organizer	32	CSF-ILCT 2023	AUSTRIA, BELGIUM, BULGARIA, CROATIA, CYPRUS, CZECH REPUBLIC, DENMARK, ESTONIA, FINLAND, FRANCE, GERMANY, GREECE, HUNGARY, IRELAND, ITALY, LATVIA, LITHUANIA, LUXEMBOURG, MALTA, MONTENEGRO, NORTH MACEDONIA (REP. OF), NORWAY, POLAND, PORTUGAL, ROMANIA, SLOVAKIA, SLOVENIA, SPAIN, SWEDEN, SWITZERLAND, THE NETHERLANDS,
CSF specific antibody ELISA	Participant	15	Inter-laboratory comparison test for CSF specific antibody ELISA	FRANCE,

TOR12: EXPERT CONSULTANTS

28. Did your laboratory place expert consultants at the disposal of WOA?

Yes

KIND OF CONSULTANCY	Location	SUBJECT (FACULTATIVE)
Review and update of the WOA-Terrestrial Manual, chapter CSF	Remote	Update of the vaccine part and justification for the listed

29. Additional comments regarding your report:

No