WOAH Reference Laboratory Reports Activities 2023

Activities in 2023

This report has been submitted : 26 juin 2024 10:18

Laboratory Information

Name of disease (or topic) for which you are a designated WOAH Reference Laboratory:	African swine fever (infection with African swine fever virus)
Address of laboratory:	CSIRO Australian Centre for Disease Preparedness, 5 Portarlington Road, Geelong, Victoria 3220 Australia
Tel.:	+61 52.27.50.00
E-mail address:	d.williams@csiro.au
Website:	https://www.csiro.au/en/about/facilities-collections/acdp
Name (including Title) of Head of Laboratory (Responsible Official):	Dr Debbie Eagles
Name (including Title and Position) of WOAH Reference Expert:	Dr David Williams
Which of the following defines your laboratory? Check all that apply:	Governmental

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 WOAH Manual (Yes/No)	Total number of test performed last year	
Indirect diagnostic tests		Nationally	Internationally
cELISA		659	190
IFAT		5	0
Direct diagnostic tests		Nationally	Internationally
Real-time PCR		576	193
Sequencing		0	7

TOR2: REFERENCE MATERIAL

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

No

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

Yes

TYPE OF REAGENT AVAILABLE	RELATED DIAGNOSTIC TEST	PRODUCED/ PROVIDE	AMOUNT SUPPLIED NATIONALLY (ML, MG)	AMOUNT SUPPLIED INTERNATIONALLY (ML, MG)	NO. OF RECIPIENT WOAH MEMBER COUNTRIES	COUNTRY OF RECIPIENTS
ASF National Quality						

Control	PCR	Produced & Provider	10 mL	-	2	AUSTRALIA,
ASF National Quality Control	ELISA	Produced & Provider	1 mL	-	1	AUSTRALIA,
ASF Antiserum	ELISA	Produced & Provider	-	129 mL	2	UNITED STATES OF AMERICA, VIETNAM,
ASF PCR Positive Control	PCR	Produced & Provider	3.5 mL	-	1	AUSTRALIA,
Primary cells	Virus isolation	Produced & Provider	-	12.0 mL	1	VIETNAM,
ASF PCR kits	PCR	Provider	-	2 PCR kits (2000 reactions)	1	PAPUA NEW GUINEA,
ASFV positive clinical specimens	PCR	Produced & Provider	2.8 mL	-	1	AUSTRALIA,
ASF antigen ELISA	Antigen ELISA	Provider	-	1 kit (5 plates)	1	PAPUA NEW GUINEA,

4. Did your laboratory produce vaccines?

No

5. Did your laboratory supply vaccines to WOAH 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 WOAH 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 WOAH Standards for the designated pathogen or disease?

No

TOR4: DIAGNOSTIC TESTING FACILITIES

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

Yes

NAME OF WOAH 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
BHUTAN	2023-06-01	PCR and sequencing	84	106
PAPUA NEW GUINEA	2023-03-01	PCR and sequencing	0	2
SOLOMON (ISLANDS)	2023-04-01	cELISA	82	0
SOLOMON (ISLANDS)	2023-05-01	cELISA	29	0
SOLOMON (ISLANDS)	2023-10-01	cELISA	79	0

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

Yes

NAME OF THE WOAH MEMBER COUNTRY RECEIVING A TECHNICAL CONSULTANCY	PURPOSE	HOW THE ADVICE WAS PROVIDED
INDONESIA	Training and advice on field diagnostics and surveillance, including SOPs for rapid antigen test and LAMP; bioinformatics support for whole genome sequencing	Field testing advice provided via online workshops and meetings leading to an in-person workshop; bioinformatics support provided remotely (email, online)
SINGAPORE	SOPs for realtime PCR testing and advice on next generation sequencing approaches	Remote assistance (emails and online meeting)

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

12. Did your laboratory participate in international scientific studies in collaboration with WOAH Members other than the own?

Yes

Title of the study	Duration	PURPOSE OF THE STUDY	PARTNERS (INSTITUTIONS)	WOAH MEMBER COUNTRIES INVOLVED OTHER THAN YOUR COUNTRY
Comparative evaluation of PCR diagnostic tests for the detection of ASFV virus DNA in oral fluids and whole blood (US National Pork Board; NPB #19-209)	3 years	Compare commercially available PCR kits for testing oral fluids and whole blood from experimentally infected pigs	Kansas State University, USA; CSIRO; National Centre for Foreign Animal Disease, CFIA, Canada	CANADA UNITED STATES OF AMERICA
Whole genome sequencing of ASF viruses from Southeast Asia and the Pacific	2 years	Generate and analyse complete genome sequences to undertake improved molecular epidemiology analyses	National Directorate of Veterinary Services of the Ministry of Agriculture and Fisheries, Government of Timor-Leste, PNG National Animal Health & Quarantine Inspection Authority ; Regional Animal Health Office 6, Ho Chi Minh City	PAPUA NEW GUINEA TIMOR-LESTE VIETNAM
Development of a Protective T Cell Vaccine for ASF	1 year	Immunological studies to investigate T cell responses in ASFV-infected pigs	MBF Therapeutics, USA	UNITED STATES OF AMERICA
Evaluation of GARA Center for African Swine Fever Virus Genomics platform	Ongoing	Evaluation of bioinformatics tools databases for analysing ASFV genomes using the platform	Agricultural Research Service, Foreign Animal Disease Research	UNITED STATES OF AMERICA

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

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:
Molecular epidemiological data for ASFV partial and whole genome sequences derived from samples collected in Bhutan and Papua New Guinea, associated with diagnostic testing (section 10).

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:
The results of molecular typing using whole genome and partial genes (p72, IGR, CD2v and CVR) were reported to the submitting laboratories in Bhutan and Papua New Guinea.

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:

0

b) International conferences:

4

1.1. Williams, David. Effect of High Temperature Exposure and Laboratory Processing Techniques on the Diagnostic Performance of Dry Swabs for the Detection of ASFV. GARA Gap Analysis Workshop, Manila, Philippines, December 5-7, 2023. Oral presentation.
1.2. Davis, Samantha. New Insights into Transcriptional Dysregulation Following Infection of Domestic Pigs with Moderately Virulent African Swine Fever Virus. GARA Gap Analysis Workshop, Manila, Philippines, December 5-7, 2023. Oral presentation.
1.3. O'Dwyer, James. Emergence of microvariants of ASFV Genotype II in the Asia-Pacific. GARA Gap Analysis Workshop, Manila, Philippines, December 5-7, 2023. Poster presentation.
1.4. Williams, David. Comparative evaluation of qPCR diagnostic tests for the detection of African swine fever virus DNA in oral swabs, swine oral fluids and whole blood. GARA Gap Analysis Workshop, Manila, Philippines, December 5-7, 2023. Poster presentation.
2. Williams, David. The role of oral fluids and faeces for the laboratory diagnosis of African swine fever. Conference on ASF in Vietnam: A Comprehensive Approach to Disease Prevention and Management. Ho Chi Minh City, Vietnam, 12th May, 2023. Online presentation.
3. Williams, David. ASF Diagnostic Tools. ASEAN ASF Workshop. 2-4 May 2023. Quezon City, The Philippines. Online presentation.
4. Williams, David. Point-of-Care Rapid Testing in the Field. FAO Global Consultations on African Swine Fever Control. Rome, Italy, 12-14 December 2023. Pre-recorded presentation.

c) National conferences:

2
1. Williams, David, Wright, Quentin, Islam, Tanjir, Davis, Samantha. Towards development of a next generation vaccine for African swine fever virus. Australian Pig Veterinarians' Conference, Sunshine Coast, 16-19 July 2023. Pre-recorded presentation.
2. Jia, Fan. DISC - The Next Generation of African swine fever vaccine. Victorian Infectious & Immunity Network Young Investigator Symposium. Melbourne, 9th November 2023. Poster.

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

2
1. Australian Centre for Disease Preparedness African swine fever website:
https://www.csiro.au/en/research/animals/veterinary/African-swine-fever
2. ACDP media release: https://www.csiro.au/en/news/All/Articles/2023/November/African-swine-fever-vaccine

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

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

Yes

a) Technical visit : 153

b) Seminars : 340

c) Hands-on training courses: 186

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
A	VIETNAM	10
C	INDONESIA	2
A	PAPUA NEW GUINEA	1
C	INDONESIA	100
B	VIETNAM	200
B	PAPUA NEW GUINEA	40
C	INDONESIA	6
A	PAPUA NEW GUINEA	11
C	INDONESIA	24
C	INDONESIA	3
A	VIETNAM	100
C	SAMOA	3
C	COOK (ISLANDS)	3

C	SOLOMON (ISLANDS)	3
C	TONGA (KINGDOM OF)	3
C	FIJI	3
C	VANUATU	3
A	VIETNAM	1
C	PAPUA NEW GUINEA	3

TOR8: QUALITY ASSURANCE

18. Does your laboratory have a Quality Management System?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)	
Integrated Management System (IMS) covering: ISO 9001	BSI ISO 9001 NOV 2022.pdf	BSI ISO 9001 NOV 2022.pdf
ISO 14001	BSI ISO 14001 NOV 2022.pdf	BSI ISO 14001 NOV 2022.pdf
ISO 17025	NATA ISO 17025 SEP 2022.pdf	NATA ISO 17025 SEP 2022.pdf
ISO 17043	NATA ISO 17043 SEP 2022.pdf	NATA ISO 17043 SEP 2022.pdf

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Testing for sterility and freedom from contamination of biological materials (ASFV isolation TM-021)	NATA (ISO 17025)
Detection and identification of viruses (Genotyping; Polymerase chain reaction (PCR; TM-204)	NATA (ILAC affiliated)
Examination of biopsy material (Histopathology; Immunohistochemistry; Macroscopic examination; Microscopic examination; TM-018 and TM-019)	NATA (ILAC affiliated)
Necropsy services (Microscopic examination; Anatomical pathology; TM-017)	NATA (ILAC affiliated)
Detection and identification of viruses (Transmission electron microscopy (TEM); Scanning electron microscopy (SEM); TM-013, TM-014 and TM-015)	NATA (ILAC affiliated)
Molecular analysis - Bioinformatic analysis and interpretation (Analysis of DNA alignment)	NATA (ILAC affiliated)
Molecular analysis – Sequencing (Sanger sequencing, PCR)	NATA (ILAC affiliated)
Microbiology - Serology of infection – Microbial antibody and/or antigen detection and/or quantitation (Indirect fluorescent antibody test TM-124)	NATA (ILAC affiliated)
Detection and identification of viruses (ASFV isolation TM-167)	NATA (ILAC affiliated)

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

Yes

The laboratory has a dedicated Biorisk Management Team (14 Members) who provide specialist advice, monitor and improve Biosafety, Biosecurity and Biocontainment activities and perform maintenance on Biocontainment systems. The team uses a risk analysis approach to management of biological risks for biosafety and biosecurity to inform and determine the policy and procedures that in turn give confidence that the laboratory procedures for each of the biological materials handled by the laboratory pose negligible danger to Australia's animal and human populations. 261 policies and procedures are contained in the annually reviewed ACDP Biorisk Manual consisting of various sections as follows. Section 1 Administration Section 2 PC2 Procedures and Policies Section 3 PC3 Procedures and Policies Section 4 PC4 Procedures and Policies Section 5 Large Animal Facility (LAF) Procedures and Policies Section 6 Personnel and Procedural Controls Section 7 Transport and Storage of Biological Material Section 8 Movement of Material, Equipment and Waste Section 9 Engineering Procedures and Polices Section 10 Microbiological Incident Response Procedures and Policies Section 11 Laboratory Services Group Section 12 Containment Services Group The ACDP biological risk management system has clear and unequivocal commitment by laboratory management, who ensure that roles, responsibilities, resources and authorities related to biological risk management are defined, documented, and communicated to those who manage, perform, and verify work associated with biological agents and toxins in the laboratory. The Biorisk Management Team are audited over 3 days every 6 months by an external security assessment team to provide an independent review of elements affecting ACDP's microbiological and physical security operations and to advise CSIRO senior executive management of any areas of concern or risk. The laboratory aspires to become accredited to ISO 35001:2019 Biorisk management for laboratories and other related organisations.

TOR9: SCIENTIFIC MEETINGS

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

No

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

Yes

Title of event	Date (mm/yy)	Location	Role (speaker, presenting poster, short communications)	Title of the work presented
2023-01 ASF RL Network meeting	2023-03-23	Online	Short communications	Participation in discussion on agenda items and updates on development of ASF Lab Manual
WOAH ASF RL Network Executive Meeting	2023-04-26	Online	Short communications	Participation in discussion on agenda items – regional networks, annual report, lab manual, genomics platform
ASEAN ASF Workshop	2023-05-02	Online	Speaker	ASF Diagnostic Tools
2023-02 ASF RL Network meeting	2023-07-05	Online	Short communications	Participation in discussion on agenda items and updates on development of ASF Lab Manual
2023-03 ASF RL Network meeting	2023-10-19	Online	Short communications	Participation in discussion on agenda items and updates on development of ASF Lab Manual

TOR10: NETWORK WITH WOAH REFERENCE LABORATORIES

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

Yes

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

Yes

NETWORK/DISEASE	ROLE OF YOUR LABORATORY (PARTICIPANT, ORGANISER, ETC)	NO. PARTICIPANTS	PARTICIPATING WOAH REF. LABS
African Swine Fever Reference Laboratory Network	Participant and co-chair	12	National Centre for Foreign Animal Disease, CFIA, Canada; National Surveillance and Research Center for Exotic Animal Diseases China Animal Health and Epidemiology Center; Onderstepoort Veterinary Institute, Agricultural Research Council, Onderstepoort, South Africa; Centro de Vigilancia Sanitaria Veterinaria (VISAVET) Facultad de VeterinariaHCV Planta sótanoUniversidad Complutense de Madrid (UCM); National Veterinary Services Laboratories, USDA, New York; The Pirbright Institute, Pirbright, UK

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

No

26. Did your laboratory collaborate with other WOAH 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 WOAH REFERENCE LABORATORIES
Comparative evaluation of PCR diagnostic tests for the detection of ASFV virus DNA in oral fluids and whole blood (US National Pork Board; NPB #19-209)	Compare commercially available PCR kits for testing oral fluids and whole blood from experimentally infected pigs; led by Kansas State University	National Centre for Foreign Animal Disease, CFIA, Canada

TOR11: OTHER INTERLABORATORY PROFICIENCY TESTING

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

Yes

Purpose for inter-laboratory test comparisons1	Role of your reference laboratory (organizer/participant)	No. participating laboratories	Name of the Test	WOAH Member Countries
Harmonising existing test methods for PCR detection of ASFV DNA through the Asia Pacific Regional Proficiency Testing: Swine Diseases PCR panel	Organiser	23	Real-time PCR	BANGLADESH, BHUTAN, BRUNEI, CAMBODIA, CHINA (PEOPLE'S REP. OF), CHINESE TAIPEI, INDIA, INDONESIA, KOREA (REP. OF), MALAYSIA, NEW CALEDONIA, PHILIPPINES, SINGAPORE, VIETNAM,
Molecular PCR detection of ASFV by Australian & New Zealand laboratories as part of the Laboratories Emergency Animal Disease Diagnosis and Response (LEADDR) Network	Organiser & Participant	9	Real-time PCR	AUSTRALIA, NEW ZEALAND,
Detection of ASF antibodies using an ELISA commercial kit by Australian laboratories as part of the Laboratories Emergency Animal Disease Diagnosis and Response (LEADDR) Network	Organiser & Participant	7	ELISA	AUSTRALIA,

TOR12: EXPERT CONSULTANTS

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

Yes

KIND OF CONSULTANCY	Location	SUBJECT (FACULTATIVE)
WOAH ASF Reference Laboratory network	Virtual/online	Agenda items including establishing regional sub-networks, technical documents on laboratory and field diagnosis, genomics platform, updates on vaccines, relevant activities etc
Subject matter expert for ASEAN ASF Workshop, March 2023	Philippines	ASF Diagnostic Tools (delivered online)
ad hoc Group	Virtual/online	Lead author for ASF Laboratory Diagnosis manual, in collaboration with WOAH Reference laboratory network experts and FAO
Subject matter expert reviewer for WOAH Validation and Certification of ASF Diagnostic Assay	Desktop	Scientific assessment of a dossier on a ASF Diagnostic field test for the Procedure for WOAH Validation and Certification

29. Additional comments regarding your report:

No