

WOAH Reference Laboratory Reports Activities 2023

Activities in 2023

This report has been submitted : 22 juillet 2024 14:34

Laboratory Information

Name of disease (or topic) for which you are a designated WOAHO Reference Laboratory:	African swine fever virus
Address of laboratory:	Ash Road, Pirbright Woking, Surrey, GU24 0NF
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Website:	www.pirbright.ac.uk
Name (including Title) of Head of Laboratory (Responsible Official):	Prof Bryan Charleston
Name (including Title and Position) of WOAHO Reference Expert:	Dr Linda Dixon
Which of the following defines your laboratory? Check all that apply:	Research Institute 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			
ELISA		0	0
Direct diagnostic tests			
Real Time PCR		44	7
Virus Isolation		0	3

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?

No

4. Did your laboratory produce vaccines?

No

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

No

TOR4: DIAGNOSTIC TESTING FACILITIES

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

Yes

NAME OF WOAHS 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
HONG KONG	2023-03-30	Real Time PCR and Haemadsorption	0	7

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

Yes

NAME OF THE WOAHS MEMBER COUNTRY RECEIVING A TECHNICAL CONSULTANCY	PURPOSE	HOW THE ADVICE WAS PROVIDED
KENYA	Advice on selection of ASFV isolates to supply	email and online call
HONG KONG	Ongoing outbreak	Email
PHILIPPINES	Ongoing twinning project	Email and onsite training
CHINESE TAIPEI	Advice on diagnosis and sequence analysis	Onsite visit

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

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

Yes

Title of the study	Duration	PURPOSE OF THE STUDY	PARTNERS (INSTITUTIONS)	WOAHS MEMBER COUNTRIES INVOLVED OTHER THAN YOUR COUNTRY
Addressing the dual emerging threats of African swine fever and lumpy skin disease	5 years	To control the growing LSD and ASF epidemics in Europe and neighbouring countries by understanding the drivers of LSDV and ASFV emergence, and by generating research outputs which underpin novel diagnostic tools and vaccines, and authenticate appropriate and	The Pirbright Institute, Sciensano, The Friedrich Loeffler Institute (FLI) Sveriges Lantbruksuniversitet (SLU) Istituto Zooprofilattico Sperimentale Della Lombardia ed Emilia Romagna (IZSLER) Agricultural Research Council (ARC) Istituto Universitario Europeo (MPC) Veterinarians san Frontiers International (SIVtro VSF ITALIA) ZOETIS IDVet Klifovet AG University of Pretoria (UP) Canadian Food Inspection Agency (CFIA) CSIRO Ministry of Rural Development and Food (MINAGRIC) Athens Veterinary Centre (AVC) The Jenner Institute for Vaccine Research, University of Oxford (UOXF) State Food and Veterinary Service (SFVS) Republican Veterinary Laboratory (RVL) Ministry of Agriculture, Rural Development and Water Management (MINA) Diagnostic	ALBANIA AUSTRALIA AZERBAIJAN BELGIUM BULGARIA CANADA FRANCE GERMANY GREECE ITALY LITHUANIA MONTENEGRO NORTH MACEDONIA (REP. OF) ROMANIA SERBIA SOUTH AFRICA SPAIN SWEDEN TURKEY

		rapid responses by decision-maker	Veterinary Laboratory (DVL) Institute for Diagnosis and Animal Health (IDAH) Central Veterinary Authority (ANSVSA) Bulgarian Food Safety Agency (BFSA) Ministry of Agriculture and Food (MAF) SS. Cyril and Methodius University Skopje (SSU) Istanbul University (IU) Ministry of Food Agriculture and Livestock (MFAL) Istituto Superiore per la Protezione e la Ricerca Ambientale (ISPRA) Veterinary Specialized institute Kraljevo (VSI-K) Scientific Veterinary Institute Novi Sad (NIV-NS)	UNITED KINGDOM
ICRAD Project ASFVint: Decoding a virus Achilles heel: the African swine fever virus interactome	3 years	Research in support of vaccine development and understanding disease pathogenesis	France (two Anses, INRAE), Spain (INIA), Germany (FLI), Estonia, (University of Tartu)	FRANCE GERMANY SPAIN UNITED KINGDOM
EU Horizon VAX4ASF	4 years	Research in novel vaccine technologies	Spain (Severo Ochoa Center for Molecular Biology, Sabiotec, Anrogapor, INTERPORC, HIPRA, Zabala Innovation), Germany (Ludwig-Maximilians Universitaet Muenche), United Kingdom (The Pirbright Institute), Kenya (International Livestock Research Institute), Sweden (SVA Swedish Veterinary Agency), Italy (In3diagnostic srl), Netherlands (Wageningen Bioveterinary Research - WUR), Hungary (Institute for Wildlife Management and Nature Conservation of MATE University, PROPHYL), Romania (Univ. of Life Sciences from Timisoara), Poland (PIWet National Veterinary Research Institut) and United States (Kansas State University).	THE NETHERLANDS - ARUBA GERMANY HUNGARY ITALY KENYA SPAIN SWEDEN UNITED KINGDOM UNITED STATES OF AMERICA

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

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:

Yun Young Go, Jeremy Ho, Karina Tam, Maedeh Kamali, Yiwen Zhang, Candy Lau, Song Hao Li, Michael Wilson, Zhihao Guo, Runsheng Li, Guoqian Gu, May Tse, Fraser Hill, Carrie Batten, Amanda Corla, John Flannery, Anne Conan, Christopher Brackman and Dirk Pfeiffer (2023) Investigation of the First African Swine Fever Outbreak in a Domestic Pig Farm in Hong Kong. Transboundary and emerging diseases. doi.org/10.1155/2023/1720474

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:

There are projects to continue to sequence and analyse ASFV genomes from both historical and new samples. This data will be published as soon as available.

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:

9

Netherton C.L., Goatley L.C., Flannery J, Ashby M., Batten C. (2022) Laboratory Diagnosis and Quantification of African Swine Fever Virus Using Real-Time Polymerase Chain Reaction. In: Netherton C.L. (eds) *African Swine Fever Virus. Methods in Molecular Biology*, vol 2503. Humana, New York, NY. DOI: 10.1007/978-1-0716-2333-6_6

Rajko-Nenow P., Batten C. (2022) Genotyping of African Swine Fever Virus. In: Netherton C.L. (eds) *African Swine Fever Virus. Methods in Molecular Biology*, vol 2503. Humana, New York, NY. DOI: 10.1007/978-1-0716-2333-6_8

Frost L., Batten C. (2022) African Swine Fever Virus Plaque Assay and Disinfectant Testing. In: Netherton C.L. (eds) *African Swine Fever Virus. Methods in Molecular Biology*, vol 2503. Humana, New York, NY. DOI: 10.1007/978-1-0716-2333-6_14

Olesen AS; Lohse L; Accensi F; Goldswain H; Belsham GJ; Bøtner A; Netherton CL; Dixon LK; Portugal R. (2024) Inefficient Transmission of African Swine Fever Virus to Sentinel Pigs from an Environment Contaminated by ASFV-Infected Pigs under Experimental Conditions. *Transboundary and Emerging Diseases* DOI: 10.1155/2024/8863641

Rathakrishnan A; Reis AL; Petrovan V; Goatley LC; Moffat K; Lui Y; Vuong MT; Ikemizu S; Davis SJ; Dixon LK. (2023) A protective multiple gene-deleted African swine fever virus genotype II, Georgia 2007/1, expressing a modified non-haemadsorbing CD2v protein. *Emerging Microbes & Infections* DOI: 10.1080/22221751.2023.2265661

Reis AL; Rathakrishnan A; Goulding LV; Barber C; Goatley LC; Dixon LK. (2024). Deletion of the gene for the African swine fever virus BCL-2 family member A179L increases virus uptake and apoptosis but decreases virus spread in macrophages and reduces virulence in pigs. *Journal of Virology* DOI: 10.1128/jvi.01106-23

Loundras E-A; Netherton CL; Flannery J; Bowes MJ; Dixon L; Batten C. (2023) The Effect of Temperature on the Stability of African Swine Fever Virus BA71V Isolate in Environmental Water Samples. *Pathogens*. DOI: 10.3390/pathogens12081022

Frost L; Tully M; Dixon L; Hicks HM; Bennett J; Stokes I; Marsella L; Gubbins S; C. (2023) Evaluation of the Efficacy of Commercial Disinfectants against African Swine Fever Virus. *Pathogens*. DOI: 10.3390/pathogens12070855

Yun Young Go, Jeremy Ho, Karina Tam, Maedeh Kamali, Yiwen Zhang, Candy Lau, Song Hao Li, Michael Wilson, Zhihao Guo, Runsheng Li, Guoqian Gu, May Tse, Fraser Hill, Carrie Batten, Amanda Corla, John Flannery, Anne Conan, Christopher Brackman and Dirk Pfeiffer (2023) Investigation of the First African Swine Fever Outbreak in a Domestic Pig Farm in Hong Kong. *Transboundary and emerging diseases*. doi.org/10.1155/2023/1720474

Priscilla YL Tng, Laila Al-Adwani, Egle Pauletto, Joshua YK Hui, Christopher L Netherton (2023) Capsid Specific Antibody Responses of Domestic Pigs Immunized with Low Virulent African Swine Fever Virus. *Vaccines* 11(10):1577. <https://doi.org/10.3390/vaccines11101577>

Wang L, Ganges L, Dixon LK, Bu Z, Zhao D, Truong QL, Richt JA, Jin M, Netherton CL, Benarafa C, Summerfield A, Weng C, Peng G, Reis AL, Han J, Penrith ML, Mo Y, Su Z, Vu Hoang D, Pogranichniy RM, Balaban-Oglan DA, Li Y, Wang K, Cai X, Shi J. (2023) International African Swine Fever Workshop: Critical Issues That Need to Be Addressed for ASF Control. *Viruses*. 16(1):4 <https://doi.org/10.3390/v16010004>

Dolata KM, Pei G, Netherton CL, Karger A. (2023) Functional Landscape of African Swine Fever Virus-Host and Virus-Virus Protein Interactions. *Viruses*. 15(8):1634 <https://doi.org/10.3390/v15081634>.

Lynnette C. Goatley, Priscilla Tng, Laila Al-Adwani, Zoe Hargreaves, Stepan Levin, Teresa Lambe, Christopher L. Netherton (2023) ASFV antigens selected from genotype I immunised pigs are immunogenic, but do not protect against genotype II challenge. *Veterinary Vaccine*. Article 100042. <https://doi.org/10.1016/j.vetvac.2023.100042>

b) International conferences:

3

International Workshop on African swine fever virus. Beijing Sep. 2023
Global Alliance African swine fever virus workshop Manila Philippines December 2023
DEFEND final workshop, Belgium 2nd – 4th October 2023

c) National conferences:

2

Microbiological Society Annual Meeting in Birmingham, 17th-20th April 2023
Southern England Virology Network (SVN) meeting on 5th October 2023

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

3

Book Chapter
Christopher L. Netherton, Gareth L. Shimmom, Joshua Y. K. Hui, Samuel Connell, Ana Luisa Reis (2023) African swine fever virus host-pathogen interactions. *Virus Infected Cells, Subcellular Biochemistry*. 106:283 https://doi.org/10.1007/978-3-031-40086-5_11

Lectures
Talk on ASF subunit vaccines at 'Human and Veterinary Vaccinology' course organised by the Jenner Institute. 25th October 2023.
Lecture on African swine fever virus as part of Virologie Fondamentale 2022-2023 MSc course at Institut Pasteur. 20th October 2023.

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

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

Yes

a) Technical visit : 1

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	PHILIPPINES	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/IEC 17025	Certificate	4025Testing-Single.pdf

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
ELISA	UKAS
ELISA Antigen	UKAS
Real-time RT-PCR (King et al.)	UKAS
Real-time RT-PCR (Fernandez et al.)	UKAS

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

Yes

TOR9: SCIENTIFIC MEETINGS

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

No

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

No

TOR10: NETWORK WITH WOAHA REFERENCE LABORATORIES

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

Yes

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

Yes

NETWORK/DISEASE	ROLE OF YOUR LABORATORY (PARTICIPANT, ORGANISER, ETC)	NO. PARTICIPANTS	PARTICIPATING WOAHA REF. LABS
ASF Reference Laboratory Network	Participant	7	ARC/OVI S. Africa, AAHL Australia, CAHEC PR China, Spain, Pirbright Institute UK, Canada, Aphis USA

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

Yes

PURPOSE OF THE PROFICIENCY TESTS: 1	ROLE OF YOUR REFERENCE LABORATORY (ORGANISER/ PARTICIPANT)	NO. PARTICIPANTS	PARTICIPATING WOAHA REF. LABS/ ORGANISING WOAHA REF. LAB.

Harmonisation of diagnostic tests for ASFV (2021/22)	Participant	not privvy to this information	Organiser INIA Spain
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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?

No

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?

No

TOR12: EXPERT CONSULTANTS

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

Yes

KIND OF CONSULTANCY	Location	SUBJECT (FACULTATIVE)
Advice/review of documents	Remote	through the WOA ASFV ref. lab network

29. Additional comments regarding your report:

Yes