

# OIE Reference Laboratory Reports Activities

## *Activities in 2020*

**This report has been submitted : 2021-01-14 12:39:26**

<b>Name of disease (or topic) for which you are a designated OIE Reference Laboratory:</b>	African swine fever
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<b>Website:</b>	<a href="https://www.pirbright.ac.uk/our-science/vector-borne-viral-diseases/non-vesicular-disease-reference-laboratory">https://www.pirbright.ac.uk/our-science/vector-borne-viral-diseases/non-vesicular-disease-reference-laboratory</a>
<b>Name (including Title) of Head of Laboratory (Responsible Official):</b>	Dr Bryan Charleston
<b>Name (including Title and Position) of OIE Reference Expert:</b>	Dr Linda Dixon, Head of African Swine Fever virus group
<b>Which of the following defines your laboratory? Check all that apply:</b>	Research

**ToR 1: To use, promote and disseminate diagnostic methods validated according to OIE Standards**

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 OIE Manual (Yes/No)	Total number of test performed last year	
		Nationally	Internationally
Indirect diagnostic tests		Nationally	Internationally
ELISA	Yes	0	0
Direct diagnostic tests		Nationally	Internationally
Real-Time PCR	Yes	16	0
Virus Isolation	Yes	0	0
Antigen ELISA	Yes	0	0

**ToR 2: To develop reference material in accordance with OIE requirements, and implement and promote the application of OIE Standards.  
To store and distribute to national laboratories biological reference products and any other reagents used in the diagnosis and control of the designated pathogens or disease.**

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

No

3. Did your laboratory supply standard reference reagents (non OIE-approved) and/or other diagnostic reagents to OIE Member Countries?

Yes

Type of reagent available	Related diagnostic test	Produced/ provide	Amount supplied nationally (ml, mg)	Amount supplied internationally (ml, mg)	No. of recipient OIE Member Countries	Region of recipients
ASFV positive control antiserum	ELISA	Provide	10ml	3ml	3	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input checked="" type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East
various ASFV isolates (2 x 0.1ml each)	Molecular assays	Provide	0	3.2ml total	1	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East
ASFV Georgia isolate	PCR	Provide	0	4ml	2	<input type="checkbox"/> Africa <input checked="" type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East
ASFV OURT88/3 isolate	PCR	Provide	0	1ml	1	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input checked="" type="checkbox"/> Asia and Pacific <input type="checkbox"/> Europe <input type="checkbox"/> Middle East
p30 mAb	serology	Provide	0	0.5	1	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East
ASFV Georgia various isolates	molecular assays	Provide	0	27ml	1	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East

various sera	LFDs for Antibody detection	Provide	6.3ml	12.6ml	2	<input checked="" type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East
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4. Did your laboratory produce vaccines?

No

5. Did your laboratory supply vaccines to OIE Member Countries?

No

***ToR 3: To develop, standardise and validate, according to OIE Standards, new procedures for diagnosis and control of the designated pathogens or diseases***

6. Did your laboratory develop new diagnostic methods validated according to OIE Standards for the designated pathogen or disease?

No

7. Did your laboratory develop new vaccines according to OIE Standards for the designated pathogen or disease?

No

***ToR 4: To provide diagnostic testing facilities, and, where appropriate, scientific and technical advice on disease control measures to OIE Member Countries***

8. Did your laboratory carry out diagnostic testing for other OIE Member Countries?

No

9. Did your laboratory provide expert advice in technical consultancies on the request of an OIE Member Country?

Yes

Name of the OIE Member Country receiving a technical consultancy	Purpose	How the advice was provided
CHINESE TAIPEI	Test validation	E mail
PHILIPPINES	test selection, validation, sampling	E mail

***ToR 5: To carry out and/or coordinate scientific and technical studies in collaboration with other laboratories, centres or organisations***

10. Did your laboratory participate in international scientific studies in collaboration with OIE Member Countries other than the own?

Yes

Title of the study	Duration	Purpose of the study	Partners (Institutions)	OIE Member Countries involved other than your country
IAEA Research Contract: CRP32032 Veterinary Diagnostic Laboratory Network (VETLAB Network) to prevent and control transboundary animal diseases (TADs)	5 Years	Develop validated reagents, build capacity for diagnosis	ANSES, CIRAD, IAEA, CSIRO, SENASA, Pirbright, LANAVET, CVI, LANADA, UKIM, ONSSA, NAHDIC	ARGENTINA AUSTRALIA AUSTRIA CAMEROON COTE D'IVOIRE CROATIA ETHIOPIA FRANCE MOROCCO NORTH MACEDONIA (REP. OF) SUDAN
Addressing the dual emerging threats of African Swine Fever and Lumpy Skin Disease in Europe (DEFEND)	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 rapid responses by decision-makers.	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) Kimron Veterinary Institute (KIMRON) 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) FGI Federal Centre for Animal Health (FGI ARRIAH) Ministry of Agriculture, Rural Development and Water Management (MINA) Diagnostic 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)	ALBANIA AUSTRALIA AZERBAIJAN BELGIUM BULGARIA CANADA FRANCE GERMANY GREECE ISRAEL ITALY LITHUANIA MONTENEGRO NORTH MACEDONIA (REP. OF) ROMANIA RUSSIA SERBIA SOUTH AFRICA SPAIN SWEDEN TURKEY UNITED KINGDOM

**ToR 6: To collect, process, analyse, publish and disseminate epizootiological data relevant to the designated pathogens or diseases**

11. Did your Laboratory collect epizootiological data relevant to international disease control?

Yes

If the answer is yes, please provide details of the data collected:

Data was collected on the levels of African swine fever virus in environmental contamination and on the potential for this to be transmitted to pigs in contaminated rooms. Tests were carried out on the sensitivity and specificity of lateral flow devices to detect African swine fever virus antigen and antibody. UV inactivation kinetics for African swine fever virus on dried surfaces were determined.

12. Did your laboratory disseminate epizootiological data that had been processed and analysed?

Yes

If the answer is yes, please provide details of the data collected:

Very low levels of African swine fever virus genome were detected in surfaces or straw in rooms housing ASFV infected pigs. Pigs introduced into rooms that had housed pigs infected with virulent ASFV did not become infected even if introduced on the same day that the infected animals were removed. This indicates a low risk for transmission to pigs from environmental contamination at least in the experimental housing. Commercial Lateral flow devices were specific for ASFV (98% antigen detection, 100% antibody detection). The devices for antibody detection showed similar sensitivity to commercial ELISA assays. Sensitivity of the antigen detection devices was much lower than PCR or virus isolation but sufficiently sensitive to confirm the early clinical phases of infection. ASFV dried on surfaces was very sensitive to UV inactivation compared to other viruses confirming that UV inactivation could be an effective measure for decontamination of premises or treatment of waste water.

**13. What method of dissemination of information is most often used by your laboratory?  
(Indicate in the appropriate box the number by category)**

a) Articles published in peer-reviewed journals: 11

John Flannery, Rebecca Moore, Laura Marsella, Katie Harris, Martin Ashby, Paulina Rajko-Nenow, Helen Roberts, Simon Gubbins, Carrie Batten (2020). Towards a sampling rationale for African swine fever virus detection in pork products. *Foods*, 9 (9) 1148 DOI: 10.3390/foods9091148

Flannery, John; Ashby, Martin; Moore, Rebecca; Wells, Sian; Rajko-Nenow, Paulina; Netherton, Christopher; Batten, Carrie (2020). Identification of novel testing matrices for African Swine Fever surveillance, *Journal of Veterinary Diagnostic Investigation*, 32 (6), doi.org/10.1177/1040638720954888

Raquel Portugal, Lynnette C. Goatley, Robert Husmann, Federico A. Zuckermann & Linda K. Dixon (2020) A porcine macrophage cell line that supports high levels of replication of OURT88/3, an attenuated strain of African swine fever virus, *Emerging Microbes & Infections*, 9:1, 1245-1253, DOI: 10.1080/22221751.2020.1772675

Rathakrishnan, A., Moffat, K., Reis, AL Dixon, LK (2020) Production of Recombinant African Swine Fever Viruses: Speeding Up the Process. *Viruses* 12 <http://dx.doi.org/10.3390/v12060615>

Reis, AL., Goatley, LC ., Jabbar, T ., Lopez, E ., Rathakrishnan, A., Dixon, LK (2020) Deletion of the Gene for the Type I Interferon Inhibitor I329L from the Attenuated African Swine Fever Virus OURT88/3 Strain Reduces Protection Induced in Pigs. *Vaccines* 8 <http://dx.doi.org/10.3390/vaccines8020262>

Goatley et al., (2020) A Pool of Eight Virally Vectored African Swine Fever Antigens Protect Pigs against Fatal

Disease. Vaccines 2 <http://dx.doi.org/10.3390/vaccines8020234>

Pedro J. Sánchez-Cordón, Tamara Jabbar, Dave Chapman, Linda K. Dixon, María Montoya 2020 Absence of long-term protection in domestic pigs immunized with attenuated African swine fever virus isolate OURT88/3 or BeninΔMFG correlates with increased levels of regulatory T cells and IL-10. J Virology DOI: 10.1128/JVI.00350-20

Gavier-Widen D., Stahl K., Dixon LK. 2020 No hasty solutions for African swine fever. Science 367(6478):622-624

Dixon, Linda K. Stahl, Karl Jori,, Ferran, Vial, Laurence, Pfeiffer, Dirk U. 2020 African Swine Fever Epidemiology and Control SO ANNUAL REVIEW OF ANIMAL BIOSCIENCES, VOL 8, 2020 SE Annual Review of Animal Biosciences. 8: 221- 246  
DI 10.1146/annurev-animal-021419-083741

Dixon L., Heath L., Sanchez-Vizcaino J-M 2020. Vaccines for African swine fever. OIE Panorama 2020-1

Heath L., Dixon L., Sanchez-Vizcaino J-M 2020 The role of ticks in African swine fever transmission and maintenance. OIE Panaorama 2020-1

b) International conferences: 3

Linda Dixon and Vlad Petrovan. Presentations at ASF-STOP EU COST action Final meeting Brescia Italy January 2020

Online presentations at International Conferences.

Raquel Portugal: Global Alliance for African swine fever Research. August 2020

Ana Reis: Shanghai Veterinary Virus Conference. September 2020. African swine fever virus immune evasion and application to vaccine development.

c) National conferences: 0

d) Other:

(Provide website address or link to appropriate information) 0

***ToR 7: To provide scientific and technical training for personnel from OIE Member Countries  
To recommend the prescribed and alternative tests or vaccines as OIE Standards***

14. Did your laboratory provide scientific and technical training to laboratory personnel from other OIE Member Countries?

No

***ToR 8: To maintain a system of quality assurance, biosafety and biosecurity relevant for the pathogen and the disease concerned***

15. Does your laboratory have a Quality Management System?

Yes



Quality management system adopted	Certificate scan (PDF, JPG, PNG format)
ISO/IEC17025	UKAS cert.pdf

16. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Real-time PCR	UKAS
ELISA (antibody)	UKAS
ELISA (antigen)	UKAS

17. Does your laboratory maintain a “biorisk management system” for the pathogen and the disease concerned?

Yes

(See *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals, Chapter 1.1.4*)

### **ToR 9: To organise and participate in scientific meetings on behalf of the OIE**

18. Did your laboratory organise scientific meetings on behalf of the OIE?

No

19. Did your laboratory participate in scientific meetings on behalf of the OIE?

No

### **ToR 10: To establish and maintain a network with other OIE Reference Laboratories designated for the same pathogen or disease and organise regular inter-laboratory proficiency testing to ensure comparability of results**

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

Yes

21. Was your laboratory involved in maintaining a network with OIE Reference Laboratories designated for the same pathogen or disease by organising or participating in proficiency tests?

Yes

Purpose of the proficiency tests: <sup>1</sup>	Role of your Reference Laboratory (organiser/participant)	No. participants	Participating OIE Ref. Labs/organising OIE Ref. Lab.
Harmonisation of diagnostic tests	Participant	42	Organising reference laboratory - Spain

<sup>1</sup> validation of a diagnostic protocol: specify the test; quality control of vaccines: specify the vaccine type, etc.

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

No

**ToR 11: To organise inter-laboratory proficiency testing with laboratories other than OIE Reference Laboratories for the same pathogens and diseases to ensure equivalence of results**

23. Did your laboratory organise or participate in inter-laboratory proficiency tests with laboratories other than OIE Reference Laboratories for the same disease?

Yes

Note: See Interlaboratory test comparisons in: Laboratory Proficiency Testing at: <http://www.oie.int/en/our-scientific-expertise/reference-laboratories/proficiency-testing> see point 1.3

Purpose for inter-laboratory test comparisons <sup>1</sup>	No. participating laboratories	Region(s) of participating OIE Member Countries
Harmonisation of diagnostic tests	42	<input type="checkbox"/> Africa <input checked="" type="checkbox"/> Americas <input checked="" type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East

**ToR 12: To place expert consultants at the disposal of the OIE**

24. Did your laboratory place expert consultants at the disposal of the OIE?

No

25. Additional comments regarding your report:

