

OIE Reference Laboratory Reports Activities

Activities in 2020

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Name of disease (or topic) for which you are a designated OIE Reference Laboratory:	African swine fever
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Name (including Title) of Head of Laboratory (Responsible Official):	Dr Livio Heath, Research Team Manager.
Name (including Title and Position) of OIE Reference Expert:	Dr Livio Heath
Which of the following defines your laboratory? Check all that apply:	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
ASF ELISA	Yes	2 851	44
Direct diagnostic tests		Nationally	Internationally
ASF PCR	Yes	218	0
ASF Virus Isolation	Yes	14	0
Molecular Typing	Yes	22	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?

No

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?

Yes

Name of OIE Member Country seeking assistance	Date (month)	No. samples received for provision of diagnostic support	No. samples received for provision of confirmatory diagnoses
ZIMBABWE	July	44	0

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

No

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
Validation of commercial Lateral Flow device for ASFV.	2 Months	Validation and inter-laboratory Comparison	The Pirbright Institute	UNITED KINGDOM
African swine fever virus (ASFV) genome sequencing to underpin control. Collaborative project involving the Agricultural Research Council (South Africa), the University of Pretoria (South Africa), the University of Victoria (Canada) and the International Livestock Research Institute (Kenya).	4 Years	To determine the complete genome sequences of ASFV circulating in Africa	University of Pretoria University of Victoria International Livestock Research Institute	CANADA KENYA
Unravelling the Effect of Contact Networks & Socio-Economic Factors in the Emergence of Infectious Diseases at The Wild-Domestic Interface	4 Years	Comprehensively assess the pig contact networks, pig management and socio-economic factors, tick involvement in ASFV transmission, ASF seroprevalence and viral diversity in the sylvatic and domestic cycles.	University of Californie, Davis CIRAD University of Maputo University of Pretoria	ANGOLA FRANCE MAURITIUS MOZAMBIQUE UNITED STATES OF AMERICA

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:

Epizootiological data were collected on the ASFV outbreak in South Africa from 2020. Activities included serological surveillance and phylogenetic characterisation of virus strains.

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:

Reports were submitted to the South African Department of Agriculture, Land Reform and Rural Development. Scientific publications are being prepared and will be published in 2021.

**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: 5

1. Understanding African swine fever outbreaks in domestic pigs in a sylvatic endemic area: The case of the South African controlled area between 1977-2017. Janse van Rensburg L, Etter E, Heath L, Penrith ML, van Heerden J. *Transbound Emerg Dis.* 2020 Nov;67(6):2753-2769. doi: 10.1111/tbed.13632. Epub 2020 Jun 1. PMID: 32438525.

2. Genome Sequences of Three African Swine Fever Viruses of Genotypes I, III, and XXII from South Africa and Zambia, Isolated from *Ornithodoros* Soft Ticks. Ndlovu S, Williamson AL, Malesa R, van Heerden J, Boshoff CI, Bastos ADS, Heath L, Carulei O. *Microbiol Resour Announc.* 2020 Mar 5;9(10):e01376-19. doi: 10.1128/MRA.01376-19. PMID: 32139555.

3. Genome Sequences of Three African Swine Fever Viruses of Genotypes IV and XX from Zaire and South Africa, Isolated from a Domestic Pig (*Sus scrofa domestica*), a Warthog (*Phacochoerus africanus*), and a European Wild Boar (*Sus scrofa*). Ndlovu S, Williamson AL, Heath L, Carulei O. *Microbiol Resour Announc.* 2020 Aug 6;9(32):e00341-20. doi: 10.1128/MRA.00341-20. PMID: 32763924.

4. Investigation of African swine fever outbreaks in pigs outside the controlled areas of South Africa, 2012-2017. Janse van Rensburg L, Van Heerden J, Penrith ML, Heath LE, Rametse T, Etter EMC. *J S Afr Vet Assoc.* 2020 Jul 16;91(0):e1-e9. doi: 10.4102/jsava.v91i0.1997. PMID: 32787419.

5. Investigation into eradication of African swine fever in domestic pigs from a previous outbreak (2016/17) area of South Africa. Janse van Rensburg L, Penrith ML, van Heerden J, Heath L, Etter Eric MC. *Res Vet Sci.* 2020 Dec;133:42-47. doi: 10.1016/j.rvsc.2020.08.013. Epub 2020 Sep 1. PMID: 32932197.

b) International conferences: 0

c) National conferences: 1

Epidemiology of African swine fever in South Africa from 2016 to 2019. L. Heath, J. van Heerden, A.D.S Bastos, T. Rametse, R. Malesa, K. Malokotsa, L. Retief and L. Janse van Rensburg. *Virology Africa* 2020. 10 – 14 February 2020. South Africa.

d) Other:

(Provide website address or link to appropriate information) 1

South African Society for Veterinary Epidemiology and Preventative Medicine. Training webinar on “African Swine Fever Disease Prevention & Control from a global, SADC and SA experience & perspective”. 19 August 2020.

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?

Yes

- a) Technical visits: 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	South Africa	28

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 17025	V0034 SoA.pdf

16. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
ASFV ELISA	South African National Accreditation Sytem

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?

Yes

Title of event	Date (mm/yy)	Location	Role (speaker, presenting poster, short communications)	Title of the work presented
Meeting of the OIE Biological Standards Commission	09/2020	On-line	speaker	Establishment of the OIE laboratory network for ASF.

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: ¹	Role of your Reference Laboratory (organiser/participant)	No. participants	Participating OIE Ref. Labs/ organising OIE Ref. Lab.
Validation of a diagnostic protocol	Participating Laboratory	3	The Pirbright Institute. Universidad Complutense Madrid

¹ 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 ¹	No. participating laboratories	Region(s) of participating OIE Member Countries
Proficiency Testing	20	<input checked="" 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:

Activities of the OIE reference laboratory were significantly restrained by the COVID-19 pandemic.