World Organisation for Animal Health

Livio Heath - - SOUTH_AFRICA

WOAH Reference Laboratory Reports Activities 2024

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LABORATORY INFORMATION

***Name of disease (or topic) for which you are a designated WOAH Reference Laboratory:**	African swine fever
***Address of laboratory:**	Onderstepoort Veterinary Institute, 100 Old Soutpan Road, Pretoria Southrh Africa
***Tel:**	+27-12 529 95.01
***E-mail address:**	HeathL@arc.agric.za
Website:	www.arc.agric.za
***Name (including Title) of Head of Laboratory (Responsible Official):**	Dr Livio Heath
***Name (including Title and Position) of WOAH Reference Expert:**	Dr Livio Heath, Research Team Manager
***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
ASF Serology	Yes	2619	800
Direct diagnostic tests		Nationally	Internationally
ASF PCR	Yes	222	0
ASF Genotyping	Yes	32	

			0

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?

No

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?

Yes

Name of the new test or diagnostic method developed	Description and References (Publication, website, etc.)
ELISA for the detection of antibodies to Ornithodoros spp. in Southern Africa.	Internal Validation Report

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

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
MOZAMBIQUE	2024-06-01	ASF Serology	400	0
ZIMBABWE	2024-07-01	ASF Serology	400	0

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

No

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
Unraveling 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 socioeconomic factors, tick involvement in ASFV transmission, ASF seroprevalence and viral diversity in the sylvatic and domestic cycles	University of California, Davis CIRAD University of Maputo University of Pretoria	FRANCE MADAGASCAR MOZAMBIQUE UNITED STATES OF AMERICA ZIMBABWE
Interrelationship of warthogs, Ornithodoros ticks and African swine fever in South Africa	4 years	Comprehensively assess the geographical expansion of the ASFV sylvatic cycle in South Africa	University of Pretoria, Kansas State University	UNITED STATES OF AMERICA
African swine fever virus (ASFV) genome sequencing	4 years	To determine the complete genome sequences of ASFV circulating in Russia	Reference Laboratory for African Swine Fever Virus, FGBI "Federal Centre for Animal Health, Russia	RUSSIA

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:
Epizootiological data were collected on the ASFV outbreak in South Africa in 2023. Activities included serological surveillance and phylogenetic characterisation of virus strains. Epizootiological data was also collected on the geographical expansion of the ASFV sylvatic cycle in South Africa. Phylogenetic characterisation of virus strains circulating in Africa.

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:
Reports were submitted to the South African Department of Agriculture, Land Reform and Rural

Development. The results of the studies were presented at scientific conferences and scientific publications.

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:

4

Kabuuka, T., Mulindwa, H., Bastos, A.D.S., van Heerden, J., Heath, L., Fasina, F.O. 2024. Retrospective Multi-Locus Sequence Analysis of African Swine Fever Viruses by
"PACT" Confirms Co-Circulation of Multiple Outbreak Strains in Uganda. Animals, 14, 71.

Goatley LC, GL Freimanis, C Tennakoon, Armanda Bastos, Livio Heath, C. Netherton. African swine fever virus NAM P1/95 is a mixture of genotype I and genotype VIII viruses. 2024. Microbiol Resour Announc 2024 Apr 11;13(4):e0006724. doi: 10.1128/mra.00067-24. Epub 2024 Mar 25.

Chernyshev R, Igolkin A, van Schalkwyk A, Zinyakov N, Kolbin I, Shotin A, Korennoy F, Sprygin A, Mazloum A. A proposed update of African swine fever virus (genotype II) subgenotyping based on the central variable region (CVR) of Russian isolates. Arch Virol. 2024 Jun 15;169(7):147. doi: 10.1007/s00705-024-06064-w.

Igolkin A, Mazloum A, Zinyakov N, Chernyshev R, van Schalkwyk A, Shotin A, Lavrentiev I, Gruzdev K, Chvala I. Detection of the first recombinant African swine fever virus (genotypes I and II) in domestic pigs in Russia. Mol Biol Rep. 2024 Sep 25;51(1):1011. doi: 10.1007/s11033-024-09961-0.

b) International conferences:

0

c) National conferences:

0

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

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 : 4

b) Seminars : 0

c) Hands-on training courses: 0

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	GHANA	4

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	South African National Accreditation System	V0034.pdf

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
ASF Serology	South African National Accreditation System

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

Yes

Compliance with international Biosafety and Security practices are monitored and certified by the Department of Agriculture of South Africa.

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	location	Role (speaker, presenting poster, short communications)	Title of the work presented
4th meeting of the GF-TADs for Africa Standing Group of Experts (SGE) for African swine fever (ASF)	2024-10-14	Virtual	Speaker	Promoting effective surveillance and diagnostics: point of care, rapid testing in field prac

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
WOAH Reference Laboratory Network for AFrican Swine fever	Co-chair of the network: Coordination of activities of international, regional and national ASF reference laboratories.	2	CSIRO Australian Centre for Disease Preparedness. Australia National Surveillance and Research Center for Exotic Animal Diseases, China. Universidad Complutense de Madrid (UCM), Spain. The Pirbright Institute, UK

25. Did you organise or participate in inter-laboratory proficiency tests with WOAH Reference Laboratories designated for the same pathogen during the past 2 years?

Yes

Purpose of the proficiency test:	Role of your Reference Laboratory (organiser/ participant)	No. participating Laboratories	Participating WOAH Ref. Labs/ organising WOAH Ref Lab
Validation of a diagnostic protocol	Participant	-	VETQAS Proficiency Testing

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
WOAH Reference Laboratory Network for African Swine fever	Genetic characterization of ASF viruses	The Pirbright Institute

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 during the past 2 years?

No

Inter-laboratory proficiency testing scheme involving non-WOAH Reference Laboratories in Africa is planned for 2025

TOR12: EXPERT CONSULTANTS

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

No

29. Additional comments regarding your report:

Yes

Support to other member states is being curtailed by the cost of shipping samples to the reference laboratory. Several countries in Southern Africa have developed diagnostic

capacity for ASF limiting the number of samples received by the Onderstepoort Veterinary Institute for FMD diagnosis and surveillance