

WOAH Reference Laboratory Reports Activities 2022

Activities in 2022

This report has been submitted : 15 février 2023 14:40

Laboratory Information

Name of disease (or topic) for which you are a designated WOA Reference Laboratory:	Rift valley fever
Address of laboratory:	No. 100 Old Soutpan Road (M35), Onderstepoort
Tel.:	(+2712) 529 - 9233/9117/9465
E-mail address:	LubisiA@arc.agric.za
Website:	https://www.arc.agric.za
Name (including Title) of Head of Laboratory (Responsible Official):	Dr. Misheck Mulumba
Name (including Title and Position) of WOA Reference Expert:	Dr. Baratang Alison Lubisi
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 WOA Manual (Yes/No)	Total number of test performed last year	
Indirect diagnostic tests		Nationally	Internationally
Indirect antibody ELISA	Yes	622	0
Capture antibody ELISA	Yes	622	0
VNT	Yes	16	0
Direct diagnostic tests		Nationally	Internationally

Real Time RT-PCR	Yes	140	5
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TOR2: REFERENCE MATERIAL

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

No

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

No

4. Did your laboratory produce vaccines?

Not applicable

5. Did your laboratory supply vaccines to WOA?H Members?

Not applicable

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 WOA?H 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 WOA?H Standards for the designated pathogen or disease?

No

TOR4: DIAGNOSTIC TESTING FACILITIES

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

No

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

No

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

12. Did your laboratory participate in international scientific studies in collaboration with WOA?H 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
Reducing the Threat of Rift Valley Fever through Ecology, Epidemiology	4 years	To understand and control the risk of Rift valley fever in South Africa	EcoHealth Alliance; National Institute for Communicable Diseases (NICD); University of Pretoria (UP); National	UNITED STATES OF AMERICA

and Socio-Economics			Aeronautics and Space Administration (NASA);	
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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:

The laboratory conducted tests for diagnostic, surveillance and animal movement purposes, and the results were shared with relevant stake holders.

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 laboratory conducted tests for diagnostic, surveillance and animal movement purposes, and the results were shared with relevant stake holders.

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:

1

Moetlhoa, B., Tjale, M., Pretorius, A., Hayeshi, R., Grobler, A., & Mokoena, N.B (2022). Rift Valley Fever vaccine strategies: Enhanced stability of RVF Clone 13. Vaccine. <https://doi.org/10.1016/j.vaccine.2022.12.056>. Epub 2022 Dec 31.

b) International conferences:

0

c) National conferences:

0

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

0

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

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

No

TOR8: QUALITY ASSURANCE

18. Does your laboratory have a Quality Management System?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)	
ISO17025	PDF	V0001-06-2022 signed.pdf

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Indirect antibody ELISA	SANAS
Capture antibody ELISA	SANAS
Real Time RT-PCR	SANAS

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

Yes

The ARC-OVR has a Biosafety and Biosecurity Committee which manages all biological risks on, or which may potentially affect operations on campus. Personnel also attend refresher courses on an annual basis. Dr. Lubisi attended ABSA International's 2nd Biosecurity Hybrid Symposium which was held between 01 and 08 May 2022, at the Renaissance Minneapolis Hotel, The Depot, 225 Third Avenue South, Minneapolis, MN 55401, United States of America. Whilst there, she attended a development course on the 3rd of May 2022 titled: Biosecurity for uncertain situations: Challenges and solutions. The course used case studies and guided exercises to assess security risks and describe challenges, lessons learned and opportunities for protecting biological materials, especially in situations where information, resources and support are scarce.

TOR9: SCIENTIFIC MEETINGS

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

No

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

No

TOR10: NETWORK WITH WOA REFERENCE LABORATORIES

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

No

24. Are you a member of a network of WOA Reference Laboratories designated for the same pathogen?

Yes

PURPOSE OF THE PROFICIENCY TESTS: 1	ROLE OF YOUR REFERENCE LABORATORY (ORGANISER/ PARTICIPANT)	NO. PARTICIPANTS	PARTICIPATING WOA REF. LABS/ ORGANISING WOA REF. LAB.
Quality assurance of RVF diagnostic tests	Organiser and participant	4	Centre de coopération internationale en recherche agronomique pour le développement (CIRAD)

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

No

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?

Yes

Purpose for inter-laboratory test comparisons ¹	Role of your reference laboratory (organizer/participant)	No. participating laboratories	Region(s) of participating WOA Member Countries
Quality assurance of RVF diagnostic tests	Organiser and participant	4	Africa Europe

TOR12: EXPERT CONSULTANTS

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

No

29. Additional comments regarding your report:

Yes

Diagnostic test development:

A RVFV inhibition ELISA intended for detection of antibodies to Rift Valley fever virus (RVFV) in sera from infected and vaccinated animals was developed. The test is based on a recombinant RVFV N protein and a recombinant single chain antibody (scFv F3) specific for this protein. These reagents are well characterised and renewable. Antibodies in animal sera can inhibit the binding of scFv F3 to the N protein. In 2022, pre-coated plates were tested and shown to be stable for up to six months thus far, when using Stabilcoat as stabiliser/blocker. After nine months storage, the ELISA signals decreased. It must still be confirmed whether it is the coated antigen or the detection reagents, also stored for nine months, that caused the decrease in signal.

Sera (540) previously tested with the NICD ELISA were tested with the inhibition ELISA and the results must be compared with those of the VNT results for statistical analyses.

Dr. Lubisi attended the 11th Regional Steering Committee meeting of the GF-TADs for Africa which was held in Nairobi, Kenya and online, from 21 to 23 June 2022. She presented a talk of African Horse Sickness, and used the opportunity to highlight the activities undertaken and services provided at the WOAHA Reference Laboratories at ARC-OVR. She requested that samples be sent to her institution for diagnostic purposes, and asked for collaboration on several diseases, including twining on AHS.

Dr. Lubisi attended the 2nd Consultative meeting: World Organisation for Animal Health (WOAH) SADC Reference Centers which was held online on 26 July 2022. She gave a status update on activities of the WOAHA Reference Laboratories for AHS, Bluetongue and Rift Valley Fever at ARC-OVR. The opportunity was also utilised to the Reference Laboratories' willingness to enter into various collaborations with laboratories in the region.

The University of North-West's microbiology department visited the ARC-OVR on 31 August 2022. Presentations were made by researchers across the research programmes and the lecturers were encouraged and invited to enter into collaborative research with ARC-OVR staff members on various controlled animal diseases, including those the institution is WOAHA Reference Laboratory for.

The National Biosecurity Hub, an initiative of the Department of Science and Innovation's (DSI) Agricultural Bioeconomy Innovation Partnership Programme, was launched on 11 October 2022 at the University of Pretoria's Future Africa campus. Its aim is to facilitate collaborative efforts to support the prevention, reduction and management of crop and animal disease and other matters related to food safety in South Africa. The ARC is a proud partner of the initiative and Dr. Lubisi formed part of the organisation's public relations exhibition crew, where she highlighted activities of the ARC-OVR campus, including its WOAHA Reference Laboratories to the national and international delegates who attended.

The event was preceded by the filming of a video on 28 September 2022 in which Dr. Lubisi emphasized the ARC-OVR's role, including its WOAHA Reference laboratories, in animal disease control in South Africa and the region.

Details of samples tested for a foreign country are as follows:

Five blood samples from goats (n=2) and cattle (n=3) were received from Abrar University, Magadishu, Somalia, for molecular confirmation and RVF virus sequencing in September 2022.

Details of proficiency testing scheme (PTS)/interlaboratory testing (ILT) are as follows:

A call was made by our laboratory to other laboratories to express interest in participating in the 2022 Rift valley fever serology ILT. Laboratories in South Africa (n=1), Ethiopia (n=1), Sudan (n=1) and France (n=1) indicated their willingness to participate. We also expressed interest in participating in the serological and molecular ILT that was organised and managed by CIRAD.

Due to unforeseen circumstances, all arrangements were made last year but the actual sample testing will be done in early 2023.

Matters related to information dissemination:

A thesis titled: Susceptibility of Sus scrofa to Rift valley fever Virus: Implications for Animal and Human Health in Africa, was successfully submitted and accepted by the University of Pretoria, Faculty of Natural and Agricultural Sciences, for the the degree, Doctor of Philosophy in Zoology.