

# OIE Reference Laboratory Reports Activities

## *Activities in 2020*

**This report has been submitted : 2021-01-19 12:02:42**

<b>Name of disease (or topic) for which you are a designated OIE Reference Laboratory:</b>	Rift Valley fever
<b>Address of laboratory:</b>	Agricultural Research Council Private Bag X05 Onderstepoort 0110 SOUTH AFRICA
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<b>Name (including Title) of Head of Laboratory (Responsible Official):</b>	Dr. Misheck Mulumba Senior Manager Research: Animal Health and Protection
<b>Name (including Title and Position) of OIE Reference Expert:</b>	Dr. Baratang Alison Lubisi Senior Research Veterinarian
<b>Which of the following defines your laboratory? Check all that apply:</b>	Governmental

**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
IgG ELISA	Yes	1144	0
IgM ELISA	Yes	1144	0
Direct diagnostic tests		Nationally	Internationally
qRT-CR	Yes	205	5
Sequencing	No	0	1

**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
BOTSWANA	November	6	6

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
Retrospective phylogenetic analyses of formalin-fixed paraffin-embedded samples from the 2011 Rift Valley fever outbreak in South Africa, through sequencing of targeted regions	12 months	Modification of an RNA extraction method and determination of suitable primer combinations for successful phylogenetic analysis from formalin fixed paraffin embedded samples	Department of Diagnostic Medicine/Pathobiology, College of Veterinary Medicine, Kansas State University, Manhattan, KS, USA.	UNITED STATES OF AMERICA
Reducing the Threat of Rift Valley Fever through Ecology, Epidemiology and Socio-Economics	2 years	To understand Rift Valley Fever Epidemiology in South Africa	EcoHealth Alliance; University of Pretoria; National Institute for Communicable Diseases; South African Provincial Veterinary Services; National Aeronautics and Space Administration; ExecuVet	UNITED STATES OF AMERICA
Development of a protective bivalent Lumpy Skin Disease virus-vectored recombinant Rift Valley Fever vaccine	2 years	To develop a protective bivalent Lumpy Skin Disease virus-vectored recombinant Rift Valley Fever vaccine	National Centre for Foreign Animal Disease, Canadian Food Inspection Agency; Department of Immunology, University of Manitoba	CANADA

***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:

Diagnostic data collected from national and international samples submitted to the Agricultural Research Council - Onderstepoort Veterinary Research (ARC-OVR).

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:
Diagnostic test reports were sent to the senders of the specimens and the Department of Agriculture, Forestry and Fisheries.

**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: 3

1).David B. Wallace,A. Mather,P. D. Kara, Leeann Naicker, Nobalanda B. Mokoena, A. Pretorius,T. Nefefe, N. Thema,1 and Shawn Babiuk (2020). PROTECTION OF CATTLE ELICITED USING A BIVALENT LUMPY SKIN DISEASE VIRUS-VECTORED RECOMBINANT RIFT VALLEY FEVER VACCINE. Front Vet Sci. 7: 256. <https://doi.org/10.3389/fvets.2020.00256>.Published online 2020 May 19.

2). Donald Neiffer, Jennie Hewlett, Peter Buss, Leana Rossouw, Guy Hausler, Lin-Mari deKlerk-Lorist, Eduard Roos, Francisco Olea-Popelka, Baratang Lubisi, Livio Heath, and Michele Miller (2021).ANTIBODY PREVALENCE TO AFRICAN SWINE FEVER VIRUS, MYCOBACTERIUM BOVIS, FOOT-AND-MOUTH DISEASE VIRUS, RIFT VALLEY FEVER VIRUS, INFLUENZA A VIRUS, AND BRUCELLA AND LEPTOSPIRA SPP. IN FREE-RANGING WARTHOG (PHACOCHOERUS AFRICANUS) POPULATIONS IN SOUTH AFRICA. J Wildl Dis. 57 (1): 60-70.<https://doi.org/10.7589/JWD-D-20-00011>

3). Antoinette van Schalkwyk, Sipho Gwala, Kaitlyn N Schuck, Melvyn Quan, Anne Sally Davis, Marco Romito, and Lieza Odendaal (2021). RETROSPECTIVE PHYLOGENETIC ANALYSES OF FORMALIN FIXED PARRAFIN EMBEDDED SAMPLES FROM THE 2011 RIFT VALLEY FEVER OUTBREAK IN SOUTH AFRICA, THROUGH SEQUENCING OF TARGETTED REGIONS. J Virol Methods. 287:114003. <https://doi.org/10.1016/j.jviromet.2020.114003>. Epub 2020 Oct 23.

b) International conferences: 0

c) National conferences: 0

d) Other:

(Provide website address or link to appropriate information) 1

Booklet Titled: Diseases Spread by Mosquitoes and Ticks

Written by: Melinda K Rostal, Veerle Msimang, and Whitney Bagge

Edited & Translated by: Assaf Anyamba, Claudia Cordel, Alan Kemp, Alison

Lubisi,Peter Thompson, Catherine Machalaba, Janusz Paweska, Harold

Weepener, and William Karesh

[https://www.ecohealthalliance.org/wp-content/uploads/2020/10/Mosquitoes-And-Ticks\\_FREESTATE-English.pdf](https://www.ecohealthalliance.org/wp-content/uploads/2020/10/Mosquitoes-And-Ticks_FREESTATE-English.pdf)

**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: 1

- b) Seminars: 2  
 c) Hands-on training courses: 2  
 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
Seminar on Rift valley fevr diagnostic test interpretation and analysis	Turkey	3
Seminar on Rift valley fever bioinformatics	Turkey	3
Hands on training on bioinformatics and sequencing	Turkey	3
Hands on training on ELISA plate coating, quality control, ELISA test performance, and Virus Isolation	Turkey	3

***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)
ISO17025	2020-2022 SANAS certificate.pdf

16. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
IgG ELISA	SANAS
IgM ELISA	SANAS
qRT-PCR	SANAS

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?

No

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?

No

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
Assay harmonisation and quality assurance.	3	<input checked="" type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input 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:

South Africa went into level 5 Covid-19 related lockdown from 26 March 2020 and the lockdown remains to date. Even though the levels and severity of the associated restrictions decreased towards the end of the year, level 3 was reinstated in December 2020. All research, diagnostic, quality assurance, training, and other Rift Valley Fever related activities were negatively affected, with others completely halted.

Nonetheless, the mentoring of students, farmer training, and national research collaborations continued:

1. Student mentoring (In progress)

a). PhD with the Department of Zoology and Entomology, University of Pretoria (UP) - SUSCEPTIBILITY OF SUS SCROFA TO RIFT VALLEY FEVER VIRUS: IMPLICATIONS FOR ANIMAL AND HUMAN HEALTH IN AFRICA. Student: B.A Lubisi; Supervisors: Profs. ADS Bastos and M-L Penrith.

b).MSc with the Department of Agriculture and Animal Health, University of South Africa(UNISA) - OPTIMIZATION AND VALIDATION OF AN INDIRECT ELISA FOR THE DETECTION OF RIFT VALLEY FEVER IgG ANTIBODY IN SUIDS. Student: Phumudzo Ndouvhada; Supervisors: Drs. B.A Lubisi and D. Sibanda

2.Higher qualifications obtained

Dr. Rachel Maluleke obtained a PhD from the Department of Veterinary Tropical Diseases, Faculty of Veterinary Science, University of Pretoria.

3.Other

A manuscript on Rift Valley Fever was reviewed for an international journal, Veterinary and Animal Science