

OIE Reference Laboratory Reports Activities

Activities in 2021

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Name of disease (or topic) for which you are a designated OIE Reference Laboratory:	Peste des petits ruminants
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Name (including Title) of Head of Laboratory (Responsible Official):	Prof. Bryan Charleston, Institute Director
Name (including Title and Position) of OIE Reference Expert:	Dr Michael D. Baron, Honorary Institute Fellow
Which of the following defines your laboratory? Check all that apply:	Other: Research Institution

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 RT-PCR	Yes	0	6
Virus Isolation	Yes	0	6
Fgene PCR	Yes	0	6

**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
PPRV serum panel (30 x 250ul)	PVNA	provide	7.5ml	0	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
PPRV serum panel (36 x 250ul)	LIPs	provide	0	9ml	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
Antibody positive goat serum	ELISA	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
LFT kits	Antigen detection	provide	0	21 kits		<input checked="" type="checkbox"/> Africa <input type="checkbox"/> Americas <input checked="" type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East

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
MONGOLIA	October	6	0

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
KOREA (REP. OF)	Reagent supply	email
MONGOLIA	Diagnostics	email
JORDAN	Provision of confirmatory testing	email via colleague
MEXICO	Reagent supply	email
UZBEKISTAN	Capacity Building	virtual meeting

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
Peste des Petits Ruminants Virus Infection at the Wildlife-Livestock Interface in the Greater Serengeti Ecosystem	3 years	Study of PPRV distribution in East African Wild life	Sokoine University of Agriculture, Tanzania Tanzania Wildlife Research Institute, Tanzania Kenya Wildlife Service, Kenya CIRAD, France Directorate of Veterinary Services, Ministry of Agriculture, Livestock and Fisheries, Kenya Department of Agriculture, Livestock and Fisheries, Narok County Government, Kenya	FRANCE KENYA MOZAMBIQUE TANZANIA
Genome sequencing of PPR from Tanzania	1 year	Characterisation of new Tanzanian PPRV sequences	Vrije Universiteit Brussel, Belgium College of Veterinary Medicine, Animal Resources and Biosecurity, Uganda Sokoine University of Agriculture, Tanzania Universidade Eduardo Mondlane, Mozambique	BELGIUM TANZANIA UGANDA
Environmental sampling for the detection of foot-and-mouth disease virus and peste des petits ruminants virus in a live goat market, Nepal	1 year	Techniques for environmental screening	Ministry of Livestock Development, Kathmandu, Nepal	NEPAL
Development of multispecies validated serology protocols for complex ecosystems, focused on East Africa, in support of Global PPR eradication	18 months	Validate existing diagnostic tests for detection of PPRV antibodies in livestock	Royal Veterinary college, CIRAD, IAEA, U of Glasgow, SACID	AUSTRIA FRANCE TANZANIA
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. CSIRO, SENASA, Pirbright, LANAVET, CVI, LANADA, UKIM, ONNSA, NAHDIC, IAEA	ARGENTINA AUSTRALIA AUSTRIA CAMEROON COTE D'IVOIRE CROATIA ETHIOPIA FRANCE MOROCCO NORTH MACEDONIA (REP. OF) SUDAN

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:
The institute has collected and assisted in the analysis of PPRV serology and sequence information with several partners

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:
Sequence and serology data from wildlife and livestock in East Africa

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: 10

Gallo, G., Conceicao, C., Tsigoti, C., Willett, B., Graham, S. C., & Bailey, D. (2021). Application of error-prone PCR to functionally probe the morbillivirus Haemagglutinin protein. *Journal of General Virology*, 102(4). doi:10.1099/jgv.0.001580

Selvaraj, M., Mahapatra, M., & Parida, S. (2021). Exchange of C-Terminal Variable Sequences within Morbillivirus Nucleocapsid Protein Are Tolerated: Development and Evaluation of Two Marker (DIVA) Vaccines (Sungri/96 DIVA, Nigeria/75/1 DIVA) against PPR. *Viruses*, 13(11). doi:10.3390/v13112320

Baron, M. D., Hodgson, S., Moffat, K., Qureshi, M., Graham, S. P., & Darpel, K. E. (2021). Depletion of CD8(+) T cells from vaccinated goats does not affect protection from challenge with wild-type peste des petits ruminants virus. *Transboundary and Emerging Diseases*, 68(6), 3320-3334. doi:10.1111/tbed.13936

Zhao, H., Njeumi, F., Parida, S., & Benfield, C. T. O. (2021). Progress towards Eradication of Peste des Petits Ruminants through Vaccination. *Viruses*, 13(1). doi:10.3390/v13010059

Jones, B. A., Mahapatra, M., Mdetele, D., Keyyu, J., Gakuya, F., Eblate, E., Kock, R. (2021). Peste des Petits Ruminants Virus Infection at the Wildlife-Livestock Interface in the Greater Serengeti Ecosystem, 2015-2019. *Viruses*, 13(5). doi:10.3390/v13050838

Colenutt, C., Brown, E., Paton, D. J., Mahapatra, M., Parida, S., Nelson, N., Gubbins, S. (2021). Environmental sampling for the detection of foot-and-mouth disease virus and peste des petits ruminants virus in a live goat market, Nepal. *Transboundary and Emerging Diseases*. doi:10.1111/tbed.14257

Kinimi, E., Muyldermans, S., Vincke, C., Odongo, S., Kock, R., Parida, S., Misinzo, G. (2021). Development of Nanobodies Targeting Peste des Petits Ruminants Virus: The Prospect in Disease Diagnosis and Therapy. *Animals (Basel)*, 11(8). doi:10.3390/ani11082206

Kinimi, E., Mahapatra, M., Kgotlele, T., Makange, M. R., Tennakoon, C., Njeumi, F., Misinzo, G. (2021). Complete Genome Sequencing of Field Isolates of Peste des Petits Ruminants Virus from Tanzania Revealed a High Nucleotide Identity with Lineage III PPR Viruses. *Animals (Basel)*, 11(10). doi:10.3390/ani11102976

Mahapatra, M., Neto, M. M., Khunti, A., Njeumi, F., & Parida, S. (2021). Development and Evaluation of a Nested PCR for Improved Diagnosis and Genetic Analysis of Peste des Petits Ruminants Virus (PPRV) for Future Use in Nascent PPR Eradication Programme. *Animals (Basel)*, 11(11). doi:10.3390/ani11113170

Mahapatra, M., Pachauri, R., Subramaniam, S., Banyard, A. C., ChandraSekar, S., Ramakrishnan, M. A., Parida, S. (2021). Ongoing Assessment of the Molecular Evolution of Peste Des Petits Ruminants Virus Continues to Question Viral Origins. *Viruses*, 13(11). doi:10.3390/v13112144

b) International conferences: 0

None this year, apart from the PPR-specific meetings, such as the PPR-GREN meeting, and other meetings initiated by OIE or FAO

c) National conferences: 0

None this year

d) Other:

(Provide website address or link to appropriate information) 1

Joint website with other reference laboratories which contains, among other information, current epizootiological data: <https://www.ppr-labs-oie-network.org/>

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 Cer 2021.pdf

16. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Real-time RT-PCR	UKAS
ELISA	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?

Yes

Title of event	Date (mm/yy)	Location	Role (speaker, presenting poster, short communications)	Title of the work presented
4th Peste des Petits Ruminants Global Research and Expertise Network (PPR-GREN) Meeting	11/21	remote via video conference	Speaker/Participant	The Virus Neutralisation Test and PPRV panel results

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.
Harmonization of diagnostic tests for PPRV	Participant	13	organiser CIRAD, France

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?

Yes

Title of the project or contract	Scope	Name(s) of relevant OIE Reference Laboratories
Quality control of available PPRV sequences	Analysis, quality filtering and geolocation of known PPRV sequences	CIRAD, France
Development of multispecies validated serology protocols for complex ecosystems, focused on East Africa, in support of Global PPR eradication	Development of multispecies validated serology protocols for complex ecosystems, focused on East Africa, in support of Global PPR eradication	CIRAD, France

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
Harmonisation of diagnostic tests for PPRV	13	<input checked="" type="checkbox"/> Africa <input type="checkbox"/> Americas <input checked="" type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East
Molecular detection ILC 2020 (note due to COVID reported in 2021)	38	<input checked="" type="checkbox"/> Africa <input 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?

Yes

Kind of consultancy	Location	Subject (facultative)
Expert participation in OIE Expert group workshop	Virtual	Screening and diagnosis of PPR in wildlife
Participation in PPR-GREN 4th network meeting	Virtual	All aspects of PPR diagnosis and control
Setting up network of PPR diagnostic laboratories - many meetings over course of year	Virtual	Linking diagnostic laboratories in a network with OIE Reference Laboratories

25. Additional comments regarding your report: