World Organisation for Animal Health

Michael Baron - - UNITED_KINGDOM

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:**	Peste des petits ruminants
***Address of laboratory:**	Ash Road, Pirbright Woking, Surrey, GU24 0NF
***Tel:**	+44-1483 23.24.41
***E-mail address:**	michael.baron@pirbright.ac.uk
Website:	https://www.pirbright.ac.uk/our-science/non-vesicular-reference-laboratory
***Name (including Title) of Head of Laboratory (Responsible Official):**	Prof Bryan Charleston, Institute Director
***Name (including Title and Position) of WOAH Reference Expert:**	Dr Michael D Baron, Honorary Institute Fellow
***Which of the following defines your laboratory? Check all that apply:**	Research Institute Academic institution

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
cELISA	Yes	0	0
Direct diagnostic tests		Nationally	Internationally
virus isolation	Yes	0	4
real-time RT-PCR	Yes	0	

			4

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?

Yes

Type of reagent available	Related diagnostic test	Produced/ provide	Amount supplied nationally (ml, mg)	Amount supplied internationally (ml, mg)	No. of recipient WOAH Member Countries	Country of recipients
PPRV serum	diagnosis	Provided	0	1ml	1	IRELAND,
Positive control serum	cELISA	Provided	4.5ml	1.5ml	2	CHINESE TAIPEI, UNITED KINGDOM,
Antigen	cELISA	Provided	0	1ml	1	KOREA (REP. OF),
monoclonal anti-PPRV H antibody C77	cELISA	Provided	0	11ml	2	GREECE, KOREA (REP. OF),
other monoclonal antibody	cELISA	Provided	0	1ml	1	KOREA (REP. OF),
Purified PPRV nucleic acid (lineage 1)	PCR	Provided	0	100 µl	1	IRELAND,
Purified PPRV nucleic acid (Lineages 1,2,3, and 4)	PCR	Provided	0	100 µl each lineage	1	CHINESE TAIPEI,
PPRV Georgia/2016	PCR	Provided	0	1ml	1	CZECH REPUBLIC,
PPRV rapid test kits	diagnosis	Provided	11 kits (25 tests/kit)	2 kits (25 tests per kit)	2	GREECE, UNITED KINGDOM,

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?

No

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

No

8. Did your laboratory develop new vaccines for the designated pathogen or disease?

Yes

Name of the new vaccine developed	Description and References (Publication, website, etc)
rAdV-PPRV-H	Recombinant vaccine expressing H protein of PPRV. Shown to provide long-term protection and DIVA capability: Darpel et al. 2024. 'Long-Term Trial of Protection Provided by Adenovirus-Vectored Vaccine Expressing the PPRV H Protein'. npj Vaccines 9 (1): 1–12.

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
MONGOLIA	2024-04-25	Real-timePCR, virus isolation	0	4

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

Yes

Name of the WOAH Member Country receiving a technical consultancy	Purpose	How the advice was provided
BULGARIA	Discuss diagnostic confirmation	email and phone
GREECE	Discuss the development and use of LFD tests	email and video call
ROMANIA	Diagnostic methods and samples, maintaining ISO17025	email
CHINESE TAIPEI	Procedures for virus isolation	email
MOROCCO	WOAH reference laboratory status	email
AUSTRALIA	Discussion regarding diagnostic test selection	email

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

12. Did your laboratory participate in international scientific studies in collaboration with WOAH Members other than the own?

No

13. In exercising your activities, have you identified any regulatory research needs* relevant for WOAH?

Yes

Research need : 1

Please type the Research need: There continues to be a lack of knowledge about the peristence of infectious PPRV in meat, fomites and the environment. A lot of our decisions about the risks posed by various products from potentially infected animals are guesswork. Educated guesswork, but guesswork nonetheless

Relevance for WOAH Disease Control, Standard Setting,

Relevance for the Code or Manual Code,

Field

Animal Category Terrestrial,

Disease:

Kind of disease (Zoonosis, Transboundary diseases) Transboundary diseases,

If any, please specify relevance for Codes or Manual, chapter and title

(e.g. Terrestrial Manual Chapter 2.3.5 - Minimum requirements for aseptic production in vaccine manufacture)

Answer: Chapter 14.7. Infection with peste des petits ruminants virus

Notes:

Answer:

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:
We have updated our database of curated PPRV sequences, all of which are linked to available geographic location data, much of which is culled from publications and/or theses tracked down online. This database is made available through the WOAH PPRV Reference Laboratory Network and is updated annually.

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 datasets described in 14 are the result of significant pre-processing of available data, and are made available through the web site of the WOAH PPR Reference Laboratory Network.

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:

2

1. Herzog CM, Aklilu F, Sibhatu D, Shegu D, Belaineh R, Mohammed AA, Kidane M, Schulz C, Willett BJ, Cleaveland S, Bailey D, Peters AR, Cattadori IM, Hudson PJ, Asgedom H, Buza J, Forza MS, Chibssa TR, Gebre S, Juleff N, Bjørnstad ON, Baron MD, Kapur V. 2024. Empirical and model-based evidence for a negligible role of cattle in peste des petits ruminants virus transmission and eradication. Commun Biol 7:937.
2. Darpel KE, Corla A, Stedman A, Bellamy F, Flannery J, Rajko-Nenow P, Powers C, Wilson S, Charleston B, Baron MD, Batten C. 2024. Long-term trial of protection provided by adenovirus-vectored vaccine expressing the PPRV H protein. npj Vaccines 9:1–12.

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 WOAH 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	UKAS accreditation for Pirbright 2024.pdf	UKAS accreditation for Pirbright 2024.pdf

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
cELISA	UKAS
Real-time RT-PCR (Batten et al 2011)	UKAS
Real-time RT-PCR (Flannery et al 2019)	UKAS

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

Yes

All our management systems are built around UK legislation, some is based on WHO and WOAH, but not directly translatable as it’s

updated into UK law before it's applied. All facilities have their operational risk assessment and specific activity risk assessments where required. We have a process in place for reporting incidents relating to biorisk, including an investigation process and lessons learned. There is also an inspection and audit programme which monitors compliance with Biorisk related legislation including SAPO, COSHH (where it relates to human pathogens), and GM (contained use). We are inspected by the HSE as part of a proactive intervention plan, where parts of our biorisk management system are scrutinised and sampled to check compliance and we are also visited and inspected by the National Counter Terrorism Security Office (NaCTSO) to ensure any 'dual-use' materials are being held securely.

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?

No

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 PPR Reference Laboratory network	Participant, member of the secretariat	24	The Pirbright Laboratory, UK; CIRAD, Montpelier, France; CAHEC, Qingdao, China; ICAR-NIVEDI, Bangalore, India

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
Harmonisation of diagnostic tests for PPR	Participant	25	Organiser: CIRAD, France
Detection of antibodies to PPR virus in camel sera using ELISA	Participant	7	Organiser - WOAH Collaborating Centre for Camel diseases & WOAH Collaborating Centre for Quality Management Systems at Abu Dhabi Agriculture and Food Safety Authority (ADAFSA). CIRAD, France – Participant NIVEDI, India - participant

IAEA ILCT Diagnosis of PPRV by serological and molecular methods	Participant	60	CIRAD, France – Participant NIVEDI, India - participant

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?

No

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?

Yes

Purpose for inter-laboratory test comparisons1	Role of your reference laboratory (organizer/participant)	No. participating laboratories	Name of the test	WOAH Member Countries
Harmonisation of diagnostic test for PPR	Participant	25	PCR	AUSTRIA, BOSNIA AND HERZEGOVINA, CHINA (PEOPLE'S REP. OF), GEORGIA, INDIA, ITALY, KAZAKHSTAN, KOREA (REP. OF), KOSOVO, LATVIA, LITHUANIA, MADAGASCAR, MAURITIUS, MOROCCO, NIGERIA, PAKISTAN, SAUDI ARABIA, SENEGAL, SERBIA, SEYCHELLES, SOUTH AFRICA, TURKEY, UNITED ARAB EMIRATES, UNITED KINGDOM,
Detection of antibodies to PPR virus in camel sera by ELISA	Participant	7		BAHRAIN, ETHIOPIA, FRANCE, INDIA, JORDAN, SAUDI ARABIA, UNITED KINGDOM,

TOR12: EXPERT CONSULTANTS

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

Yes

Kind of consultancy	Location	Subject (facultative)
Participation in PPR Ad Hoc Group	Virtual	Detailed discussion of problems with Code definitions and rules

29. Additional comments regarding your report:

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Yes

Note on Q27: for the IAEA ILCT "Diagnosis of PPRV by serological and molecular methods" ring trial (listed in Q25), we do not have oversight of the full list of participating countries so cannot complete this information for Q27

There has been a novel outbreak of PPRV in Europe (Greece, Romania and Bulgaria), The laboratory at Pirbright has been asked to provide advice, however samples have not been received. All the samples from these outbreaks have been sent to the EURL (and WOAH) reference laboartory in France as directed by EU regulations.