# WOAH Reference Laboratory annual reports (RINDERPEST)

## Activities in 2024

| | |
|---|---|
| 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 |
| Email address: | michael.baron@pirbright.ac.uk |
| Address of laboratory: | The Pirbright Laboratory, Ash Road, Pirbright, Surrey GU24 ONF, U.K. |
| Website: | https://www.pirbright.ac.uk/our-science/non-vesicular-reference-laboratory |
| Telephone: | +44 (0)1483 231344 |

## A: Maintaining Scientific and Technical Skills

1. Did your laboratory perform relevant diagnostic tests for purposes such as disease diagnosis, screening of animals for export, surveillance, etc. (not for quality control, proficiency testing or staff training)

    a. For the specified disease? **NO**
    b. For closely related diseases or pathogens?**Yes, PPR (see separate report on PPR related activities)**

| Disease | Diagnostic Test | Indicated in WOAH Manual (Yes/No) | Total number of tests performed last year | |
|---|---|---|---|---|
| | | | Nationally | Internationally |
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2. Did your laboratory produce, supply, or import standard reference reagents officially recognised by WOAH for the specified disease or for closely related diseases? **No**

| Type of Reagent Available | Related diagnostic test | Produced/Supplied/Imported | Amount supplied nationally (ml, mg) | Amount supplied internationally (ml, mg) | Name of recipient WOAH Members |
|---|---|---|---|---|---|
| | | | | | |
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3. Did your laboratory supply, exchange or receive standard reference reagents or other diagnostic reagents for the specified disease **No**

| Type of reagent | Related diagnostic test | Supplied by your lab, exchanged or received | Amount | Name of recipient or supplier Member |
|---|---|---|---|---|
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4. Did your laboratory provide expert advice in technical consultancies on the request of a WOAH Member for the specified disease or for closely related diseases? **No**

| Name of the WOAH Member receiving the technical consultancy | Purpose | How the advice was provided |
|---|---|---|
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5. What method of dissemination of information is most often used by your laboratory? (please provide information on activities for other diseases relevant to maintaining capability for specified disease) [a: Articles published in peer-reviewed journals; b: International conferences; c: National conferences; d: Other]

**Information Provided here for rinderpest: for PPR, see PPR-specific report**

(a) Publications in peer-reviewed journals: none on rinderpest

(b) International Conferences: none involving rinderpest

(c) National conferences: none this year

(d) Other: none

6. Did your laboratory provide scientific and technical training to laboratory personnel from other WOAH Members?

☐ Yes ☒ No

7. Did your laboratory implement activities to ensure ongoing capability for the designated disease or closely related disease in the event of loss of the key staff including the WOAH Reference Expert?

| Activity | Description |
|---|---|
| Laboratory enquiries, QA, diagnostics | Dr Carrie Batten continues to manage lab activities related to RPV and acts as secretariat for the Rinderpest Holding Facilities network. |
| | |

## B: Laboratory Systems

8. Does your laboratory have a Quality Management System certified according to an International Standard? If YES indicate the name of the quality management system adopted or currently in place. Also attach a scanned certificate of the system.

UKAS accreditation to ISO/IEC 17025. Copy of certificate included with this report.

9. Is your laboratory accredited by an international accreditation body? If 'yes' indicate test for which your laboratory is accredited and name of the accreditation body.

**Yes.** Real-time RT-PCR for rinderpest virus is accredited to ISO/IEC 17025 by UKAS (see attached accreditation cert)

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

☒ Yes ☐ No

11. Does your laboratory have a biosecurity system in place to ensure security for the pathogen and materials that may contain the infectious pathogen?

☒ Yes ☐ No

## C: Capability to Respond to a Suspected Case

12. In the past year, did your laboratory perform diagnostic tests for the specified pathogen and the disease in order to confirm ongoing capability?**No. The laboratory capability to detect RPV is confirmed by analogy to PPRV.**

| Diagnostic Test | Indicated in WOAH Manual (Yes/No) | Total number of tests performed last year |
|---|---|---|
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13. Did your laboratory produce vaccines for the specified disease or similar diseases? **No**

| Disease | Amount supplied nationally or internationally |
|---|---|
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14. Did your laboratory organise or participate in inter-laboratory proficiency tests with any other laboratories for the specified disease or similar diseases?**Yes. for the similar disease PPR - see PPR-specific report**

| Role of your laboratory (organiser or participant) | Disease | Test | Number of participating laboratories | Regions of participating WOAH Members |
|---|---|---|---|---|
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## D: Networks and Linkages

15. Did your laboratory organise or participate in scientific meetings for the specified disease? **No relevant meetings this year**

| Title of event | Date | Location | Role (organiser, speaker, presenter) | Title of work presented |
|---|---|---|---|---|
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16. Did your laboratory exchange information with other WOAH Reference Laboratories designated for the same pathogen or disease?

☒ Yes ☐ No

17. Was your laboratory involved in maintaining a network with WOAH Reference Laboratories designated for the same pathogen or disease?

☒ Yes ☐ No

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

☒ Yes ☐ No

19. Did your laboratory carry out activities to raise awareness and improve capability for this disease in other Members? **No**

| Description of activity | Date | Member countries |
|---|---|---|
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## E: Biosafety

20. What level of biocontainment is used in your laboratory for (a) storage and (b) handling of potentially infectious material for the specified disease?

All materials are stored, and potentially infectious material would be handled, at UK SAPO4, approximately equivalent to BSL3+ or BSL3-Ag. The facilities are inspected by the UK Health and Safety Executive 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 to ensure any materials with a potential for biowarfare or bioterrorism are being held securely.

21. Does your laboratory maintain a structured risk assessment for work with potentially infectious material for the specified disease?

☒ Yes ☐ No

22. Was your laboratory's risk assessment for work with potentially infectious material reviewed in the past year?

☒ Yes ☐ No

23. Does your laboratory have an emergency response plan for biosafety incidents involving potentially infectious material for the specified disease?

☒ Yes ☐ No

## F: Research

24. Did your laboratory develop new diagnostic methods for the designated pathogen or disease, or a similar disease? **No**

| Disease | Diagnostic Method | Description |
|---|---|---|
| | | |
| | | |

25. Did your laboratory participate in international scientific studies in collaboration with WOAH Members other than your own?**No**

| Title of study | Duration | Purpose of study | Partners (Institutions) | WOAH Members Involved other than your country |
|---|---|---|---|---|
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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 or a similar pathogen? **No**

| Title of Project or Contract | Scope | Name(s) of relevant WOAH Reference Laboratories |
|---|---|---|
| | | |
| | | |

27. In exercising your activities, have you identified any regulatory research needs* relevant for WOAH? Please report them here: **MS teams form**

*Regulatory research needs = a gap in knowledge that could help in setting/updating standard(s) in the Terrestrial and Aquatic Codes and Manuals

28. Additional comments regarding your report (if any):

Note that Pirbright is also a WOAH/FAO-approved rinderpest holding facility (RHF); its status as an RHF was officially reconfirmed in September 2023. In addition to acting as a WOAH reference laboratory for RP, the institute has been designated as an FAO reference laboratory for RP.
Dr Carrie Batten has been appointed to the JAC as an expert in diagnostics, she attended the 19th meeting virtually on 26th April and a follow on , 23rd September

Dr Carrie Batten acts as the secretariat for the global RHF network and organises regular catch up meetings, every 6 months. in 2024 this was virtual in

January and October.

In June 2024, Dr Carrie Batten was awarded funding to develop a C-ELISA for the detection of RPV antibodies, the project will run for 3 years.

# Schedule of Accreditation

**issued by**

# United Kingdom Accreditation Service

2 Pine Trees, Chertsey Lane, Staines-Upon-Thames, TW18 3HR, UK

**4025**

**Accredited to ISO/IEC 17025:2017**

## The Pirbright Institute

**Issue No:** 040 **Issue date:** 07 October 2024


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**Testing performed at the above address only**

DETAIL OF ACCREDITATION

| Materials/Products tested | Type of test/Properties measured/Range of measurement | Standard specifications/ Equipment/Techniques used |
|---|---|---|
| ANIMAL TISSUES,FLUIDS and ENVIRONMENTAL | Molecular Biology Tests | |
| Chicken Organs, Feathers, House Dust | Identification of Marek's Disease Virus (vMDV, CVI988, MDV-2 and HVT) | Documented in-house operating procedures AOV-SOP-1 and AOV-SOP-3 Qiagen DNeasy blood and tissue kit manual extraction using 96- well and single column format. AOV-SOP-2 Real-time PCR using the QuantStudio™ 5 real-time PCR system |
| Tissue Epithelium, Oesophageal Washings (Probang), Serum, EDTA Whole Blood and Milk | Identification of Foot-and-Mouth Disease Virus (FMDV) and related vesicular viruses | Documented in-house standard operating procedure WRL-SOP-26 supported by RNA extraction WRL-SOP-35 using MagMAX Express 96/KingFisher Flex Extraction System, WRL-SOP-42 QuantStudio™ 5 real-time PCR system for one-step RT-PCR amplification of RNA |
| Faeces, Tissue Epithelium, Oesophageal Washings (Probang), Serum, EDTA Whole Blood and Milk | Identification of Swine Vesicular Disease Virus (SVDV) | Documented in-house operating procedure WRL-SOP-26, supported by RNA extraction WRL-SOP-35 using MagMAX Express 96 / KingFisher Flex Extraction System, WRL-SOP-42 QuantStudio™ 5 real-time PCR system for one-step RT-PCR amplification of RNA |

| Materials/Products tested | Type of test/Properties measured/Range of measurement | Standard specifications/ Equipment/Techniques used |
|---|---|---|
| ANIMAL TISSUES and FLUIDS | Serology Tests<br><br>Detection of antibodies to: | Documented in-house standard operating procedures: |
| Blood, serum, unspecified (cloven-hoofed animals) | Structural and non-structural proteins of Foot-and-Mouth Disease (FMDV) | Methods developed and validated following the Flexible Scope Procedure SAU-METH-26 by manual ELISA processing using commercial test kits |
| Blood and Serum, unspecified | Vesicular and related viruses | SAU-SOP-4 Virus neutralisation test |
| | Structural proteins of Foot-and-Mouth Disease (FMDV) | 1) SAU-SOP-5 Liquid Phase Blocking ELISA<br>2) SAU-SOP-12 PrioCHECK® FMDV type O kits<br>3) SAU-SOP-11 Solid Phase Competition ELISA<br>4) SAU-SOP-49 PrioCHECK® FMDV type A and Asia 1 kits |
| | Non-structural protein of Foot and Mouth Disease Virus (FMDV) | 1) SAU-SOP-10 (PrioCHECK® FMDV-NS) kits<br>2) SAU-SOP-51 ID Screen® FMD NSP C-ELISA |
| Blood and Serum, unspecified | Swine Vesicular Disease Virus (SVDV) | SAU-SOP-21 5B7 Monoclonal Antibody Competition ELISA |
| Serum | Detection of antibodies to species susceptible to non-vesicular viruses | Methods developed and validated following Flexible Scope procedure NVR-METH-63 by manual ELISA processing using commercial test kits |
| Serum, Plasma: Bovine, Ovine, Caprine | Capripox viruses (CaPV) | NVR-SOP-53 using Capripox IDVET Double Antigen ELISA |
| Serum, Plasma: Ruminants | Blue Tongue Virus (BTV) | NVR-SOP-52 using IDVET C-ELISA |
| Serum: Equine | African Horse Sickness Virus (AHSV) | NVR-SOP-4 using INGEZIM Compac Plus ELISA |

| Materials/Products tested | Type of test/Properties measured/Range of measurement | Standard specifications/ Equipment/Techniques used |
|---|---|---|
| ANIMAL TISSUES and FLUIDS (cont'd) | Serology Tests (cont'd) | Documented in-house standard operating procedures: |
| Serum: Porcine | African Swine Fever Virus (ASFV) | 1) NVR-SOP-28 using INGEZIM PPA Compac ELISA<br>2) NVR-SOP-60 using ID Screen® ASFV Competition ELISA |
| Serum: Bovine and Cervid | Epizootic Haemorrhagic Disease Virus (EHDV) | NVR-SOP-57 using ID Screen® EHDV ID Vet C-ELISA |
| Serum and Plasma: Ovine, Caprine | Peste des Petits Ruminants Virus (PPRV) | NVR-SOP-3 using IDVET C-ELISA |
| | Virology Tests | Documented in-house standard operating procedures: |
| Tissue, unspecified | Detection and identification of Foot and Mouth Disease Virus (FMDV) & Swine Vesicular Disease Virus (SVDV) | 1) WRL-SOP-2 Virus Isolation<br>2) WRL-SOP-6 ELISA (FMDV and SVDV antigen detection)<br>3) WRL-SOP-39 Pirbright/IZSLER monoclonal antibody ELISA for the detection of FMDV antigen |
| Porcine Blood, Spleen and Lymph Nodes – sampled for outbreak confirmation | Detection of African Swine Fever Virus (ASFV) antigen | NVR-SOP-2 using INGEZIM PPA DAS ELISA |
| Animal Blood (EDTA) | Detection of Blue Tongue Virus (BTV) African Horse Sickness Virus (AHSV) and Epizootic Haemorrhagic Disease Virus (EHDV) | NVR-SOP-11 Virus isolation |

| Materials/Products tested | Type of test/Properties measured/Range of measurement | Standard specifications/ Equipment/Techniques used |
|---|---|---|
| ANIMAL TISSUES, BLOOD (EDTA) and CELL CULTURE SUPERNATANTS | <u>Molecular Biology Tests</u><br><br>Detection of specific nucleic acids for: | Documented in-house standard operating procedures (cont'd): |
| Animal tissues and fluids including blood, serum, swabs | Species susceptible to non-vesicular viruses | Methods developed and validated following Flexible Scope procedure NVR-METH-64 using real-time PCR and robotic extraction |
| Animal Blood, Tissues and Cell Culture Supernatants | Blue Tongue Virus (BTV) | NVR-SOP-19 by one-step real-time RT-PCR supported by NVR-SOP-35 using QuantStudio™ 5 real-time PCR system (plus robotic nucleic acid extraction NVR-SOP-32 or NVR-SOP-67) |
| Animal Blood, Tissues and Cell Culture Supernatants | Blue Tongue Virus (BTV) | NVR-SOP-55 by one-step real-time RT-PCR (Maan *et al*, 2015) supported by NVR-SOP-35 using QuantStudio™ 5 real-time PCR system (plus robotic nucleic acid extraction NVR-SOP-32 or NVR-SOP-67) |
| Animal Blood, Tissues and Cell Culture Supernatants | African Horse Sickness Virus (AHSV) | NVR-SOP-19 by one-step real-time RT-PCR supported by NVR-SOP-35 using QuantStudio™ 5 real-time PCR system (plus robotic nucleic acid extraction NVR-SOP-32 ) |
| Animal Blood,Tissues and Cell Culture Supernatants | African Horse Sickness Virus (AHSV) | NVR-SOP-54 by one-step real-time RT-PCR (Guthrie *et al*, 2013) supported by NVR-SOP-35 using QuantStudio™ 5 real-time PCR system (plus robotic nucleic acid extraction NVR-SOP-32) |
| Animal Blood, Tissues and Cell Culture Supernatants | Epizootic Haemorrhagic Disease Virus (EHDV) | NVR-SOP-19 by one step real-time RT PCR supported by NVR-SOP-35 using QuantStudio™ 5 real-time PCR system (plus robotic nucleic acid extraction NVR-SOP-32 ) |

| Materials/Products tested | Type of test/Properties measured/Range of measurement | Standard specifications/ Equipment/Techniques used |
|---|---|---|
| ANIMAL TISSUES, BLOOD (EDTA) and CELL CULTURE SUPERNATANTS (cont'd) | Molecular Biology Tests (cont'd)<br><br>Detection of specific nucleic acids for: (cont'd) | Documented in-house standard operating procedures (cont'd): |
| Animal Blood, Serum, Tissues and Cell Culture Supernatants and Swabs | Peste des Petits Ruminants Virus (PPRV) | NVR-SOP-19 by one-step real-time RT-PCR supported by NVR-SOP-35 using QuantStudio™ 5 real-time PCR system (plus robotic nucleic acid extraction NVR-SOP-32) |
| Animal Blood, Serum, Tissues and Cell Culture Supernatants and Swabs | Peste des Petits Ruminants Virus (PPRV) | NVR-SOP-56 by one step real-time RT-PCR (Flannery *et al* 2019) supported by NVR-SOP-35 using QuantStudio™ 5 real-time PCR system (plus robotic nucleic acid extraction NVR-SOP-32) |
| Animal Blood, Serum, Tissues and Cell Culture Supernatants and Swabs | Rinderpest Virus (RPV) RNA | NVR-SOP-13 by one-step real-time RT-PCR supported by NVR-SOP-35 using QuantStudio™ 5 real-time PCR system (plus robotic nucleic acid extraction NVR-SOP-32) |
| Animal Blood, Serum, Tissues and Cell Culture Supernatants and PPRV PCR Swabs | African Swine Fever Virus (ASFV) | NVR-SOP-20 by real-time PCR supported by NVR-SOP-35 using QuantStudio™ 5 real-time PCR system (plus robotic nucleic acid extraction NVR-SOP-32) |
| Animal Blood, Tissues and Cell Culture Supernatants | Capripox Viruses (Lumpy skin disease virus, Sheep pox, Goat pox) | NVR-SOP-20 by real-time PCR supported by NVR-SOP-35 using QuantStudio™ 5 real-time PCR system (plus robotic nucleic acid extraction NVR-SOP-32) |
| Animal Blood, Serum, Tissues and Cell Culture Supernatants | African Swine Fever Virus (ASFV) | NVR-SOP-29 by real-time PCR (UPL) supported by NVR-SOP-35 using QuantStudio™ 5 real-time PCR system (plus robotic nucleic acid extraction NVR-SOP-32) |

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| 4025<br>Accredited to<br>ISO/IEC 17025:2017 | **Schedule of Accreditation**<br>**issued by**<br>**United Kingdom Accreditation Service**<br>2 Pine Trees, Chertsey Lane, Staines-Upon-Thames, TW18 3HR, UK |
| | **The Pirbright Institute**<br>**Issue No:** 040 **Issue date:** 07 October 2024 |
| **Testing performed at main address only** | |

| Materials/Products tested | Type of test/Properties measured/Range of measurement | Standard specifications/ Equipment/Techniques used |
|---|---|---|
| DISINFECTANTS FOR VETERINARY USE | Efficacy Testing against:<br><br>Swine Vesicular Disease Virus, Foot and Mouth Disease Virus | Documented in-house standard operating procedure:<br><br>BDTL-SOP-2 based on BS EN 14675:2015 by plaque assay |
| END | | |