WOAH Reference Laboratory Reports Activities 2023
Activities in 2023
This report has been submitted: 7 juin 2024 16:49

Laboratory Information

Name of disease (or topic) for which you are a designated WOAH Reference Laboratory: Rabies

Address of laboratory: Animal and Plant Health Agency, Woodham Lane, New Haw, Addlestone Surrey KT15 3NB Weybridge UNITED KINGDOM

Tel.: +44-208 415.22.38

E-mail address: tony.fooks@apha.gov.uk

Website: www.defra.gov.uk/apha

Name (including Title and Position) of Head of Laboratory (Responsible Official): Professor Anthony R. Fooks (PhD) Head of WOAH Reference Laboratory (Rabies) and Deputy Dr Lorraine M. McElhinney (PhD), Head of UK National Rabies Laboratory (Rabies).

Name (including Title) of WOAH Reference Expert: Professor Anthony Fooks (PhD) WOAH Reference Expert (Rabies)

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

<table>
<thead>
<tr>
<th>Diagnostic Test</th>
<th>Indicated in WOAH Manual (Yes/No)</th>
<th>Total number of test performed last year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indirect diagnostic tests</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FAVN</td>
<td>Yes</td>
<td>Nationally 1702</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Internationally 13303</td>
</tr>
<tr>
<td>Direct diagnostic tests</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FAT (dFA)</td>
<td></td>
<td>Nationally 541</td>
</tr>
<tr>
<td>RTCIT</td>
<td></td>
<td>Internationally 1</td>
</tr>
<tr>
<td>Real time Taqman / SYBR RT-PCR</td>
<td></td>
<td>Nationally 1619</td>
</tr>
<tr>
<td>Reverse-transcriptase Polymerase Chain</td>
<td></td>
<td>Internationally 3</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>TYPE OF REAGENT AVAILABLE</th>
<th>RELATED DIAGNOSTIC TEST</th>
<th>PRODUCED/ PROVIDE</th>
<th>AMOUNT SUPPLIED NATIONALLY (ML, MG)</th>
<th>AMOUNT SUPPLIED INTERNATIONALLY (ML, MG)</th>
<th>NO. OF RECIPIENT WOAH MEMBER COUNTRIES</th>
<th>COUNTRY OF RECIPIENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Archived samples of historic WOAH rabies antibody reference</td>
<td>FAVN / RTCIT</td>
<td>Provided</td>
<td>0</td>
<td>(5 x 220µl)</td>
<td>1</td>
<td>UNITED STATES OF AMERICA,</td>
</tr>
</tbody>
</table>
4. Did your laboratory produce vaccines?
No

5. Did your laboratory supply vaccines to WOAH 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 WOAH 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 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

<table>
<thead>
<tr>
<th>NAME OF WOAH MEMBER COUNTRY SEEKING ASSISTANCE</th>
<th>DATE</th>
<th>WHICH DIAGNOSTIC TEST USED</th>
<th>NO. SAMPLES RECEIVED FOR PROVISION OF DIAGNOSTIC SUPPORT</th>
<th>NO. SAMPLES RECEIVED FOR PROVISION OF CONFIRMATORY DIAGNOSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPAIN</td>
<td>2023-03-06</td>
<td>39 (FAVN mouse), vaccine study</td>
<td>39</td>
<td>0</td>
</tr>
<tr>
<td>ETHIOPIA</td>
<td>2023-04-19</td>
<td>8 (PCR wolf samples)</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>FRANCE</td>
<td>2023-04-13</td>
<td>44 (FAVN human)</td>
<td>44</td>
<td>0</td>
</tr>
<tr>
<td>SPAIN</td>
<td>2023-04-25</td>
<td>30 (FAVN dog), vaccine study</td>
<td>30</td>
<td>0</td>
</tr>
<tr>
<td>FRANCE</td>
<td>2023-12-04</td>
<td>44 (FAVN human)</td>
<td>44</td>
<td>0</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>NAME OF THE WOAH MEMBER COUNTRY RECEIVING A TECHNICAL CONSULTANCY</th>
<th>PURPOSE</th>
<th>HOW THE ADVICE WAS PROVIDED</th>
</tr>
</thead>
<tbody>
<tr>
<td>GHANA</td>
<td>In-country technical assistance, as part of a UK Official Development Assistance Funded Animal Health Systems Strengthening Project.</td>
<td>Technical assistance.</td>
</tr>
<tr>
<td>SIERRA LEONE</td>
<td>In-country technical assistance for the implementation / completion phases as part of a WOAH-funded Twinning Project.</td>
<td>Practical experience, advice and training in FAT and PCR techniques for rabies.</td>
</tr>
<tr>
<td>SOUTH AFRICA</td>
<td>Advice and support in rabies serology, focussing on ELISA.</td>
<td>Practical experience and training using commercially available ELISA kits.</td>
</tr>
<tr>
<td>GEORGIA</td>
<td>Advice and support using the rabies antigen detection (FAT) technique.</td>
<td>Discussions on and troubleshooting problems using the FAT.</td>
</tr>
</tbody>
</table>

**TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES**

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

<table>
<thead>
<tr>
<th>Title of the study</th>
<th>Duration</th>
<th>PURPOSE OF THE STUDY</th>
<th>PARTNERS (INSTITUTIONS)</th>
<th>WOAH MEMBER COUNTRIES INVOLVED OTHER THAN YOUR</th>
</tr>
</thead>
</table>
13. In exercising your activities, have you identified any regulatory research needs* relevant for WOAH?
No

**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:**

APHA Test data (suspect animals, death in quarantine, illegal imports), including positive cases, is reported to UK Government (veterinary & public health departments) and subsequently reported to WHO (Rabies Bulletin Europe quarterly reports, Annual Zoonosis Reports), EFSA (annual reports), WOAH (case/incident reports) and EU (via EURL). Data is also published in assessment reports, Science Blogs, peer reviewed journals and at national and international conferences.

Bat submission and test data reported via a publicly accessible Dashboard Bat Rabies Dashboard | Tableau Public

Companion animal import data and rabies serology test results collated and communicated, where appropriate.

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:**

All published articles available on request.

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:

7


b) International conferences:

1. Pan-African Rabies Conference (PARACON), Accra, Ghana [Mar 2023]
2. 9th European Meeting on Viral Zoonosis, St. Raphael, France [Sept 2023]
3. Rabies in the Americas (RITA), Bogota, Columbia [Oct 2023]
4. United Against Rabies Forum Stakeholder Meeting, Rome, Italy [Nov 2023]

c) National conferences:

1. Association of Veterinary Teaching and Research Workers (AVTRW), Edinburgh, Scotland, UK [Sept 2023]
2. National Bat Conference, Nottingham, UK [Sept 2023]

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

1. EU-funded H2020 'European Virus Archive Global' [EVA-GLOBAL; https://www.european-virus-archive.com]

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

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

Yes

a) Technical visit: 4

b) Seminars: 1

c) Hands-on training courses: 1

d) Internships (>1 month): 0

<table>
<thead>
<tr>
<th>Type of technical training provided (a, b, c or d)</th>
<th>Country of origin of the expert(s) provided with training</th>
<th>No. participants from the corresponding country</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>SIERRA LEONE</td>
<td>4</td>
</tr>
<tr>
<td>A</td>
<td>SIERRA LEONE</td>
<td>9</td>
</tr>
<tr>
<td>A</td>
<td>SIERRA LEONE</td>
<td>8</td>
</tr>
<tr>
<td>A</td>
<td>SIERRA LEONE</td>
<td>8</td>
</tr>
<tr>
<td>C</td>
<td>SOUTH AFRICA</td>
<td>1</td>
</tr>
<tr>
<td>B</td>
<td>GEORGIA</td>
<td>2</td>
</tr>
</tbody>
</table>

TOR8: QUALITY ASSURANCE
18. Does your laboratory have a Quality Management System?
Yes
- Quality management system adopted: UKAS accredited to BS EN ISO 17025:2005
- Certificate scan: 1769Testing Multiple (ukas.com) - APHA_1769Testing-Multiple_UKAS.pdf

19. Is your quality management system accredited?
Yes
- Test for which your laboratory is accredited: 
  - Fluorescent antibody virus neutralisation test (FAVN)
  - Fluorescent antibody test (FAT)
  - Taqman real-time RT-PCR (Real time RT-PCR)
  - SYBR real-time RT-PCR
  - Conventional reverse-transcriptase PCR (RT-PCR)
  - Rabies tissue culture isolation test (RTCIT)
  - Detection of Rabies Virus Antigen by H&E and IHC
- Accreditation body: UKAS (ISO17025:2005)

20. Does your laboratory maintain a “biorisk management system” for the pathogen and the disease concerned?
Yes
- APHA maintains a complete and functioning laboratory biological risk management system, which ensures that the laboratory is in compliance with applicable local, national (UK Health and Safety Executive), regional, and international standards and requirements for biosafety and laboratory biosecurity. Rabies is notifiable in the UK Rabies: how to spot and report the disease in animals - GOV.UK (www.gov.uk) Lyssaviruses are handled at the highest level of animal pathogen biosecurity SAP04 / Schedule 5 The Approved List of biological agents: Advisory Committee on Dangerous Pathogens (hse.gov.uk)

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?
Yes
- **Title of event**: Pan-African Rabies Conference (PARACON)
  - **Date**: 2023-03-10
  - **Location**: Ghana
  - **Role (speaker, presenting poster, short communications)**: Delegate
  - **Title of the work presented**: Not applicable.
- **Title of event**: National Institute of Animal Biotechnology (NIAB) One Health & Zoonoses Meeting.
  - **Date**: 2023-03-27
  - **Location**: India
  - **Role (speaker, presenting poster, short communications)**: Speaker
  - **Title of the work presented**: Role of APHA’s International Reference Laboratories.
- **Title of event**: United Against Rabies Forum Stakeholder Meeting.
  - **Date**: 2023-11-06
  - **Location**: Italy
  - **Role (speaker, presenting poster, short communications)**: Speaker
  - **Title of the work presented**: United Against Rabies / WOAH Country Partnership Programme.

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**: RABLAB / Rabies
  - **ROLE OF YOUR LABORATORY (PARTICIPANT, ORGANISER, ETC)**: Participant
  - **NO. PARTICIPANTS**: 12
  - **PARTICIPATING WOAH REF. LABS**: FLI (Germany), CDC (USA), ANSES (France), CFIA (Canada), OVI (South Africa), KVI (Israel), APQA (Republic of South Korea), SENASICA (Mexico), CVRI (China), IDAH (Romania), KIFAHSV-CVA (India).
25. Did you organise or participate in inter-laboratory proficiency tests with WOAH Reference Laboratories designated for the same pathogen?

Yes

<table>
<thead>
<tr>
<th>PURPOSE OF THE PROFICIENCY TESTS</th>
<th>ROLE OF YOUR REFERENCE LABORATORY</th>
<th>NO. PARTICIPANTS</th>
<th>PARTICIPATING WOAH REF. LABS/ ORGANISING WOAH REF. LAB.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VETQAS International rabies serology proficiency scheme (FAVN, RFFIT, ELISA) (every 6 months)</td>
<td>APHA Laboratory Participant / APHA Quality Assurance Unit (Independent VETQAS organiser)</td>
<td>Confidential</td>
<td>Confidential</td>
</tr>
<tr>
<td>VETQAS International rabies PCR proficiency scheme (every 6 months)</td>
<td>APHA Laboratory independent Provision of consultancy APHA Quality Assurance Unit VETQAS (organiser)</td>
<td>Confidential</td>
<td>Confidential</td>
</tr>
<tr>
<td>Rabies diagnostic (FAT, PCR) proficiency testing</td>
<td>Participant</td>
<td>Confidential</td>
<td>Organised by the WOAH Reference Laboratory at the Friedrich-Loeffler-Institute, Germany.</td>
</tr>
</tbody>
</table>

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?

Yes

<table>
<thead>
<tr>
<th>TITLE OF THE PROJECT OR CONTRACT</th>
<th>SCOPE</th>
<th>NAME(S) OF RELEVANT WOAH REFERENCE LABORATORIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developments in Rabies Vaccines.</td>
<td>A review of the development of rabies vaccines from Pasteur to the modern era. These vaccines, though, faced numerous challenges; these pioneering works have formed the cornerstone for the generation of the current successful vaccines to prevent rabies.</td>
<td>KVAFSU-CVA (India)</td>
</tr>
<tr>
<td>Incursion of EBLV-1 to the UK.</td>
<td>To use whole genome sequencing data to ascertain when EBLV-1 entered the UK and to compare the isolate against other Western European EBLV-1 sequences.</td>
<td>ANSES (France)</td>
</tr>
</tbody>
</table>

**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?

Yes

<table>
<thead>
<tr>
<th>Purpose for inter-laboratory test comparisons</th>
<th>Role of your reference laboratory (organizer/participant)</th>
<th>No. participating laboratories</th>
<th>Name of the Test</th>
<th>WOAH Member Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rabies serology proficiency testing. Organised by Kansas State University Rabies Laboratory.</td>
<td>Participant</td>
<td>1</td>
<td>FAVN</td>
<td>UNITED KINGDOM, UNITED STATES OF AMERICA,</td>
</tr>
<tr>
<td>Rabies (from canine specimens) PCR proficiency scheme. Organised by VETQAS, UK.</td>
<td>Organiser and participant.</td>
<td>3</td>
<td>PCR</td>
<td>SIERRA LEONE, UNITED KINGDOM, UNITED STATES OF AMERICA,</td>
</tr>
</tbody>
</table>

**TOR12: EXPERT CONSULTANTS**

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

Yes

<table>
<thead>
<tr>
<th>KIND OF CONSULTANCY</th>
<th>Location</th>
<th>SUBJECT (FACULTATIVE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical assistance.</td>
<td>Virtual</td>
<td>Participation in the WOAH Rabies Laboratories Network (RABLAB).</td>
</tr>
<tr>
<td>Technical assistance.</td>
<td>Virtual</td>
<td>Participation in the WOAH / WHO / FAO Collaborating</td>
</tr>
<tr>
<td>Twinning questionnaire &amp; interview (following a request from WOAH HQ, Paris, France).</td>
<td>Virtual &amp; in person</td>
<td>Knowledge sharing in lessons learned from three WOAH-funded twinning projects for rabies.</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>---------------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Review of the National Rabies Plan in Eritrea (following a request from WOAH Sub-Regional Representation for Eastern Africa).</td>
<td>Virtual &amp; in person</td>
<td>Review of the NRP for Eritrea.</td>
</tr>
<tr>
<td>Technical assistance and planning (following a request from the United Against Rabies / WOAH HQ, Paris, France).</td>
<td>Virtual</td>
<td>Technical assistance for the Country Partnership Programme for Rabies between the following countries: India / Nepal China / Indonesia Republic of South Africa / Malawi</td>
</tr>
</tbody>
</table>

29. Additional comments regarding your report: