World Organisation for Animal Health

Carrie Batten - - UNITED_KINGDOM

WOAH Reference Laboratory Reports Activities 2024

This report has been submitted: 30 janvier 2025 17:39

LABORATORY INFORMATION

***Name of disease (or topic) for which you are a designated WOAH Reference Laboratory:**	Bluetongue
***Address of laboratory:**	The Pirbright Institute, Ash Road, Woking, GU24 0NF
***Tel:**	+44-1483 23 24 41
***E-mail address:**	carrie.batten@pirbright.ac.uk
Website:	https://www.pirbright.ac.uk/
***Name (including Title) of Head of Laboratory (Responsible Official):**	Prof Bryan Charleston, Institute Director
***Name (including Title and Position) of WOAH Reference Expert:**	Dr Carrie Batten, Head of Non Vesicular Reference laboratories
***Which of the following defines your laboratory? Check all that apply:**	Research Institute

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
EKISA	Yes	4981	569
SNT	Yes	1	0
Direct diagnostic tests		Nationally	Internationally
Virus Isolation	Yes	1	0
Real-Time RT-PCR (Hofmann et			

al 2008)	Yes	78653	572
Real-Time RT-PCR (Maan et al 2015)	Yes	32	552
Real-Time RT-PCR Serotyping assays	Yes	588	16
Real-Time RT-PCR (Maan et al 2016)	Yes	538	554

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
BTV-12 nucleic acid	real-time RT-PCR	Provide	0	100ul	1	IRELAND,
BTV-3 sheep serum	ELISA	Provide	500ul	2ml	2	IRELAND, UNITED KINGDOM,
BTV-3 EDTA bloods	real-time RT-PCR	Provide	10 x 500ul	0	1	UNITED KINGDOM,
BTV-4 EDTA blood	real-time RT-PCR	Provide	45ml	0	1	UNITED KINGDOM,
BTV-8 sheep serum	ELISA	Provide	0	2ml	1	IRELAND,
BTV-3 nucleic acid	real-time RT-PCR	Provide	0	200ul	1	IRELAND,
BTV-8 nucleic acid	real-time RT-PCR	Provide	0	200ul	1	IRELAND,
EHDV-8 nucleic acid	real-time RT-PCR	Provide	0	100ul	1	IRELAND,
Bluetongue virus -4,8,9 and 16	various	Provide	0	1 ml of each	1	TURKEY,

4. Did your laboratory produce vaccines?

Not applicable

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?

No

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
AUSTRALIA	Discuss future collaborations	Face to face and email
ISRAEL	options for serotyping	email
BRAZIL	Advice regarding NGS methods	email
CZECH REPUBLIC	Discuss scientific visitor for training in sequencing - planned for 2025	email
THE NETHERLANDS	Supply of BTV-12 sequences to support analysis of novel strain	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?

Yes

Title of the study	Duration	Purpose of the study	Partners (Institutions)	WOAH Member Countries involved other than your country
Assessing the seroprevalence of Bluetongue and Epizootic Haemorrhagic Disease in Nigeria	3 months	Seroprevalence studies 768 samples for BTV PCR and serology 713 samples for EHDV PCR and serology	National veterinary research institute	NIGERIA

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 is the need to understand the risk related to the shedding of BTV in semen. In order to do this semen as a matrix for nucleic acid extraction needs to be validated and the sensitivity and specificity of the BTV pan real

time RT-PCR assays needs to be determined. If BTV can be detected in semen with real time RT-PCR , consideration should be given to updating the WOAH code which currently promotes the testing of the "donor " animal to ensure germplasm is free from BTV. In truth we do not know how frequently BTV is shed into semen, nor do we know to what titres. There is very little published. (Note: the same can be said for EHDV)

Relevance for WOAH Disease Control, Standard Setting,

Relevance for the Code or Manual Code, Manual,

Field Epidemiology and Surveillance, Diagnostics,

Animal Category Terrestrial,

Disease:

Bluetongue
Epizootic haemorrhagic 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 3 .1.3. BLUETONGUE (INFECTION WITH BLUETONGUE VIRUS), CHAPTER 3 .1.3. BLUETONGUE (INFECTION WITH BLUETONGUE VIRUS)

Notes:

Answer: This has been repeatedly discussed throughout 2024 in relation to the BTV-3 outbreak. Disease control measures regarding entire males and pregnant females need risk assessment based on evidence. Semen usually exported for trade is being destroyed when a donor tests positive by real-time RT-PCR, however we do not fully understand how often BTV is shed into semen as we do not test the semen directly.

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:
BTV-3 and BTV-12 full genome sequences are being prepared for submission to GenBank to enable more details epidemiological tracing using molecular methods.

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:
BTV-3 UK sequences and BTV-12 historical sequences have been shared with colleagues across Europe and are being prepared for submission to GenBank

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:

1
Kerry Newbrook, Emmanuel Obishakin, Laura A. Jones, Ryan Waters, Martin Ashby, Carrie Batten, Christopher Sanders. Clinical disease in British sheep infected with an emerging strain of bluetongue virus serotype 3. Vet record http://doi.org/10.1002/vetr.4910

b) International conferences:

1
European Society for Vector Ecology Conference 14th-17th October, Montpellier France.
L. Jones. Temperature and humidity limits for flight activity and survival of field-collected Culicoides in the UK.
C. Sanders. Infection dynamics and impact of blood feeding on the susceptibility of Culicoides biting midges to bluetongue virus (BTV).

c) National conferences:

1
Newbrook, K. "Clinical disease, infection and immune response kinetics and the potential for onwards Culicoides vector transmission of a newly emerged European strain of bluetongue virus serotype 3 in UK sheep and cattle." Vector-Borne Diseases Biennial Conference, Liverpool, UK (3rd December 2024)

Loundras, EA. "Update on Bluetongue virus in the UK." Goat Veterinary Society Summer Conference (26th and 27th June 2024)

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

3
Batten, C (Ed.) 2024, Epizootic Hemorrhagic Disease Virus: Methods and Protocols. Humana New York, NY. Available from Springer Protocols: https://link.springer.com/book/10.1007/978-1-0716-4035-7

BTV symposium - 5th November, Lyon, France

BTV workshop - 22nd and 23rd May, Woking, UK - organised by Carrie Batten, Pirbright

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

Carrie Batten - - UNITED_KINGDOM

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)	
ISO/IEC 17025	UKAS 2024 Cert	UKAS accreditation for Pirbright 2024.pdf

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Real-time RT-PCR (Hofmann et al, 2008)	UKAS
Real-time RT-PCR (Maan et al, 2015)	UKAS
C-ELISA	UKAS
Virus isolation for BTV and EHDV	UKAS
Real-time RT-PCR for EHDV (Maan et al, 2016)	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?

No

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			Organiser - Spain Participant -

tests	Participant	47	Italy Participant - South Africa

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 tests	Participant	47	ELISA Real-time RT-PCR SNT	AUSTRIA, BELGIUM, BRAZIL, BULGARIA, CANADA, CROATIA, CYPRUS, CZECH REPUBLIC, DENMARK, ESTONIA, FINLAND, FRANCE, GERMANY, GREECE, HUNGARY, IRELAND, ITALY, KOSOVO, LATVIA, LITHUANIA, LUXEMBOURG, MALTA, MEXICO, MONTENEGRO, MOROCCO, NORWAY, POLAND, PORTUGAL, ROMANIA, SAUDI ARABIA, SERBIA, SLOVAKIA, SLOVENIA, SOUTH AFRICA, SPAIN, SWEDEN, SWITZERLAND, THAILAND, THE NETHERLANDS, TUNISIA, TURKEY, UNITED ARAB EMIRATES, UNITED KINGDOM,

TOR12: EXPERT CONSULTANTS

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

No

29. Additional comments regarding your report:

Yes

There is no official BTV reference laboratory network, however Dr Carrie Batten organised a meeting with the other three BTV experts (France, Italy and South Africa) to discuss the risk of BTV in germplasm and if there is a need to validate PCR tests for use on semen.

Additionally Dr Carrie Batten hosted a 2 day workshop for the European national ref labs to come together to discuss the emerging BTV-3 and EHDV-8 situation.

Carrie Batten - - UNITED_KINGDOM

The reference laboratory has considerable expertise in EHDV and has been running EHDV tests for the UK competent authority as a form of differential diagnosis in high risk areas.

As part of a internally funded, collaborative project, PCR and serology samples have been tested from Nigeria, these results are being shared and should result in a publication next year. Note these numbers are not included in TOR4 as they were not submitted for diagnosis.

Dr Batten has been reviewing GB risk assessments for trade.

The Pirbright has active orbivirus and entomological research groups, who regularly publish in high impact journals, this information is directly relevant to aspects of BTV disease control.

We continue to make our large collection of orbiviruses and related reagents available on request.

For question 27 some countries had more than one laboratory participate.