

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:	Newcastle disease		
*Address of laboratory:	APHA, Woodham Lane, Weybridge		
*Tel:	+441483232441		
*E-mail address:	ashley.banyard@apha.gov.uk		
Website:	https://science.vla.gov.uk/fluglobalnet/index.html		
*Name (including Title) of Head of Laboratory (Responsible Official):	Prof Ashley C. Banyard		
*Name (including Title and Position) of WOAH Reference Expert:	Prof Ashley C. Banyard		
*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)

	Diagnostic	Te

Yes

Diagnostic Test	Indicated in WOAH Manual (Yes/No)	Total number of test performed last year	
Indirect diagnostic tests		Nationally	Internationally
н	Yes	987	0



Direct diagnostic tests		Nationally	Internationally
Real-time RT-PCR L gene	Yes	5649	631
Real-time PCR RT-PCR for pathotyping	No	0	0
NDV genetic analysis by Sanger sequencing	Yes	0	0
Next Generation Sequencing - ONT	No	0	7
ICPI	Yes	0	0
Egg inoculation/HA	Yes	9	5
Next Generation Sequencing - Illumina	Yes	0	0

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
Antisera	HI	Provide	5ml	44.5ml	6	GERMANY, HONG KONG, PHILIPPINES, SIERRA LEONE, SWEDEN,
Antigen	н	Provide	17ml	60ml	5	GERMANY, HONG KONG, PHILIPPINES, SIERRA LEONE,

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?

Yes

Name of the new test or diagnostic method developed	Description and References (Publication, website, etc.)
	Development has continued for F-gene sequencing using 3rd
	and Data ante Alethicities 2024



Continual fitness for purpose testing for MGBII L-gene Real-Time RT-PCR assay on samples submitted for statutory testing for APMV-1	generation Oxford Nanopore Technologies (ONT) methods. Whole genome sequencing techniques have also been advanced on ONT and are being applied to historic samples from the NDV repository. Formalized SOPs will be used to provide training materials in future workshop development.
Validation of a reduction in time for ND virus isolation using specific pathogen-free embryonated chickens' eggs	The international gold standard for Newcastle disease virus (NDV) diagnosis is virus isolation (VI) in specific pathogen-free embryonated chickens' eggs (ECEs). NDV isolation typically involves a 6-day turnaround during which premises under suspicion for notifiable NDV infection are held under restriction, regardless of molecular diagnoses, often with significant welfare implications. A reduction in time for negation of PCR negative premises by VI was investigated following experimental inoculation of NDV into ECEs. Data regarding negation of premises under suspicion for NDV is currently being gathered to support our developments in this area for AIV that have recently been published. (Validation of a reduction in time for avian influenza virus isolation using specific pathogen-free embryonated chicken eggs - PMC).

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?

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
OMAN	2024-09-23	Real-time RT-PCR L gene	0	35
SEYCHELLES	2024-12-06	Real-time RT-PCR L gene	1030	0
FALKLAND (ISLANDS)	2024-10-22	Real-time RT-PCR L gene	13	0
FALKLAND (ISLANDS)	2024-11-26	Real-time RT-PCR L gene	10	0

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
ARGENTINA BANGLADESH BENIN BOTSWANA BRAZIL CAMBODIA CHILE COLOMBIA COSTA RICA CROATIA CUBA		



DOMINICAN (REP.) ECUADOR EGYPT EL SALVADOR ETHIOPIA GEORGIA GERMANY GHANA GUATEMALA HONDURAS IRELAND ISRAEL LIBERIA NICARAGUA NIGERIA PANAMA PARAGUAY PERU SIERRA LEONE SOUTH AFRICA SPAIN THAILAND TURKEY UKRAINE URUGUAY ZAMBIA	PT Scheme Participant	Email, Reagents
BANGLADESH NEPAL OMAN	Diagnostic Testing/Research	Email
SEYCHELLES	Diagnostic Testing/Research	Email, Online Meeting
INDONESIA	Offer of linkage	Email, Online Meeting
MALI	Offer of linkage	Email
OMAN TAJIKISTAN	Twinning project	Email, In person training
PAKISTAN	Research	Email
SIERRA LEONE	Exchange of material	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
Title of the study UK Ministry of Defence (MOD) Biothreat reduction programme (BTRP)	2022-2026	Establishing a West African network for laboratory capability in avian influenza and Newcastle disease virus: Developing capability and capacity to define disease burden.	APHA, various laboratories across West Africa	GHANA GUINEA LIBERIA MALI SIERRA LEONE
Development of a Central Asian hub for AI and NDV	2020-2024	Organization of a workshop and technical support to Tajikistan – evaluating the current burden of avian influenza and Newcastle disease virus across Central Asia.	Ministry of Defence	TAJIKISTAN

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:



Collection and characterisation of a range of AMPV samples including meta data internationally (e.g. Bangladesh) to provide an epidemiological picture and analysis of viral diversity in key, underreported regions.

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:

An analysis of the epidemiological data collected internationally was disseminated through peer-reviewed publications detailing the evolution of AMPV and epidemiological picture with relation to the global situation.

Shabbir, Muhammad Zubair, et al. "Genomic Diversity and Evolutionary Insights of Avian Paramyxovirus-1 in Avian Populations in
Pakistan." Viruses 16.9 (2024): 1414.

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

Muhammad Zubair Shabbir, Sahar Mahmood, Aziz UI-Rahman, Ashley C. Banyard, and Craig S. Ross. "Genomic Diversity and Evolutionary Insights of Avian Paramyxovirus-1 in Avian Populations in Pakistan." Viruses, Volume 16, Issue 9 (2024): https://doi.org/10.3390/v16091414

b) International conferences:

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Dr Joe James: "International work on Animal Influenza and Newcastle Disease", Ghana AIV/NDV Sequencing workshop, 13.05.2024

Prof Ashley C. Banyard: "Introducing the IRL and AIM programme", OFFLU Technical reporting meeting, FAO, 02.07.2024-04.07.2024

Prof Ashley C. Banyard: "Production of SRMs for PCR according to international standards", Regional training course on the production of secondary reference materials, SENACSA, 05.08.2024

Prof Ashley C. Banyard: "The use of proficiency panels and the role of the international reference laboratory for avian influenza, swine influenza and Newcastle disease", Regional training course on the production of secondary reference materials, SENACSA, 06.08.2024

Prof Ashley C. Banyard: "The use of proficiency panels and an introduction to quality management systems", Regional training course on the production of secondary reference materials, SENACSA, 06.08.2024

c) National conferences:



Prof Ashley C. Banyard: "Animal Influenza and Newcastle Disease at APHA", Visit of the Chinese Academy of Sciences, 23.05.2024

Dr Joe James: "Animal Influenza and Newcastle Disease at APHA", UK:Ukraine animal diseases event, 25.04.2024

Prof Ashley C. Banyard: "Overview of the Influenza and Avian Influenza workgroup", Defra senior management meeting, 10.08.2024

Prof Ashley C. Banyard: "Utility of WGS approaches in Notifiable Avian Disease (NAD) outbreak response", Whole genome sequencing science and policy day, 27.11.2024

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

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Prof Ashley C. Banyard: "Oman WOAH training mission Feb 2024 observations and recommendations", 27.02.2024

Prof Ashley C. Banyard: "One Health and Influenza viruses: the continuing challenge of veterinary viruses to public health", St George's Medical school, 24.03.2024

Prof Ashley C. Banyard: "Avian and swine influenza viruses: Emergence and zoonotic risk", University of Sussex, 26.04.2024

Prof Ashley C. Banyard: "Avian Influenza Outbreak response: What happens at the National Reference Laboratory for Avian Influenza and Newcastle disease in Weybridge", 01.08.2024

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 : 0

b) Seminars : 0

c) Hands-on training courses: 37

d) Internships (>1 month) 0

Type of technical training provided (a, b, c or d)	Country of origin of the expert(s) provided with training	No. participants from the corresponding country
С	GHANA	12
С	OMAN	4
С	PARAGUAY	5
С	BRAZIL	2
С	ARGENTINA	1
С	CHILE	1
С	CUBA	1
	ECUADOR	



С		1
C	COLOMBIA	1
C	COSTA RICA	1
C	DOMINICAN (REP.)	1
C	EL SALVADOR	1
С	GUATEMALA	1
C	HONDURAS	1
C	NICARAGUA	1
C	PANAMA	1
C	PERU	1
С	URUGUAY	1

TOR8: QUALITY ASSURANCE

18. Does your laboratory have a Quality Management System?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)	
ISO 17025	ISO17025 Certificate.pdf	ISO17025 Certificate.pdf
ISO 9001	Certificate UK013916 - ISO 9001.pdf	ANIMAL PLANT HEALTH AGENCY - Certificate UK013916 - ISO 9001 - exp. 25-07- 2026.pdf

19. Is your quality management system accredited?

Yes Test for which your laboratory is accredited Accreditation body UKAS Haemagglutination inhibition test UKAS L-gene real-time PCR UKAS Newcastle disease virus nucleotide sequencing (Sanger) ICPI UKAS Virus isolation in tissue culture for APMV-1 UKAS UKAS Virus isolation in SPF eggs (via allantoic cavity) Antibody typing of ND isolates UKAS UKAS Next Generation Sequencing

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.

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	Date	location	Role (speaker, presenting poster, short communications)	Title of the work presented
WOAH Centenary event at APHA	2024-04-28	UK	Speaker	Celebrating the UKs international collaborations on animal health and welfare: Newcastle Disease Virus"

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
EURL Proficiency test	Participant	83	Instituto Zooprofilattico Sperimentale delle Venezie, Italy
OFFLU Proficiency test programme	Participant	11	CSIRO Australian Centre for Disease Preparedness, Australia
Proficiency Test Exercise: Conventional Panel	Organiser	16	Reference Laboratory for Veterinary Quality Control on Poultry Production, Egypt
Proficiency Test Exercise: Molecular Panel	Organiser	39	Reference Laboratory for Veterinary Quality Control on Poultry Production, Egypt Laboratório Federal de Defesa Agropecuária em Sao Paulo – LFDA-SP, Brazil



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
Proficiency Test Exercise: Molecular Panel	Organiser	39	RT-PCR	ARGENTINA, BANGLADESH, BENIN, BOTSWANA, BRAZIL, CAMBODIA, CHILE, COLOMBIA, COSTA RICA, CROATIA, DOMINICAN (REP.), ECUADOR, EGYPT, EL SALVADOR, GEORGIA, GERMANY, GHANA, GUATEMALA, HONDURAS, IRELAND, ISRAEL, NICARAGUA, NIGERIA, PANAMA, PARAGUAY, PERU, SOUTH AFRICA, SPAIN, TURKEY, UKRAINE, URUGUAY, ZAMBIA,
Proficiency Test Exercise: Conventional Panel	Organiser	16	HAIT	BANGLADESH, BOTSWANA, CROATIA, EGYPT, GERMANY, GHANA, ISRAEL, NIGERIA, SOUTH AFRICA, SPAIN, TURKEY,

TOR12: EXPERT CONSULTANTS

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

No

29. Additional comments regarding your report:

No