

WOAH Reference Laboratory Reports Activities 2023

Activities in 2023

This report has been submitted : 14 juin 2024 16:12

Laboratory Information

Name of disease (or topic) for which you are a designated WOA Reference Laboratory:	Newcastle disease
Address of laboratory:	WOAH Reference Laboratory for Newcastle disease, Istituto Zooprofilattico Sperimentale delle Venezie (IZSve) Viale dell'Università 10 – 35020 Legnaro (PD) - Italy
Tel.:	+39-049 808 4381
E-mail address:	imonne@izsvenezie.it
Website:	www.izsvenezie.it
Name (including Title) of Head of Laboratory (Responsible Official):	Calogero Terregino, Director of the Research and Development Department, Director of the Specialized Virology and Experimental Research, Acting Director of the Virology Department (IZSve)
Name (including Title and Position) of WOA Reference Expert:	Isabella Monne, DVM PhD, Head of the Viral genomics and transcriptomics Laboratory, Division of Research and Innovation
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

Diagnostic Test	Indicated in WOA Manual (Yes/No)	Total number of test performed last year	
		Nationally	Internationally
Indirect diagnostic tests			
Haemoagglutination inhibition (HI)		425	1
ELISA		22	0
Direct diagnostic tests			
Isolation		5	1
RRT/RT-PCR		506	139
Sequencing (cleavage site)		131	29
ICPI - Intracerebral Pathogenicity Index		1	1
WGS - Whole Genome Sequencing		0	1

TOR2: REFERENCE MATERIAL

2. Did your laboratory produce or supply imported standard reference reagents officially recognised by WOA?

No

3. Did your laboratory supply standard reference reagents (nonWOAH-approved) and/or other diagnostic reagents to WOA Members?

Yes

TYPE OF REAGENT	RELATED DIAGNOSTIC	PRODUCED/ PROVIDE	AMOUNT SUPPLIED	AMOUNT SUPPLIED INTERNATIONALLY	NO. OF RECIPIENT WOA MEMBER	COUNTRY OF
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AVAILABLE	TEST		NATIONALLY (ML, MG)	(ML, MG)	COUNTRIES	RECIPIENTS
Control positive antigens	HI serological test	972/185 ml	38 ml	147 ml	16	ALGERIA, AUSTRIA, CYPRUS, FINLAND, GREECE, ITALY, JORDAN, KOSOVO, NORTH MACEDONIA (REP. OF), POLAND, PORTUGAL, ROMANIA, SERBIA, SPAIN, SWEDEN, TURKEY,
Control positive sera	HI/AGID serological test	500/204 ml	96 ml	108 ml	17	ALGERIA, AUSTRIA, CYPRUS, ECUADOR, FINLAND, GREECE, ITALY, JORDAN, KOSOVO, PORTUGAL, ROMANIA, SERBIA, SPAIN, SWEDEN, THAILAND, TURKEY, UKRAINE,
Control negative serum	HI serological test	2060/322 ml	33 ml	289 ml	14	ALGERIA, FINLAND, GREECE, ITALY, JORDAN, KOSOVO, MOLDOVA, POLAND, PORTUGAL, ROMANIA, SIERRA LEONE, SPAIN, UNITED KINGDOM, ZIMBABWE,

4. Did your laboratory produce vaccines?

No

5. Did your laboratory supply vaccines to WOAHA 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 WOAHA Standards for the designated pathogen or disease?

Yes

NAME OF THE NEW TEST OR DIAGNOSTIC METHOD DEVELOPED	DESCRIPTION AND REFERENCES (PUBLICATION, WEBSITE, ETC.)
Molecular pathotyping of APMV-1 by real-time RT-PCR	(Fortin et al., 2023) https://www.sciencedirect.com/science/article/pii/S0166093423001386?via%3Dihub

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

No

9. Did your laboratory validate vaccines according to WOAHA Standards for the designated pathogen or disease?

No

TOR4: DIAGNOSTIC TESTING FACILITIES

10. Did your laboratory carry out diagnostic testing for other WOAHA Members?

Yes

NAME OF WOAHA 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
CYPRUS	2023-11-17	Real Time PCR RT PCR Sequencing	0	9

LIBYA	2023-02-23	Real Time PCR RT PCR Sequencing	0	28
MALTA	2023-11-30	Real Time PCR RT PCR Sequencing	0	4
MALTA	2023-08-28	Real Time PCR	0	24
NIGERIA	2023-02-28	Real Time PCR RT PCR Sequencing	0	3
SLOVENIA	2023-03-10	RT PCR Sequencing	0	19
POLAND	2023-07-30	Real Time PCR RT PCR Sequencing Isolation ICPI HI	0	3

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

Yes

NAME OF THE WOA MEMBER COUNTRY RECEIVING A TECHNICAL CONSULTANCY	PURPOSE	HOW THE ADVICE WAS PROVIDED
ESTONIA	Provided indications to distinguish orthoavulavirus-1 strains (October 2023)	Remote assistance (email)
VIETNAM	Provided suggestions to set up a Real Time RT PCR process to detect Newcastle virus. https://www.izsvenezie.com/reference-laboratories/avian-influenza-newcastle-disease/diagnostic-protocols/ ; Provided advice on the diagnostic procedure to confirm the presence of the virus; reference to the current regulation and to a paper DOI: 10.1016/j.jviromet.2023.114813 (December 2023)	Remote assistance (email)
FINLAND	Provided information on serological methods to detect APMV-1 antibodies (December 2023)	Remote assistance (email)

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

12. Did your laboratory participate in international scientific studies in collaboration with WOA 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
Memorandum of Understanding	2022-2027	Collaborative studies and implementation of projects on animal health, zoonotic diseases and food safety.	The National Research Center for Tropical and Transboundary Diseases - Libya	LIBYA
H2020 PROJECT European Virus Archive - EVAg. Grant Agreement number 871029 - EVA-GLOBAL. https://www.european-virus-archive.com/	2020-2023	A non-profit global network sharing expertise in virology and aimed to preserve, produce and distribute viruses and derived products.	CSIRO (Australia); ANSES, CIRAD and the Institute Pasteur (France); the Friedrich-Loeffler-Institute (Germany); Erasmus MC (The Netherlands).	AUSTRALIA FRANCE GERMANY THE NETHERLANDS
LIDISKI Project: Improving the livelihoods of smallholder livestock farmers in Nigeria	2020-2024	Improving surveillance and control of Peste des petits ruminants (PPR) and Newcastle Disease (ND), the two main diseases affecting the livestock of smallholder farmers in North of Nigeria.	Centre de coopération Internationale en Recherche Agronomique pour le Développement – CIRAD (France), Istituto Zooprofilattico Sperimentale delle Venezie (IZSVe) (Italy), Ikore (Nigeria) National Veterinary Institute (Nigeria), National Agricultural Extension and Research Liaison Services - NAERLS (Nigeria), The Federal Ministry of Agriculture and Rural Development – FMARD (Nigeria), International	FRANCE ITALY KENYA NIGERIA

			Livestock Research Institute – ILRI (Kenya), WOAH-World Organisation for Animal Health	
Research: A novel array of real-time RT-PCR assays for the rapid pathotyping of type I avian paramyxovirus (APMV-1) https://pubmed.ncbi.nlm.nih.gov/37722509/	2023	To develop and validate a reliable and widely inclusive array of RT-qPCRs for the determination of APMV-1 pathotype in clinical samples.	Friedrich-Loeffler-Institute (Germany); Department of Microbiology, Swedish National Veterinary Institute (SVA), Uppsala, Sweden	GERMANY ITALY SWEDEN

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

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:

1. Collection and analysis of the information generated by surveillance in domestic and wild birds in Italy
2. Collection and analysis of the information generated by surveillance in rural poultry in Nigeria
3. Collection and analysis of the information generated by genetic surveillance in poultry in EU

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:

National Information Systems: regular reporting of epidemiological data to the Ministry of Health and the European Commission.

Reporting results of molecular, epidemiological and diagnostic analyses to EU NRLs by email and/or through Mattermost, a flexible, open source platform that enables secure team collaboration and enhances an active collaboration between veterinary/public health laboratories and scientists from the EU. This allows rapid dissemination of Newcastle disease updates when possible. Information are also shared through the IZSve website:
<https://www.izsvenezie.com/reference-laboratories/avian-influenza-newcastle-disease/>

Sample diagnostic and epidemiologic metadata accompanied by virus genetic data from Western African countries.

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:

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Fortin, A., Laconi, A., Monne, I., Zohari, S., Andersson, K., Grund, C., Cecchinato, M., Crimardo, M., Valastro, V., D'Amico, V., Bortolami, A., Gastaldelli, M., Varotto, M., Newcastle Disease Collaborating Diagnostic Group, Terregino, C., & Panzarin, V. (2023). A novel array of real-time RT-PCR assays for the rapid pathotyping of type I avian paramyxovirus (APMV-1). *Journal of virological methods*, 322, 114813. <https://doi.org/10.1016/j.jviromet.2023.114813>

Lupini C., Legnardi M., Graziosi G., Cecchinato M., Listorti V., Terregino C., Catelli E. (2023) Vaccine Interaction and Protection against Virulent Avian Metapneumovirus (aMPV) Challenge after Combined Administration of Newcastle Disease and aMPV Live Vaccines to Day-Old Turkeys. *Vaccines (Basel)* 11(3):708.

b) International conferences:

1

1. Bortolami, I. Shittu, G. Franzo, S. Maniero, A. Fortin, M. Varotto, C. Nwosuh, J. Bakam, M. Muhammad, V. Panzarin, A. Pastori, A. Schivo, M. Cecchinato, C. Terregino, F. Bonfante, I. Monne, A. Fusaro. Newcastle Disease: do we need to revise vaccination strategies? a pilot study for vaccine strain selection based on genetic and antigenic

characteristics. *Proceedings of the XXII Congress of the World Veterinary Poultry Association, Verona, Italy. 4-8 September 2023. Page 163*

c) National conferences:

0
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d) Other (Provide website address or link to appropriate information):

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EURL team at IZSve (n° 4 presentations on Newcastle disease)

Presentations from the 29th Annual Meeting of the National Reference Laboratories for Avian Influenza and Newcastle Disease of European Union Member States (October 2023)

<https://www.izsvenezie.com/reference-laboratories/avian-influenza-newcastle-disease/workshops/>

Training courses organised by IZSve (2 presentations on Newcastle disease)

1. Updates on avian influenza addressed to the diagnostic laboratories of the national surveillance network (15/12/2023)

<https://izsvenezie.it/documenti/formazione/corsi-convegni/2023/2023-12-15-aggiornamenti-influenza-aviaria/programma.pdf>

Links from IZSve's website (n°5):

WOAH & FAO activities

<https://www.izsvenezie.com/reference-laboratories/avian-influenza-newcastle-disease/woah-fao-activities/>

Avian influenza and Newcastle disease in Europe update

<https://www.izsvenezie.com/reference-laboratories/avian-influenza-newcastle-disease/europe-update/>

https://food.ec.europa.eu/animals/animal-diseases/diseases-and-control-measures/avian-influenza_it#emergency_and_control_measures

European Union Reference Laboratory (EURL) for Avian Influenza and Newcastle Disease

<http://www.izsvenezie.com/reference-laboratories/avian-influenza-and-newcastle-disease/>

Diagnostic protocols

<https://www.izsvenezie.com/reference-laboratories/avian-influenza-newcastle-disease/diagnostic-protocols/>

EVA-GLOBAL Biobank

<https://www.izsvenezie.com/izsve-veterinary-biobank-and-the-oie-collaborating-centre-for-veterinary-biological-biobank/>

<https://www.european-virus-archive.com/>

Other links (1)

Lidiski project - Improving the livelihoods of smallholder livestock farmers in Nigeria

<http://www.lidiski.org/>

https://www.youtube.com/watch?v=Gp1aa03u4nY&feature=emb_logo

In addition, content about the activities of the project has been shared through social media:

Twitter

https://twitter.com/LIDISKI1?t=h_xoEQWWU2xSxmMkfoF89w&ts=09

Instagram

https://instagram.com/lidiski_project?igshid=YmMyMTA2M2Y=

Facebook

<https://m.facebook.com/109473960659018/>

Youtube

<https://youtube.com/@lidiskicommunications3078>

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

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

Yes

a) Technical visit : 0

b) Seminars : 0

c) Hands-on training courses: 1

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
C	ITALY	1

TOR8: QUALITY ASSURANCE

18. Does your laboratory have a Quality Management System?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)	
UNI CEI EN ISO/IEC 17025:2018	pdf	1_ACCREDIA Certificato di accreditamento Laboratori di prova 17025.pdf
UNI CEI EN ISO/IEC 17043:2010	pdf	3_Certificato accreditamento PT provider 17043.pdf

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Detection of antibodies to Newcastle disease virus (NDV) by haemagglutination inhibition test	ACCREDIA – Italian Accreditation System
Isolation and characterization of Newcastle disease viruses using SPF embryonated chicken eggs and haemagglutination inhibition test	ACCREDIA – Italian Accreditation System
APMV-1 virus (Avian Paramyxovirus Type 1) sequence analysis	ACCREDIA – Italian Accreditation System
Detection of APMV-1 virus (Avian Paramyxovirus Type 1) by RT-PCR	ACCREDIA – Italian Accreditation System
Detection of APMV-1 virus (Avian Paramyxovirus Type 1) by real time RT-PCR	ACCREDIA – Italian Accreditation System
Proficiency testing provider	ACCREDIA – Italian Accreditation System

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

Yes

The RL implements biorisk management actions to prevent diseases among personnel and to protect the community from harm caused by potentially infectious pathogens. Particular attention is also paid to the safe transport management of infectious substances according to IATA guidelines and UN classification system. Agents (pathogenic or infectious organisms, including Newcastle disease viruses) posing moderate hazards to personnel and the environment are handled under BSL-2 conditions. At IZSVe, since 2013, there exists a Biosafety Committee (of which the Head of the RL is a permanent member) responsible for the following tasks: - Evaluation of the safety risks for workers and for the environment connected to the activities to be performed under BSL3 conditions that involves the use of microorganisms, animals and Genetically Modified Microorganisms MOGM; - Evaluation of the emergency procedures - Evaluation of all the management and operative procedures to be applied inside the BSL-3 laboratory and animal facilities including potential biosecurity issues. All Standard Operative Procedures (SOPs) and handling of pathogens are written and performed accordingly to the WHO Laboratory Biosafety Manual (4th Ed.). The BSL-3 laboratory and animal facilities are maintained regularly to ensure biocontainment during an annual suspension of activities for plant and equipment maintenance following decontamination of the premises. All the BSL-3 facilities are equipped with self-closing set of locking doors with access away from general building corridors and access is restricted and controlled at all times as part of the internal biosecurity measures.

TOR9: SCIENTIFIC MEETINGS

21. Did your laboratory organise scientific meetings related to the pathogen in question on behalf of WOA?H?

No

22. Did your laboratory participate in scientific meetings related to the pathogen in question on behalf of WOA?H?

No

TOR10: NETWORK WITH WOA?H REFERENCE LABORATORIES

23. Did your laboratory exchange information with other WOA?H Reference Laboratories designated for the same pathogen or disease?

Yes

24. Do you network (collaborate or share information) with other WOA?H Reference Laboratories designated for the same pathogen?

Yes

ROLE OF YOUR LABORATORY

NETWORK/DISEASE	(PARTICIPANT, ORGANISER, ETC)	NO. PARTICIPANTS	PARTICIPATING WOAHP REF. LABS
Collaboration on animal health, with specific focus on Newcastle disease	Regular exchange of results of molecular, epidemiological and diagnostic analyses by email and/or through Mattermost, the open source platform that enables active collaboration with the other European Laboratories	2	Friedrich Loeffler Institute, Federal Research Institute for Animal Health (Germany); Animal and Plant Health Agency Weybridge (UK)

25. Did you organise or participate in inter-laboratory proficiency tests with WOAHP Reference Laboratories designated for the same pathogen?

Yes

PURPOSE OF THE PROFICIENCY TESTS: 1	ROLE OF YOUR REFERENCE LABORATORY (ORGANISER/ PARTICIPANT)	NO. PARTICIPANTS	PARTICIPATING WOAHP REF. LABS/ ORGANISING WOAHP REF. LAB.
European Proficiency Test on Avian influenza and Newcastle disease	Organiser	Forty-one (41) laboratories : twenty-six (26) EU National reference Laboratories (NRLs) and twelve (15) Non-EU NRLs (including four (4) from EFTA countries)	• Friedrich Loeffler Institute, Federal Research Institute for Animal Health Institute of Diagnostic Virology (Germany); • Animal and Plant Health Agency Weybridge (UK) (detailed Information and Final coded report available at the IZSVe)
APHA Proficiency Test on Newcastle disease	Participant Organiser: The Animal and Plant Health Agency (APHA) Surrey, UK;	Molecular, Serological and Virological tests	Information available from the organiser

26. Did your laboratory collaborate with other WOAHP Reference Laboratories for the same disease on scientific research projects for the diagnosis or control of the pathogen of interest?

Yes

TITLE OF THE PROJECT OR CONTRACT	SCOPE	NAME(S) OF RELEVANT WOAHP REFERENCE LABORATORIES
Research: A novel array of real-time RT-PCR assays for the rapid pathotyping of type I avian paramyxovirus (APMV-1) https://pubmed.ncbi.nlm.nih.gov/37722509/	To develop and validate a reliable and widely inclusive array of RT-qPCRs for the determination of APMV-1 pathotype in clinical samples. The the rapid discrimination of virulent and avirulent viruses is paramount to limit the spread of virulent APMV-1.	Institute of Diagnostic Virology, Federal Research Institute for Animal Health, Friedrich-Loeffler-Institut (FLI), Riems, Germany

TOR11: OTHER INTERLABORATORY PROFICIENCY TESTING

27. Did your laboratory organise or participate in inter-laboratory proficiency tests with laboratories other than WOAHP Reference Laboratories for the same pathogen?

Yes

Purpose for inter-laboratory test comparisons ¹	Role of your reference laboratory (organizer/participant)	No. participating laboratories	Name of the Test	WOAHP Member Countries
National Proficiency Test for Avian Influenza and Newcastle Disease	Organiser	20	Molecular, Serological and Virological test (AQUA IN 2023)	ITALY,

TOR12: EXPERT CONSULTANTS

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

No

29. Additional comments regarding your report:

Yes

TOR 7, query 17, the RL provided further training to:

- b seminar: 80 participants from European and extra European countries at the 29th Annual Meeting of the National Reference Laboratories for Avian Influenza and Newcastle Disease of European Union Member States (02-02/10/2023 – Parma, Italy)