

OIE Reference Laboratory Reports Activities

Activities in 2021

This report has been submitted : 2022-01-14 19:35:52

Name of disease (or topic) for which you are a designated OIE Reference Laboratory:	Avian influenza
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Name (including Title) of Head of Laboratory (Responsible Official):	John Pasick, Acting Executive Director, National Centers for Animal Disease (NCAD)
Name (including Title and Position) of OIE Reference Expert:	Yohannes Berhane
Which of the following defines your laboratory? Check all that apply:	Governmental

ToR 1: To use, promote and disseminate diagnostic methods validated according to OIE Standards

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 OIE Manual (Yes/No)	Total number of test performed last year	
		Nationally	Internationally
Indirect diagnostic tests		Nationally	Internationally
cELISA	Yes	9875	0
AGID	yes	240	0
Direct diagnostic tests		Nationally	Internationally
Virus Isolation		1080	208
Hemagglutination Inhibition (H1-H16)		2095	80
InfA Matrix real-time RT-PCR		7933	291
H5 & H7 real-time RT-PCR		3763	582
NA subtyping		89	55
Molecular pathotyping and whole genome sequencing		601	291
IVPI		0	0

**ToR 2: To develop reference material in accordance with OIE requirements, and implement and promote the application of OIE Standards.
To store and distribute to national laboratories biological reference products and any other reagents used in the diagnosis and control of the designated pathogens or disease.**

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

No

3. Did your laboratory supply standard reference reagents (non OIE-approved) and/or other diagnostic reagents

to OIE Member Countries?

Yes

Type of reagent available	Related diagnostic test	Produced/ provide	Amount supplied nationally (ml, mg)	Amount supplied internationally (ml, mg)	No. of recipient OIE Member Countries	Region of recipients
plasmids	for the production of PCR controls	provided	ml	9 tubes, 100ul each	1	<input checked="" type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input type="checkbox"/> Europe <input type="checkbox"/> Middle East

4. Did your laboratory produce vaccines?

No

5. Did your laboratory supply vaccines to OIE Member Countries?

No

ToR 3: To develop, standardise and validate, according to OIE Standards, new procedures for diagnosis and control of the designated pathogens or diseases

6. Did your laboratory develop new diagnostic methods validated according to OIE Standards for the designated pathogen or disease?

No

7. Did your laboratory develop new vaccines according to OIE Standards for the designated pathogen or disease?

No

ToR 4: To provide diagnostic testing facilities, and, where appropriate, scientific and technical advice on disease control measures to OIE Member Countries

8. Did your laboratory carry out diagnostic testing for other OIE Member Countries?

Yes

Name of OIE Member Country seeking assistance	Date (month)	No. samples received for provision of diagnostic support	No. samples received for provision of confirmatory diagnoses
GHANA	2021-07-19	11	11
GHANA	2021-08-04	16	16
GHANA	2021-08-31	16	16
GHANA	2021-10-12	48	48
GHANA	2021-07-05	200	0

9. Did your laboratory provide expert advice in technical consultancies on the request of an OIE Member Country?

Yes

Name of the OIE Member Country receiving a technical consultancy	Purpose	How the advice was provided
MEXICO	Bioinformatical analysis of NAI Influenza viruses isolated in Mexico	emails, teleconferences, presentation
GHANA	Collaboration to enhance the diagnostic capacity in Ghana for avian influenza	OIE Twinning project - electronic correspondence, telecommunications

ToR 5: To carry out and/or coordinate scientific and technical studies in collaboration with other laboratories, centres or organisations

10. Did your laboratory participate in international scientific studies in collaboration with OIE Member Countries other than the own?

Yes

Title of the study	Duration	Purpose of the study	Partners (Institutions)	OIE Member Countries involved other than your country
Delta-flu Project - Dynamics of Avian Influenza in a Changing World	ongoing	To Identify key viral host related and environmental factors that determine the dynamics AI in poultry and other host species with the goal of improving prevention and control strategies	FLI, Germany; Animal and Health Agency, DEFRA, UK; IZSve, Italy,	GERMANY
Bioinformatical analysis of NAI Influenza viruses isolated in Mexico 2018-2019	ongoing	Analysis on NAI outbreak strains in Mexico	CENASA	MEXICO

ToR 6: To collect, process, analyse, publish and disseminate epizootiological data relevant to the designated pathogens or diseases

11. Did your Laboratory collect epizootiological data relevant to international disease control?

Yes

If the answer is yes, please provide details of the data collected:
Surveillance of domestic poultry and wild bird populations for influenza virus

12. Did your laboratory disseminate epizootiological data that had been processed and analysed?

Yes

If the answer is yes, please provide details of the data collected:
genomic sequences from HPAI H5 viruses detected in wild birds (gulls) and from an experimental farm (currently ongoing).

13. What method of dissemination of information is most often used by your laboratory? (Indicate in the appropriate box the number by category)

a) Articles published in peer-reviewed journals: 3

1. Zamperin, G.; Bianco, A.; Smith, J.; Bortolami, A.; Vervelde, L.; Schivo, A.; Fortin, A.; Marciano, S.; Panzarin, V.; Mazzetto, E.; Milani, A.; Berhane, Y.; Digard, P.; Bonfante, F.; Monne, I. Heterogeneity of Early Host Response to Infection with Four Low-Pathogenic H7 Viruses with a Different Evolutionary History in the Field. *Viruses* 2021, 13, 2323. <https://doi.org/10.3390/v13112323>

2. Suderman M, Moniwa M, Alkie TN, Ojkic D, Broes A, Pople N, Berhane Y. Comparative Susceptibility of Madin-

Darby Canine Kidney (MDCK) Derived Cell Lines for Isolation of Swine Origin Influenza A Viruses from Different Clinical Specimens. *Viruses*. 2021 Nov 23;13(12):2346. doi: 10.3390/v13122346. PMID: 34960614; PMCID: PMC8704103.

3. Valentina Caliendo, View ORCID ProfileNicola S Lewis, Anne Pohlmann, Jonas Waldenstrom, Marielle van Toor, Thomas Lameris, Henk van der Jeugd, Andrew S Lang, Greg Robertson, Martin Beer, Ron Fouchier, Ashley C Banyard, Ian H Brown, Yohannes Berhana, Sonja Laurendeau, Thijs Kuiken, Rowena Hansen, Carmencita Yason, Tamiru Alkie, Olivier Lung, Stephen Baillie, Kasper Thorup. Transatlantic spread of highly pathogenic avian influenza H5N1 by wild birds from Europe to North America in 2021. *BioRxiv* (2022)doi: <https://doi.org/10.1101/2022.01.13.476155>

b) International conferences: 0

c) National conferences: 1

Western Association of Poultry Vets meeting (Canada and US). October 5th, 2021.

d) Other:

(Provide website address or link to appropriate information) 0

**ToR 7: To provide scientific and technical training for personnel from OIE Member Countries
To recommend the prescribed and alternative tests or vaccines as OIE Standards**

14. Did your laboratory provide scientific and technical training to laboratory personnel from other OIE Member Countries?

Yes

a) Technical visits: 0

b) Seminars: 3

c) Hands-on training courses: 0

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
b	Ghana	3
b	Ghana	2
b	Mexico	6

ToR 8: To maintain a system of quality assurance, biosafety and biosecurity relevant for the pathogen and the disease concerned

15. Does your laboratory have a Quality Management System?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)
ISO/IEC 17025:2005	ASB_CTF_15579-CFIA-Certificate_v1_2021-04-27.pdf
ISO/IEC 17025:2017	ASB_SOA_15579_v5_2021-04-27.pdf

16. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
ELISA	Standards Council of Canada
AGID	Standards Council of Canada
IVPI	Standards Council of Canada
real-time RT-PCR & PCR	Standards Council of Canada
Virus Isolation	Standards Council of Canada
Hemagglutination Assay	Standards Council of Canada
Hemagglutination Inhibition Assay	Standards Council of Canada
Molecular pathotyping (sequencing)	Standards Council of Canada

17. Does your laboratory maintain a “biorisk management system” for the pathogen and the disease concerned?

Yes

(See Manual of Diagnostic Tests and Vaccines for Terrestrial Animals, Chapter 1.1.4)

ToR 9: To organise and participate in scientific meetings on behalf of the OIE

18. Did your laboratory organise scientific meetings on behalf of the OIE?

No

19. Did your laboratory participate in scientific meetings on behalf of the OIE?

No

ToR 10: To establish and maintain a network with other OIE Reference Laboratories designated for the same pathogen or disease and organise regular inter-laboratory proficiency testing to ensure comparability of results

20. Did your laboratory exchange information with other OIE Reference Laboratories designated for the same pathogen or disease?

Yes

21. Was your laboratory involved in maintaining a network with OIE Reference Laboratories designated for the same pathogen or disease by organising or participating in proficiency tests?

Yes

Purpose of the proficiency tests: ¹	Role of your Reference Laboratory (organiser/ participant)	No. participants	Participating OIE Ref. Labs/ organising OIE Ref. Lab.
OFFLU 2021 ring trial - avian influenza virus A (AIV)	participant	11	CSIRO Australian Animal Health Laboratory - organizing lab

¹ validation of a diagnostic protocol: specify the test; quality control of vaccines: specify the vaccine type, etc.

22. Did your laboratory collaborate with other OIE 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 OIE Reference Laboratories
DELTA-FLU Project - Dynamics of avian influenza in a changing world	identification of key viral, host-related and environmental factors that determine the dynamics of avian influenza in poultry and other host species with the goal of improving prevention and control strategies	FLI (Germany), Animal and Plant Health Agency - DEFRA (UK), IZSVe (Italy)

ToR 11: To organise inter-laboratory proficiency testing with laboratories other than OIE Reference Laboratories for the same pathogens and diseases to ensure equivalence of results

23. Did your laboratory organise or participate in inter-laboratory proficiency tests with laboratories other than OIE Reference Laboratories for the same disease?

No

Note: See Interlaboratory test comparisons in: Laboratory Proficiency Testing at:

<http://www.oie.int/en/our-scientific-expertise/reference-laboratories/proficiency-testing> see point 1.3

ToR 12: To place expert consultants at the disposal of the OIE

24. Did your laboratory place expert consultants at the disposal of the OIE?

No

25. Additional comments regarding your report: