

OIE Reference Laboratory Reports Activities

Activities in 2021

This report has been submitted : 2022-01-18 05:45:05

Name of disease (or topic) for which you are a designated OIE Reference Laboratory:	Newcastle disease
Address of laboratory:	CSIRO Australian Centre for Disease Preparedness 5 Portarlinton Road East Geelong Victoria 3219 AUSTRALIA
Tel.:	+61 3 5227 5000
Fax:	+61 3 5227 5555
E-mail address:	Frank.Wong@csiro.au
Website:	www.csiro.au
Name (including Title) of Head of Laboratory (Responsible Official):	Prof Trevor Drew Director
Name (including Title and Position) of OIE Reference Expert:	To be decided Report written by Dr Frank Wong
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
HI	Yes	998	0
Direct diagnostic tests		Nationally	Internationally
Real-time PCR	Yes	630	191
Virus Isolation	Yes	193	8
PCR / Sequencing	Yes	29	49
HI Typing	Yes	10	0
IHC	Yes	8	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
Network quality control (NQC) for jurisdictional laboratories in Australia	PCR	Produced and provided	35ml	0	1 (Australia)	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input checked="" 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
NEPAL	July	15	0
CHINA (PEOPLE'S REP. OF)	November	0	76

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
CHINA (PEOPLE'S REP. OF)	Supported and advised on diagnostic investigations, molecular epidemiological characterization and test protocols	Remote by Zoom and email communications
INDONESIA	Laboratory Strengthening focusing on building diagnostic capacities for DIC Wates to become a national animal health laboratory for avian & poultry diseases, and for application of NGS & bioinformatics to EID investigations for ASEAN	Remote by teleconferences, workshops, Zoom and email communications
NEPAL	Supported and advised on diagnostic investigations and molecular epidemiological characterization	Remote by Zoom and email communications
PHILIPPINES	Supported and advised on diagnostic investigations, molecular epidemiological characterization and test protocols	Remote by Zoom and email communications

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
Phylogenetic analysis and genotyping of APMV-1 isolates from Hong Kong SAR	1 year (ongoing)	To undertake full genome sequencing and associated phylogenetic and epidemiological analyses of APMV-1 isolates from Hong Kong poultry	Agriculture, Fisheries and Conservation Department, Hong Kong SAR	CHINA (PEOPLE'S REP. OF)
Phylogenetic analysis of Genotype VII isolates from Indonesia	ongoing	To undertake full genome sequencing and associated phylogenetic and epidemiological analyses of isolates from Indonesia	Gadjah Mada University, Indonesia	INDONESIA
Phylogenetic analysis and genotyping of APMV-1 isolates from Nepal poultry	ongoing	To undertake full genome sequencing and associated phylogenetic and epidemiological analyses of APMV-1 isolates from Nepal poultry	Central Veterinary Laboratory (CVL), Nepal	NEPAL
Phylogenetic analysis and genotyping of APMV-1 isolates from Philippines poultry	ongoing	To undertake full genome sequencing and associated phylogenetic and epidemiological analyses of APMV-1 isolates from Philippines poultry	Animal Disease Diagnosis and Reference Laboratory (ADDRL), Bureau of Animal Industry (BAI), Philippines	PHILIPPINES

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:
Newcastle Disease sample epidemiological data and Avian Paramyxovirus-1 virus genetic and antigenic characterization data

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:
Newcastle Disease sample epidemiological data and Avian Paramyxovirus-1 virus genetic and antigenic characterization data

**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: 8

1. Bowden, T., Crowther, J. & Wang, J., (2021) Review of critical factors affecting analytical characteristics of serological and molecular assays. *Revue Scientifique et Technique*, 40 (1), 53-73.
2. Caraguel, C.G.B. & Colling, A., (2021) Diagnostic likelihood ratio the next-generation of diagnostic test accuracy measurement. In *Diagnostic test validation science: a key element for effective detection and control of infectious animal diseases*. *Rev. Sci. Tech. Off. Int. Epiz.*, 40 (1), 299-309. doi:10.20506/rst.40.1.3226. (A. Colling & I.A. Gardner, eds).
3. Hobbs, E.C., Colling, A., Gurung, R.B. & Allen, J., (2021) The potential of diagnostic point-of-care tests (POCTs) for infectious and zoonotic animal diseases in developing countries: Technical, regulatory and sociocultural considerations. *Transbound Emerg Dis*, 68(4): 1835-1849.
4. Mara, K., Dai, A., Brice, A.M., Alexander, M.R., Tribolet, L., Layton, D.S. & Bean, A.G.D., (2021) Investigating the Interaction between Negative Strand RNA Viruses and Their Hosts for Enhanced Vaccine Development and Production. *Vaccines (Basel)*, 9(1).
5. Newberry, K. & Colling, A., (2021) Quality standards and guidelines for test validation for infectious diseases in veterinary laboratories. In *Diagnostic test validation science: a key element for effective detection and control of infectious animal diseases*. *Rev. Sci. Tech. Off. Int. Epiz.*, 40 (1), 227-237. doi:10.20506/rst.40.1.3220. (A. Colling & I.A. Gardner, eds).
6. Shan, S., Bruce, K., Stevens, V., Wong, F.Y.K., Wang, J., Johnson, D., Middleton, D., O'Riley, K., McCullough, S., Williams, D.T., & Bergfeld, J., (2021) "In Vitro and In Vivo Characterization of a Pigeon Paramyxovirus Type 1 Isolated from Domestic Pigeons in Victoria, Australia 2011.", *Viruses*, 13, 429.
7. Watson, J.W., Clark, G.A. & Williams D.T., (2021) The value of virtual biobanks for transparency purposes with respect to reagents and samples used during test development and validation. In *Diagnostic test validation science: a key element for effective detection and control of infectious animal diseases*. *Rev. Sci. Tech. Off. Int. Epiz.*, 40 (1), 253-259. (I.A. Gardner & A. Colling, eds).
8. Waugh, C., & Clark, G.A., (2021) Factors affecting test reproducibility among laboratories. In *Diagnostic test validation science: a key element for effective detection and control of infectious animal diseases*. *Rev. Sci. Tech. Off. Int. Epiz.*, 40 (1), 131-143. (I.A. Gardner & A. Colling, eds).

b) International conferences: 3

1. OIE 3rd Regional Meeting for OIE Reference Centres in Asia & the Pacific (virtual), OIE-RRAP Tokyo, Japan on 24-25 February 2021. ACDP experts presented and participated.
2. OIE Regional Expert Network Meeting for Avian Diseases in Asia & the Pacific (virtual), OIE-RRAP Tokyo, Japan on 29-30 February 2021. ACDP experts presented and participated.
3. OIE Regional Expert Network Meeting for Avian Diseases in Asia & the Pacific (virtual), OIE-RRAP Tokyo, Japan on 10 December 2021. ACDP experts presented and participated.

c) National conferences: 0

d) Other:

(Provide website address or link to appropriate information) 3

1. Wong, F.Y.K., & Readford, P., (2021) DFAT Indo-Pacific Centre for Health Security Laboratory Twinning Biosafety

Training and Laboratory Placements Project Milestone 5 Report: Strengthening the capacity and creating a Sustainable Animal Health Laboratory Network in the Indo-Pacific through targeted technical laboratory twinning, biosafety training and laboratory placements. CSIRO, 17 March 2021.

2. Readford, P., & Wong, F.Y.K., (2021) DFAT Indo-Pacific Centre for Health Security Laboratory Twinning Biosafety Training and Laboratory Placements Project Milestone 5 Report: Strengthening the capacity and creating a Sustainable Animal Health Laboratory Network in the Indo-Pacific through targeted technical laboratory twinning, biosafety training and laboratory placements. CSIRO, 30 September 2021.

(Provide website address or link to appropriate information)

3. Newcastle Disease Management, Animal Health Australia

<https://www.animalhealthaustralia.com.au/what-we-do/endemic-disease/newcastle-disease/>

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: 6

c) Hands-on training courses: 4

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 (virtual)	Indonesia	13
B (virtual)	Indonesia	5
B (virtual)	Indonesia	9
C (virtual)	Brunei, Indonesia, Malaysia, Myanmar, Philippines, Singapore, Thailand	26
B (virtual)	Cambodia, Indonesia, Laos, Myanmar, Papua New Guinea, Philippines, Timor-Leste, Vietnam	100
C (virtual)	Indonesia, New Zealand, Philippines, Singapore, Thailand, United Arab Emirates, Vietnam	18
B, C (virtual)	Cambodia, Indonesia, Laos, Papua New Guinea, Thailand, Timor-Leste, Vietnam	13
B, C (virtual)	Cambodia, Indonesia, Laos, Papua New Guinea, Timor-Leste, Thailand, Vietnam	11

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 17025 & ISO 17043	NATA ISO 17025 & 17043 Certificates.pdf
ISO 9001	BSI ISO 9001 Certificate.pdf
ISO 14001	BSI ISO 14001 Certificate.pdf

16. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Testing for sterility and freedom from contamination of biological materials intended for veterinary use – Innocuity (Bacterial culture - Biphasic medium, mycoplasma broth; Dark field microscopy; Embryonated egg culture; Enzyme linked immunosorbent assay (ELISA); Fluorescent antibody test; Haemagglutination; PCR - Quantitative (qPCR); Polymerase chain reaction (PCR); Virus isolation)	NATA (ILAC affiliated)
Detection and identification of viruses (PCR – Quantitative (qPCR))	NATA (ILAC affiliated)
Detection and identification of viruses (PCR – Quantitative (qPCR); Polymerase chain reaction (PCR))	NATA (ILAC affiliated)
Molecular analysis – Sequencing (Polymerase chain reaction (PCR))	NATA (ILAC affiliated)
Examination of biopsy material (Histopathology; Immunohistochemistry; Macroscopic examination; Microscopic examination)	NATA (ILAC affiliated)
Necropsy services (Microscopic examination; Anatomical pathology)	NATA (ILAC affiliated)
Molecular analysis - Bioinformatic analysis and interpretation (To be determined; Analysis of DNA alignment; DNA alignment to reference sequence)	NATA (ILAC affiliated)
Molecular analysis – Sequencing (Sanger sequencing)	NATA (ILAC affiliated)
Microbiology - Serology of infection - Microbial antibody and/or antigen detection and/or quantitation (Haemagglutination inhibition)	NATA (ILAC affiliated)
Detection and identification of viruses (Embryonated egg culture; Haemagglutination inhibition)	NATA (ILAC affiliated)
Accreditation No: 13546 (scope last change 2021)	

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?

Yes

Title of event	Date (mm/yy)	Location	Role (speaker, presenting poster, short communications)	Title of the work presented
3rd Regional Meeting for OIE Reference Centres in Asia and the Pacific	02/21	Remote by Zoom	speakers, short communications	Discussion on establishing & improving networking among RCs - MCs
OIE Regional Expert Network Meeting for Avian diseases in Asia and the Pacific	09/21	Remote by Zoom	speakers, short communications	ACDP OIE Reference Laboratory update on surveillance activities for AI and ND
AHG on Sustainable Laboratories: briefing on PVS Lab data and OIE Equipment Management Survey	04/21	Remote by Zoom	short communications, member	Discussions
OIE Regional Expert Network Meeting for Avian diseases in Asia and the Pacific	12/21	Remote by Zoom	speakers, short communications	ACDP OIE Reference Laboratory update on surveillance activities for AI and ND

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?

No

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?

No

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
OIE Regional Expert Network for Avian Diseases in Asia & the Pacific	Updates and data sharing of regional and national avian disease notifications and surveillance	Australia, China, Republic of Korea, Russia

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?

Yes

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

Purpose for inter-laboratory test comparisons ¹	No. participating laboratories	Region(s) of participating OIE Member Countries
Proficiency testing for state jurisdictional laboratories within Australia and NZ (LEADDR network)	8 (Australia and NZ)	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input checked="" type="checkbox"/> Asia and Pacific <input type="checkbox"/> Europe <input type="checkbox"/> Middle East

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?

Yes

Kind of consultancy	Location	Subject (facultative)
Invited participant	Virtual via Zoom	The 9th Asia-Pacific Workshop on Multisectoral Collaboration at the Animal-Human-Ecosystems Interface
Invited participants, presenters	Virtual via Zoom	Laboratory Capacity Building Workshop – Experience from Asia Pacific to share with the Americas
Member	Virtual via Zoom	Scientific Committee for Animal Diseases
Member	Virtual via Zoom	AHG on Sustainable Laboratories: briefing on PVS Lab data and OIE Equipment Management Survey on 26 April 2021
Member	Virtual via Zoom	3rd Meeting of the OIE Ad Hoc Group on Sustainable Laboratoires on 1-4 June 2021
Invited participants and presenters	Virtual via Zoom	3rd Regional Meeting for OIE Reference Centres in Asia and the Pacific, Tokyo Japan on 24-25 February 2021
Invited participants and presenters	Virtual via Zoom	OIE Regional Expert Network Meeting for Avian Diseases in Asia & the Pacific (virtual), OIE-RRAP Tokyo, Japan on 29-30 February 2021
Invited participants and presenters	Virtual via Zoom	OIE Regional Expert Network Meeting for Avian Diseases in Asia & the Pacific (virtual), OIE-RRAP Tokyo, Japan on 10 December 2021
Technical review by OIE expert	Virtual	Review NDV Chapter of the OIE Terrestrial Manual

25. Additional comments regarding your report:

Due to COVID-19, ACDP has continued to work with limited operational capacity throughout 2021 (for example, adopting roster arrangements for staff site access, reduced site access to ensure physical distancing, no international travel and visitors unable to attend site for most of the year). This has significantly limited ACDP's capacity to carry out planned research and conduct training and has limited some types of diagnostic submissions to the laboratory.