

# WOAH Reference Laboratory Reports Activities 2022

## Activities in 2022

This report has been submitted : 10 mai 2023 15:32

### Laboratory Information

<b>Name of disease (or topic) for which you are a designated WOA Reference Laboratory:</b>	Hendra and Nipah virus diseases
<b>Address of laboratory:</b>	5 Portarlington Road
<b>Tel.:</b>	+61352275000
<b>E-mail address:</b>	Kim.Halpin@csiro.au
<b>Website:</b>	<a href="https://www.csiro.au/en/about/facilities-collections/ACDP">https://www.csiro.au/en/about/facilities-collections/ACDP</a>
<b>Name (including Title) of Head of Laboratory (Responsible Official):</b>	Dr Trevor Drew, Director ACDP
<b>Name (including Title and Position) of WOA Reference Expert:</b>	Dr Kim Halpin, Pathology and Pathogenesis Group Leader
<b>Which of the following defines your laboratory? Check all that apply:</b>	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	
Indirect diagnostic tests		Nationally	Internationally
Hendra ELISA	YES	314	0
Hendra DIVA ELISA	NO	21	0

Hendra SNT	YES	148	0
Nipah ELISA	YES	51	75
Nipah SNT	YES	14	0
Direct diagnostic tests		Nationally	Internationally
Hendra qPCR	YES	1028	0
Nipah qPCR	YES	4	1
virus isolation	YES	13	0

## TOR2: REFERENCE MATERIAL

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

No

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

Yes

TYPE OF REAGENT AVAILABLE	RELATED DIAGNOSTIC TEST	PRODUCED/ PROVIDE	AMOUNT SUPPLIED NATIONALLY (ML, MG)	AMOUNT SUPPLIED INTERNATIONALLY (ML, MG)	NO. OF RECIPIENT WOA?H MEMBER COUNTRIES	COUNTRY OF RECIPIENTS
HeV PCR positive control	HeV qPCR	produced in house	28 ML	1 ML	2	Asia and Pacific Europe
HeV positive control sera	HeV ELISA	produced in house	1.5 ML	0 ML	1	Asia and Pacific
NiV PCR positive control	NiV qPCR	produced in house	0 ML	3 ML	2	Asia and Pacific Europe
Hendra virus antigen for ELISA	HeV ELISA	produced in house	0.05 ML	0 ML	1	Asia and Pacific

4. Did your laboratory produce vaccines?

No

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

No

## TOR4: DIAGNOSTIC TESTING FACILITIES

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

No

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

No

## TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

12. Did your laboratory participate in international scientific studies in collaboration with WOA Members other than the own?

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:

Adamu, A.M., McNabb, L., Adikwu, A.A., Jibril, Y.J., Idoko, S.I., Turaki, A.U., Abalaka, S.E., Edeh, R.E., Egwu, G.O., Adah, M.I., Halpin, K., 2022. Henipavirus sero-surveillance in horses and pigs from Northern Nigeria. *Frontiers in Virology*, 2, 929715.

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:

Adamu, A.M., McNabb, L., Adikwu, A.A., Jibril, Y.J., Idoko, S.I., Turaki, A.U., Abalaka, S.E., Edeh, R.E., Egwu, G.O., Adah, M.I., Halpin, K., 2022. Henipavirus sero-surveillance in horses and pigs from Northern Nigeria. *Frontiers in Virology*, 2, 929715.

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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Adamu, A.M., McNabb, L., Adikwu, A.A., Jibril, Y.J., Idoko, S.I., Turaki, A.U., Abalaka, S.E., Edeh, R.E., Egwu, G.O., Adah, M.I., Halpin, K., 2022. Henipavirus sero-surveillance in horses and pigs from Northern Nigeria. *Frontiers in Virology*, 2, 929715.

Annand EJ, Horsburgh BA, Xu K, Reid PA, Poole B, de Kantzow MC, Brown N, Tweedie A, Michie M, Grewar JD, Jackson AE, Singanallur NB, Plain KM, Kim K, Tachedjian M, van der Heide B, Crameri S, Williams DT, Secombe C, Laing ED, Sterling S, Yan L, Jackson L, Jones C, Plowright RK, Peel AJ, Breed AC, Diallo I, Dhand NK, Britton PN, Broder CC, Smith I, Eden JS. Novel Hendra Virus Variant Detected by Sentinel Surveillance of Horses in Australia. *Emerg Infect Dis.* 2022 Mar;28(3):693-704.

Balkema-Buschmann, A., Fischer, K., McNabb, L., Diederich, S., Singanallur, N.B., Ziegler, U., Keil, G.M., Kirkland, P.D., Penning, M., Sadeghi, B., Marsh, G., Barr, J., Colling, A., 2022. Serological Hendra Virus Diagnostics Using an Indirect ELISA-Based DIVA Approach with Recombinant Hendra G and N Proteins. *Microorganisms* 10.

Rawlinson SM, Zhao T, Ardipradja K, Zhang Y, Veugelers PF, Harper JA, David CT, Sundaramoorthy V, Moseley GW. *Henipaviruses and lyssaviruses target nucleolar Treacle protein and regulate ribosomal RNA synthesis. Traffic.* 2022 Dec 8. doi: 10.1111/tra.12877. Epub ahead of print. PMID: 36479968

b) International conferences:

1

Saputra Sugiyono, Nugroho Herjuno A, Rizal Syaiful, Dharmayanthi Anik B, Masrukhin Masrukhin, Nangoy Meis J, Joseph Ancy, Mileto Patrick, Neave Matthew, Wong Frank. *Longitudinal survey of potential zoonotic viruses from wildlife and environmental samples at high-risk human-animal interfaces in Indonesia. In: 7th World One Health Congress; 07-11 Nov 2022; Singapore, Singapore.*

c) National conferences:

3

Eagles, D. *Henipavirus Outbreak Investigation in the Philippines – Perspectives from the Field and the Laboratory. In: Foreign Animal Disease and Outbreak Preparedness Workshop, 20 May 2022; Sydney NSW.*

Edwards, Sarah. *Neuropathogenesis: Mousing around with the henipaviruses. In: Australasian Virology Society AVS11 2022 Meeting; 05-08 Dec 2022; Gold Coast QLD.*

Tripp, Melanie. *Divergence in immune evasion capacity between different genotypes of Hendra and Nipah virus. In: Victorian Infection and Immunity Network (VIIN) Young investigators symposium on the 16 Nov 2022; Monash Institute of Pharmaceutical Sciences VIC*

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

0

## 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 : 22

b) Seminars :

c) Hands-on training courses: 139

d) Internships (>1 month)

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. Regional Proficiency Testing Provider Training, 21-25 February 2022 (Virtual)	China, Vietnam, Thailand, Malaysia, South Korea, Japan, Indonesia, India	14
C. NGS Wet-Lab Protocols for RNA (AIV) and DNA (ASF) viruses Workshop, 21-23 March 2022 (Virtual)	Indonesia	13
C. Biosafety Leadership Training, April – December 2022 (Monthly Engagement) (Virtual)	Thailand, Laos, Vietnam, Cambodia, Malaysia, Indonesia, Papua New Guinea, Singapore, Timor Leste	19
C. Laboratory Refresher Proficiency Test Workshop, Denpasar,	Indonesia	20

Indonesia 4 – 6 July 2022		
C. Refresher Proficiency Test Workshop, Yogyakarta, Indonesia, 26-27 July 2022	Indonesia	16
C. Validation and Verification Workshop, Yogyakarta, Indonesia, 12-16 September 2022	Indonesia	22
A & C. Biosafety training, Risk assessments, spills training and chemical safety, Yogyakarta, Indonesia, 12-16 September 2022	Indonesia	22
C. Pathology and Histology Training, Geelong, Australia, 24 October -4 November 2022	Indonesia	2
C. Sequencing and Bioinformatics Training, Geelong, Australia, 24 October -4 November 2022	Indonesia	1
C. Serology Classical Swine Fever (CSF)/Porcine Epidemic Diarrhoea (PEDV)/Porcine Circovirus Type 2 (PCV-2) and Virus Isolation PEDV/PCV2 Training, Geelong, Australia, 7-18 November 2022	Vietnam	4
C. Virus isolation and serology for swine diseases technical training, HCMC, Vietnam, 5-9 December 2022	Vietnam	6

## 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		NATA ISO 17025 SEP 2022.pdf
ISO 17043		NATA ISO 17043 SEP 2022.pdf
ISO 9001		BSI ISO 9001 NOV 2022.pdf
ISO 14001		BSI ISO 14001 NOV 2022.pdf

19. 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)
Microbiology – Molecular biology - Detection, characterisation and/or quantitation of microbial nucleic acids (viruses) (Roche Taqman RT PCR)	NATA (ILAC affiliated)
Microbiology - Serology of infection – Microbial antibody and/or antigen detection and/or quantitation (Fluorescent antibody virus neutralisation test; Serum neutralisation)	NATA (ILAC affiliated)
Detection and identification of viruses (Genotyping ; Polymerase chain	NATA (ILAC affiliated)

reaction (PCR); PCR - Quantitative (qPCR))	
Molecular analysis - Bioinformatic analysis and interpretation (Analysis of DNA alignment; DNA alignment to reference sequence)	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 - Sequencing (Sanger sequencing)	NATA (ILAC affiliated)
Microbiology - Serology of infection – Microbial antibody and/or antigen detection and/or quantitation (Serum neutralisation)	NATA (ILAC affiliated)
Microbiology - Serology of infection - Microbial antibody and/or antigen detection and/or quantitation (Enzyme linked immunosorbent assay (ELISA))	NATA (ILAC affiliated)
Detection and identification of viruses (Cell culture; Cultural)	NATA (ILAC affiliated)
Detection and identification of viruses (Transmission electron microscopy (TEM))	NATA (ILAC affiliated)

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

Yes

The laboratory has a dedicated Biorisk Management Team (14 Members) who provide specialist advice, monitor and improve Biosafety, Biosecurity and Biocontainment activities and perform maintenance on Biocontainment systems. The team uses a risk analysis approach to management of biological risks for biosafety and biosecurity to inform and determine the policy and procedures that in turn give confidence that the laboratory procedures for each of the biological materials handled by the laboratory pose negligible danger to Australia’s animal and human populations. 261 Policies and procedures are contained in the annually reviewed ACDP Biorisk Manual consisting of various sections as follows. Section 1 Administration Section 2 PC2 Procedures and Policies Section 3 PC3 Procedures and Policies Section 4 PC4 Procedures and Policies Section 5 Large Animal Facility (LAF) Procedures and Policies Section 6 Personnel and Procedural Controls Section 7 Transport and Storage of Biological Material Section 8 Movement of Material, Equipment and Waste Section 9 Engineering Procedures and Policies Section 10 Microbiological Incident Response Procedures and Policies Section 11 Laboratory Services Group Section 12 Containment Services Group The successful ACDP biological risk management system has clear and unequivocal commitment by laboratory management, who ensure that roles, responsibilities, resources and authorities related to biological risk management are defined, documented, and communicated to those who manage, perform, and verify work associated with biological agents and toxins in the laboratory. The Biorisk Management Team are audited over 3 days every 6 months by an external security assessment team to provide an independent review of elements affecting ACDP’s microbiological and physical security operations and to advise CSIRO senior executive management of any areas of concern or risk. The laboratory is aspiring to become accredited to ISO 35001:2019 Biorisk management for laboratories and other related organisations.

## **TOR9: SCIENTIFIC MEETINGS**

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

No

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

No

## **TOR10: NETWORK WITH WOA REFERENCE LABORATORIES**

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

Not applicable (only WOA Reference Laboratory designated for the disease)

24. Are you a member of a network of WOA Reference Laboratories designated for the same pathogen?

Not applicable (Only WOA Reference Laboratory designated for the disease)

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

Not applicable (Only WOA Reference Laboratory designated for the disease)

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

Not applicable (Only WOA Reference Laboratory designated for the disease)

## **TOR11: OTHER INTERLABORATORY PROFICIENCY TESTING**

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

Yes

Purpose for inter-laboratory test comparisons <sup>1</sup>	Role of your reference laboratory (organizer/participant)	No. participating laboratories	Region(s) of participating WOA Member Countries
Molecular detection of Hendra virus by Australian laboratories as part of the Laboratories Emergency Animal Disease Diagnosis and Response (LEADDR) Network	Organiser and participant	8	Asia and Pacific
Detection of Hendra virus antibodies using an ELISA by Australian laboratories as part of the Laboratories Emergency Animal Disease Diagnosis and Response (LEADDR) Network	Organiser and participant	4	Asia and Pacific

## **TOR12: EXPERT CONSULTANTS**

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

No

29. Additional comments regarding your report:

No