WOAH Reference Laboratory Reports Activities 2023

Activities in 2023

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Laboratory Information

Name of disease (or topic) for which you are a designated WOAH Reference Laboratory:	Hendra virus and Nipah virus
Address of laboratory:	ACDP-CSIRO, 5 Portarlington Road, East Geelong 3219 Victoria, Australia
Tel.:	0352275000
E-mail address:	kim.halpin@csiro.au
Website:	
Name (including Title) of Head of Laboratory (Responsible Official):	Dr Debbie Eagles
Name (including Title and Position) of WOAH Reference Expert:	Dr Kim Halpin
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 WOAH Manual (Yes/No)	Total number of test performed last year	
Indirect diagnostic tests		Nationally	Internationally
Hendra cELISA		308	0
Hendra MAC ELISA		1	0
Hendra DIVA ELISA		33	0
Hendra SNT		159	2
Nipah iELISA		26	0
Nipah SNT		12	8
Direct diagnostic tests		Nationally	Internationally
Hendra virus Real-time PCRs		1502	12
Nipah virus Real-time PCRs		48	3
Hendra virus conventional PCR and sequencing		4	0
virus isolation		39	0
Next generation sequencing		1	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
Live Hendra virus	PCR & Diagnostic assay development	Produced and provided	0	1 ML	1	HUNGARY,
Live Nipah virus	PCR & Diagnostic assay development	Produced and provided	0	0.5 ML	1	SWITZERLAND,
Inactivated Hendra virus	PCR & Diagnostic assay development	Produced and provided	0	0.5 ML	1	SLOVENIA,
Inactivated Nipah virus	PCR & Diagnostic assay development	Produced and provided	0	1.5 ML	3	SLOVENIA, SWITZERLAND, THE NETHERLANDS,
Hendra PCR Positive control	PCR	Produced and provided	2 ML	0	1	AUSTRALIA,
Hendra antigen	ELISA	Produced and provided	0.5 ML	0	1	AUSTRALIA,
Hendra ELISA controls	ELISA	Produced and provided	4 ML	0	1	AUSTRALIA,

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?

No

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?

Yes

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
NEW CALEDONIA	2023-07-10	Hendra virus real-time PCR, Nipah virus real-time PCR	3	0

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

No

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

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

No

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?

No

15. Did your laboratory disseminate epidemiological data that had been processed and analysed?

No

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:

5

1. Caruso S, Edwards SJ. Recently Emerged Novel Henipa-like Viruses: Shining a Spotlight on the Shrew. Viruses. 2023 15(12):2407. doi: 10.3390/v15122407.

2. Edwards SJ, Rowe B, Reid T, Tachedjian M, Caruso S, Blasdell K, Watanabe S, Bergfeld J, Marsh GA. Henipavirus-induced neuropathogenesis in mice. Virology. 2023 587:109856. doi: 10.1016/j.virol.2023.109856.

3. Pollak NM, Olsson M, Marsh GA, Macdonald J, McMillan D. Evaluation of three rapid low-resource molecular tests for Nipah virus. Front Microbiol. 2023 13:1101914. doi: 10.3389/fmicb.2022.1101914.

4. Pollak NM, Marsh GA, Olsson M, McMillan D, Macdonald J. Rapid, sensitive, and specific, low-resource molecular detection of Hendra virus. One Health. 2023 16:100504. doi: 10.1016/j.onehlt.2023.100504.

5. Watanabe S, Yoshikawa T, Kaku Y, Kurosu T, Fukushi S, Sugimoto S, Nishisaka Y, Fuji H, Marsh G, Maeda K, Ebihara H, Morikawa S, Shimojima M, Saijo M. Construction of a recombinant vaccine expressing Nipah virus glycoprotein using the replicative and highly attenuated vaccinia virus strain LC16m8. PLoS Negl Trop Dis. 2023. 17(12):e0011851. doi: 10.1371/journal.pntd.0011851

b) International conferences:

0

c) National conferences:

0

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 : 3

b) Seminars : 0

c) Hands-on training courses: 5

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	INDONESIA	5
C	INDONESIA	3

TOR8: QUALITY ASSURANCE

18. Does your laboratory have a Quality Management System?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)	
Integrated Management System (IMS) covering: ISO 9001 ISO 14001 ISO 17025 ISO 17043	PDF	

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
HeV TQM PCRs (for Genotype 1 M, N and P genes)	NATA (ISO 17025)
HeV conventional PCR	NATA (ISO 17025)
HeV SNT	NATA (ISO 17025)
HeV cELISA	NATA (ISO 17025)
HeV iELISA	NATA (ISO 17025)
Nipah iELISA	NATA (ISO 17025)
NiV SNT	NATA (ISO 17025)
HeV isolation	NATA (ISO 17025)

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) that provide specialist advice, monitor and improve Biosafety, Biosecurity, and Biocontainment activities and performs maintenance on Biocontainment systems. The team uses a risk analysis approach to the 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 Polices Section 10 Microbiological Incident Response Procedures and Policies Section 11 Laboratory Services Group Section 12 Containment Services Group The ACDP biological risk management system has 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 is 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 aspires 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 WOAH?

No

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

No

TOR10: NETWORK WITH WOAH REFERENCE LABORATORIES

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

Not applicable (only WOAH Reference Laboratory designated for the disease

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

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

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

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

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?

Not applicable (Only WOAH 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 WOAH Reference Laboratories for the same pathogen?

Yes

Purpose for inter-laboratory test comparisons1	Role of your reference laboratory (organizer/participant)	No. participating laboratories	Name of the Test	WOAH Member Countries
Molecular PCR detection of Hendra by Australian laboratories as part of the Laboratories Emergency Animal Disease Diagnosis and Response (LEADDR) Network	Organiser and participant	7	HeV Real-time PCR	AUSTRALIA,
Detection of Hendra antibodies using an ELISA method within Australian laboratories as part of the Laboratories Emergency Animal Disease Diagnosis and Response (LEADDR) Network	Organiser and participant	5	HeV ELISA	AUSTRALIA,

TOR12: EXPERT CONSULTANTS

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

Yes

KIND OF CONSULTANCY	Location	SUBJECT (FACULTATIVE)
WHO Meeting	London	Roadmap for the development of medical counter measures for Nipah virus

29. Additional comments regarding your report: