OIE Reference Laboratory Reports Activities

Activities in 2021

This report has been submitted : 2022-01-18 06:13:14

Name of disease (or topic) for which you are a designated OIE Reference Laboratory:	Hendra and Nipah virus diseases
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Name (including Title) of Head of Laboratory (Responsible Official):	Prof Trevor Drew Director
Name (including Title and Position) of OIE Reference Expert:	Dr Kim Halpin Group Leader - Pathology & Pathogenesis
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	
Indirect diagnostic tests		Nationally	Internationally
Hendra ELISA	Yes	294	0
Hendra DIVA ELISA	No	83	0
Nipah ELISA	Yes	104	0
Hendra SNT	Yes	146	2
Nipah SNT	Yes	8	0
Direct diagnostic tests		Nationally	Internationally
Hendra qPCR	Yes	403	0
Nipah qPCR	Yes	28	0
Virus isolation	Yes	6	0
Hendra IHC	Yes	1	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
HeV PCR Network quality (positive) control	HeV qPCR	Produced in-house	10ml	0	1- Australia	☐Africa ☐Americas ☒Asia and Pacific ☐Europe ☐Middle East
HeV positive control sera	HeV ELISA	Produced in-house	5ml	0	1- Australia	☐Africa ☐Americas ☒Asia and Pacific ☐Europe ☐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?

Yes

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

No

Name of the new test or diagnostic method or vaccine developed	Description and References (Publication, website, etc.)
Hendra IgM ELISA	McNabb L, Andiani A, Bulavaite A, Zvirbliene A, Sasnauskas K, Lunt R. (2021) Development and validation of an IgM antibody capture ELISA for early detection of Hendra virus. J Virol Methods. 298:114296.

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?

No

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

No

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?

No

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:
We collected neutralising antibody titres from vaccinated horses, as a way of showing efficacy of the vaccine. See 12 for more information.

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:
We published the data in the following: Halpin, K., Graham, K. & Durr, P.A., (2021) "Sero-Monitoring of Horses Demonstrates the Equivac((R)) HeV Hendra Virus Vaccine to Be Highly Effective in Inducing Neutralising Antibody Titres.", Vaccines, 9(7).

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: 7

1. Barrett, R.S., Wiethoelter, A. & Halpin, K., (2021) "The Hendra virus vaccine: perceptions regarding the role of antibody titre testing." Aust Vet J, Vol 99, 9.

2. Edwards, S.J., Caruso, S., Suen, W.W., Jackson, S., Rowe, B., Marsh, G.A. (2021) “Evaluation of henipavirus chemical inactivation methods for the safe removal of samples from the high-containment PC4 laboratory.” J Virol Methods, 298:114287.

3. Gamble, A., Yeo, Y.Y., Butler, A.A., Tang, H., Snedden, C.E., Mason, C.T., Buchholz, D.W., Bingham, J., Aguilar, H.C., Lloyd-Smith, J.O. (2021) “Drivers and Distribution of Henipavirus-Induced Syncytia: What Do We Know?” Viruses. 13(9):1755.

4. Halpin, K., Graham, K. & Durr, P.A., (2021) "Sero-Monitoring of Horses Demonstrates the Equivac((R)) HeV Hendra Virus Vaccine to Be Highly Effective in Inducing Neutralising Antibody Titres.", Vaccines, 9(7).

5. McNabb, L., Andiani, A., Bulavaite, A., Zvirbliene, A., Sasnauskas K. & Lunt, R., (2021) "Development and validation of an IgM antibody capture ELISA for early detection of Hendra virus.", J Virol Methods, 298: 114296.

6. Wang, J., Anderson, D.E., Halpin, K., Hong, X., Chen, H., Walker, S., Valdeter, S., van der Heide, B., Neave, M.J., Bingham, J., O'Brien, D., Eagles, D., Wang L.F. & Williams D.T., (2021) "A new Hendra virus genotype found in Australian flying foxes.", Virol J, 18(1): 197.

7. Yuen, K. Y., Fraser, N. S., Henning, J., Halpin, K., Gibson, J. S., Betzien, L. & Stewart, A. J., (2021) "Hendra virus: Epidemiology dynamics in relation to climate change, diagnostic tests and control measures.", One Health, 12: 100207.

b) International conferences: 0

c) National conferences: 0

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?

No

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)
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 (Polymerase chain reaction (PCR); PCR - Quantitative (qPCR))	NATA (ILAC affiliated)
Molecular analysis - Bioinformatic analysis and interpretation (To be determined)	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)
Microscopic examination; Anatomical pathology (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 (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)
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?

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?

Not applicable (Only OIE Reference Lab. designated for disease)

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?

Not applicable (Only OIE Reference Lab. designated for disease)

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?

Not applicable (Only OIE Reference Lab. designated for disease)

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
Detection of Terrestrial diseases by Australian and New Zealand laboratories: Proficiency testing for the detection of Hendra virus by PCR	8	☐Africa ☐Americas ☒Asia and Pacific ☐Europe ☐Middle East
Detection of Terrestrial diseases by Australian and New Zealand laboratories: Proficiency testing for the detection of Hendra virus by ELISA	4	☐Africa ☐Americas ☒Asia and Pacific ☐Europe ☐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)
Expert Group	On-line	OIE Expert Group drafting case definition for Nipah virus infection
Meeting	On-line	OIE Regional Reference Centres meeting. 24-25 February 2021

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.