

WOAH Reference Laboratory Reports Activities 2022

Activities in 2022

This report has been submitted : 10 mars 2023 09:57

Laboratory Information

Name of disease (or topic) for which you are a designated WOA Reference Laboratory:	Newcastle disease
Address of laboratory:	No.369 Nanjing Road, Qingdao, P.R.China
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E-mail address:	zlwang111@163.com
Website:	
Name (including Title) of Head of Laboratory (Responsible Official):	Zhiliang Wang, Prof. , PhD, DVM
Name (including Title and Position) of WOA Reference Expert:	Zhiliang Wang, Prof. , PhD, DVM, Deputy Director General of China Animal Health and Epidemiology Center
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 WOA Manual (Yes/No)	Total number of test performed last year	
Indirect diagnostic tests		Nationally	Internationally
HI	Yes	980	0
Direct diagnostic tests		Nationally	Internationally
Virus isolation	Yes	11660	0
RT-PCR	Yes	11660	0
ICPI	Yes	25	0
Real-time RT-PCR	Yes	213	0

NDV genetic analysis by sequencing	Yes	272	0
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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
NDV Antigen	HI	Produced/ provide	10 ml	0	0	Asia and Pacific
NDV RNA	Real-time RT-PCR	Produced/ provide	10 ml	0	0	Asia and Pacific

4. Did your laboratory produce vaccines?

No

5. Did your laboratory supply vaccines to WOA?H Members?

No

TOR3: NEW PROCEDURES

6. Did your laboratory develop new diagnostic methods for the designated pathogen or disease?

Yes

7. Did your laboratory validate diagnostic methods according to WOA?H Standards for the designated pathogen or disease?

Yes

NAME OF THE NEW TEST OR DIAGNOSTIC METHOD DEVELOPED	DESCRIPTION AND REFERENCES (PUBLICATION, WEBSITE, ETC.)
Digital RT-PCR for genotype VI NDV	Detection and quantitation of genotype VI NDV(https://zgdwjy.cahec.cn/zgdwjj/article/abstract/202209022?st=article_issue)
Digital RT-PCR for genotype VII NDV	Detection and quantitation of genotype VII NDV(unpublished)
Real-time RT-PCR for genotype VI NDV	Detection of genotype VI NDV(https://zgdwjy.cahec.cn/zgdwjj/article/abstract/202206023?st=article_issue)
RT-PCR for NDV	Validation of RT-PCR method using NDVs isolated in 2022(unpublished)
Real-time RT-PCR for virulent NDV	Validation of real-time RT-PCR method using NDVs isolated in 2022(unpublished)

8. Did your laboratory develop new vaccines for the designated pathogen or disease?

Yes

9. Did your laboratory validate vaccines according to WOA?H Standards for the designated pathogen or disease?

Yes

NAME OF THE NEW VACCINE DEVELOPED	DESCRIPTION AND REFERENCES (PUBLICATION, WEBSITE, ETC.)
Live vector vaccine for H9 AIV (NDV vector)	Live vector vaccine for H9 AIV and genotype VII NDV using reverse genetics(unpublished)
Genotype-matched vaccine for pigeon NDV (Genotype VI)	Genotype-matched vaccine for sub-genotype VI using reverse genetics (China patent: ZL 20211172150.7)
Genotype-matched vaccine for NDV (Genotype VII.2)	Genotype-matched vaccine for sub-genotype VII.2 using reverse genetics (China patent: ZL 20211173227.2)

TOR4: DIAGNOSTIC TESTING FACILITIES

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

No

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

Yes

NAME OF THE WOAHH MEMBER COUNTRY RECEIVING A TECHNICAL CONSULTANCY	PURPOSE	HOW THE ADVICE WAS PROVIDED
VIETNAM	Consultation on real-time RT-PCR method	Email
INDIA	Validation of Newcastle disease virus antibody ELISA test kit	Validation report

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

12. Did your laboratory participate in international scientific studies in collaboration with WOAHH 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:
Global Distribution and Genetic Characterization of Newcastle Disease Viruses

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:
Global Distribution and Genetic Characterization of Newcastle Disease Viruses

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:

6

- [1] Wang J, Yu X, Zheng D, et al. Continuous surveillance revealing a wide distribution of class I Newcastle disease viruses in China from 2011 to 2020. *Plos one*, 2022, 17(3): e0264936.
- [2] Yu X, Luo Y, Wang J, et al. A molecular, epidemiological and pathogenicity analysis of pigeon paramyxovirus type 1 viruses isolated from live bird markets in China in 2014-2021. *Virus research*, 2022, 318: 198846.
- [3] Wang J, Shu B, Yu X, et al. Establishment and application of RT-dPCR assay for detecting Newcastle disease virus genotype VI. *China animal health inspection*, 2022, 39(9) : 115-120.
- [4] Wang J, Yu X, Ke J, et al. Establishment and application of the fluorescent RT-PCR for detecting Newcastle disease virus genotype VI. *China animal health inspection*, 2022, 39(6): 114-118.
- [5] Li Z, Shu B, Peng C, et al. Analysis on the genome sequence and biological characteristics of three avian paramyxovirus-4 isolated in China. *China animal health inspection*, 2022, 39(6): 30-36.
- [6] Ke J, Wang J, Yu X, et al. Genomic characteristics of an emerging avian paramyxovirus type 14 in China. *China animal health inspection*, 2022, 39(10): 16-22.

b) International conferences:

1

- [1] Workshop for the WOAHA avian disease network in east Asia, April 21, 2022. Presentation on Surveillance and Research of Newcastle Disease Virus in China.

c) National conferences:

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- [1] The 31th Guangdong Animal Husbandry and Veterinary Science and Technology Conference. Guangzhou, June 25, 2022.
- [2] National Epidemiological Investigation Meeting. Qingdao, July 27-28, 2022.
- [3] National Training on Prevention and Control of Avian Disease. Chengdu, August 24-25, 2022.
- [4] The 9th China Veterinary Congress. Qingdao, September 3, 2022.
- [5] The Epidemic Analysis Meeting for Major Avian Disease. Webinar, November 22, 2022

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

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

17. Did your laboratory provide scientific and technical training to laboratory personnel from other WOAHA Members?

Yes

a) Technical visit :

b) Seminars : 45

c) Hands-on training courses:

d) Internships (>1 month)

Type of technical training	Country of origin of the expert(s)	No. participants from the
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provided (a, b, c or d)	provided with training	corresponding country
b	Japan, South Korea, Vietnam, Mongolia, Australia	45

TOR8: QUALITY ASSURANCE

18. Does your laboratory have a Quality Management System?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)	
ISO/IEC 17025		ISO 17025.jpg

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Virus isolation	China National Accreditation Service for Conformity Assessment (ilac-MRA, APLAC-MRA)
RT-PCR	China National Accreditation Service for Conformity Assessment (ilac-MRA, APLAC-MRA)
Real-time RT-PCR	China National Accreditation Service for Conformity Assessment (ilac-MRA, APLAC-MRA)

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

Yes

The experiments related to virulent NDVs are carried out in ABSL-3 laboratory(CNAS BL0008,CNAS-CL 05:2009).

TOR9: SCIENTIFIC MEETINGS

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

Yes

NATIONAL/ INTERNATIONAL	TITLE OF EVENT	CO-ORGANISER	DATE (MM/YY)	LOCATION	NO. PARTICIPANTS
National	National Training on Prevention and Control of Avian Disease		2022-08-24	Chengdu	66
National	The Epidemic Analysis Meeting for Major Avian Disease		2022-11-22	Qingdao	47

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

Yes

Title of event	Date (mm/yy)	Location	Role (speaker, presenting poster, short communications)	Title of the work presented
Workshop for the WOA				Surveillance and Research

avian disease network in east Asia	2022-04-21	Online	Speaker	of Newcastle Disease Virus in China
The 31th Guangdong Animal Husbandry and Veterinary Science and Technology Conference	2022-06-25	Guangzhou	Speaker	The epidemic status and control of pigeon NDVs in China
The 9th China Veterinary Congress	2022-09-03	Qingdao	Speaker	The epidemic status and control technology of NDVs in China

TOR10: NETWORK WITH WOAHP REFERENCE LABORATORIES

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

Yes

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

Yes

PURPOSE OF THE PROFICIENCY TESTS: 1	ROLE OF YOUR REFERENCE LABORATORY (ORGANISER/ PARTICIPANT)	NO. PARTICIPANTS	PARTICIPATING WOAHP REF. LABS/ ORGANISING WOAHP REF. LAB.
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25. Did you organise or participate in inter-laboratory proficiency tests with WOAHP Reference Laboratories designated for the same pathogen?

No

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

No

TOR11: OTHER INTERLABORATORY PROFICIENCY TESTING

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

Yes

Purpose for inter-laboratory test comparisons ¹	Role of your reference laboratory (organizer/participant)	No. participating laboratories	Region(s) of participating WOAHP Member Countries
Validation of ND HI test	Participant	6	Asia and Pacific
Validation of ND RT-PCR	Participant	6	Asia and Pacific
Validation of ND realtime RT-PCR	Participant	6	Asia and Pacific

TOR12: EXPERT CONSULTANTS

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

Yes

KIND OF CONSULTANCY	Location	SUBJECT (FACULTATIVE)
Attendance at WOA RRAP avian disease network meeting	Online	Workshop for the WOA avian disease network in east Asia

29. Additional comments regarding your report:

Yes

COVID-19 situation and restriction on international exchange of material with biological hazard limited some international activities. As ND diagnostics and vaccine are relatively matured, technical demands from members are becoming less.