

WOAH Reference Laboratory Reports Activities 2023

Activities in 2023

This report has been submitted : 12 juin 2024 13:55

Laboratory Information

Name of disease (or topic) for which you are a designated WOAHO Reference Laboratory:	Viral haemorrhagic septicaemia
Address of laboratory:	Pathology research division in aquaculture research department, National Institute of Fisheries Science (NIFS), Ministry of Oceans and Fisheries 216 Gijanghaean-ro, Gijang-eup, Busan 46082 Korea
Tel.:	+82517202483
E-mail address:	hjkim1882@korea.kr
Website:	https://www.nifs.go.kr/fishguard/woah02
Name (including Title) of Head of Laboratory (Responsible Official):	Yongseok Choi
Name (including Title and Position) of WOAHO Reference Expert:	Hyoung Jun Kim
Which of the following defines your laboratory? Check all that apply:	Governmental Research agency

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 WOAHO Manual (Yes/No)	Total number of test performed last year	
		Nationally	Internationally
Indirect diagnostic tests		Nationally	Internationally
Direct diagnostic tests		Nationally	Internationally
Virus inoculation method		47	0
Conventional RT-PCR method		47	0
Real-time RT-PCR method		47	0

TOR2: REFERENCE MATERIAL

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

No

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

Yes

TYPE OF REAGENT AVAILABLE	RELATED DIAGNOSTIC TEST	PRODUCED/ PROVIDE	AMOUNT SUPPLIED NATIONALLY (ML, MG)	AMOUNT SUPPLIED INTERNATIONALLY (ML, MG)	NO. OF RECIPIENT WOAHO MEMBER COUNTRIES	COUNTRY OF RECIPIENTS
Multiple positive	Pathogen gene					

control DNA for molluscs diseases	detection of WOAHLiated disease for molluscs	Yes	1mL	1mL	1	FRANCE,
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4. Did your laboratory produce vaccines?

No

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

Yes

NAME OF THE NEW TEST OR DIAGNOSTIC METHOD DEVELOPED	DESCRIPTION AND REFERENCES (PUBLICATION, WEBSITE, ETC.)
Conventional RT-PCR method for VHSV gene detection using novel 3F2R primer set (updated on WOAHL diagnostic manual for VHS)	1. 4.4.2. Conventional RT-PCR & 4.5. Amplicon sequencing; https://www.woah.org/fileadmin/Home/eng/Health_standards/aahm/current/2.3.10_VHS.pdf 2. Validation of a novel one-step reverse transcription PCR method for detecting viral haemorrhagic septicaemia virus. Aquaculture 492, 170-183 3. Importance of the 3'-terminal nucleotide of the forward primer for nucleoprotein gene detection of viral hemorrhagic septicemia virus by conventional reverse-transcription PCR. Indian Journal of Microbiology 59(2): 234-236
Development of a novel real-time PCR method based on PNA probes for detecting and genotyping of VHSV	Kim, H.J., Kwon, S.R., Olesen, N.J., Cuenca, A. 2023 Development of a novel real-time RT-PCR method using peptide nucleic acid (PNA) probes for detecting and genotyping of viral haemorrhagic septicaemia virus (VHSV). Aquaculture. Published

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

No

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

No

TOR4: DIAGNOSTIC TESTING FACILITIES

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

No

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

Yes

NAME OF THE WOAHL MEMBER COUNTRY RECEIVING A TECHNICAL CONSULTANCY	PURPOSE	HOW THE ADVICE WAS PROVIDED
MONGOLIA	technical advice for fish diagnosis	Provide specific primer sets and positive control DNA for SVCV and CEV

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

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

Yes

Title of the study	Duration	PURPOSE OF THE STUDY	PARTNERS (INSTITUTIONS)	WOAHL MEMBER COUNTRIES INVOLVED OTHER THAN YOUR COUNTRY
EURL Annual workshop for fish and crustacean diseases	3 days	Scientific meeting and cooperation research for validation of crustacean diseases positive materials using real-time PCR	European Union reference laboratory for fish and crustacean diseases	DENMARK
Validation of PCR positive		Experiment and validation of	European Union reference	

material for molluscs diseases	1 week	multifur PCR positive material for molluscs diseases	laboratory for molluscs diseases	FRANCE
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13. In exercising your activities, have you identified any regulatory research needs* relevant for WOA?H?

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:

Our laboratory got 2 VHSV isolates from NFQS (Quarantine group and diseases control group for domestic) in 2023. We will check the gene analysis using WOA?H diagnostic manual.

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:

7

1. Protection of rainbow trout (*Oncorhynchus mykiss*) against VHSV genotype Ia and IHNV by immunization with VHSV genotype IVa backbone-based single-cycle viruses
2. Development of a novel real-time RT-PCR method using peptide nucleic acid (PNA) probes for detecting and genotyping of viral haemorrhagic septicaemia virus (VHSV)
3. Pathogenicity of two lineages of infectious hematopoietic necrosis virus (IHNV) to farmed rainbow trout (*Oncorhynchus mykiss*) in South Korea
4. A multiplex real-time polymerase chain reaction (qPCR) kit targeting VP664 and VP28 genes of white spot syndrome virus (WSSV)
5. CD4+ T lymphocyte responses to viruses and virus-relevant stimuli in teleost fish
6. Nucleic acid amplification-based methods for diagnosis of shrimp viral diseases

b) International conferences:

2

European Associate Fish Pathologist (EAFP)

1. Determining transcriptomic response of kidneys of olive flounder to viral hemorrhagic septicemia virus infection using next-generation sequencing
2. DNA vaccine dual-expressing VHS virus glycoprotein and C-C motif chemokine ligand 19 induces the expression of immune-related genes in zebrafish

c) National conferences:

1

Journal of Fish Pathology

1. Pathogenicity of two lineages of infectious hematopoietic necrosis virus (IHNV) to farmed rainbow trout (*Oncorhynchus mykiss*) in South Korea

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 WOA?H Members?

Yes

a) Technical visit : 15

b) Seminars : 15

c) Hands-on training courses: 15

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
A	BANGLADESH	1
A	MALAWI	2
A	TIMOR-LESTE	2
A	TANZANIA	2
A	RWANDA	1
A	FIJI	1
A	UGANDA	1
A	NIGERIA	1
A	CAMEROON	1
A	INDONESIA	2
A	NEPAL	1

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 17025:2017	PDF	20240523_KT664_National_Istitute_of_Fisheries_Science_PM_Eng.pdf

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Molecular techniques for Viral haemorrhagic septicaemia	KOLAS (Korea Laboratory Accreditation Scheme)
Molecular techniques for Koi herpesvirus disease	KOLAS (Korea Laboratory Accreditation Scheme)
Molecular techniques for Spring Viraemia of carp	KOLAS (Korea Laboratory Accreditation Scheme)
Fish cell culture method	KOLAS (Korea Laboratory Accreditation Scheme)

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

No

TOR9: SCIENTIFIC MEETINGS

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

Yes

NATIONAL/INTERNATIONAL	TITLE OF EVENT	CO-ORGANISER	DATE (MM/YY)	LOCATION	NO. PARTICIPANTS
International	Resional Workshop for WOAHP National Focal Points on Aquatic Animals	WOAHP	2023-06-27	Busan	50
International	The 4th Meeting of the ad hoc Steering Committee for Regional Collaboration Framework on Aquatic Animal Health the Asia and the Pacific	WOAHP	2023-06-29	Busan	25

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

Yes

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Title of event	Date (mm/yy)	Location	Role (speaker, presenting poster, short communications)	Title of the work presented
WOAH General Assembly	2023-05-25	Paris	Deligate	Expert of WOAH reference laboratory for VHS
EURL annual workshop for fish and crustacean diseases	2023-06-01	Denmark	Deligate	Expert of WOAH reference laboratory for VHS

TOR10: NETWORK WITH WOAH REFERENCE LABORATORIES

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

Yes

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

Yes

NETWORK/DISEASE	ROLE OF YOUR LABORATORY (PARTICIPANT, ORGANISER, ETC)	NO. PARTICIPANTS	PARTICIPATING WOAH REF. LABS
Inter-laboratory proficiency test 2022 for identification and titration of VHSV, IHNV, EHNV, SVCV, IPNV (PT1) and identification of CyHV-3(KHV), SAV and ISAV (PT2)	Participant	45	WOAH reference laboratory for VHS in Korea / WOAH reference laboratory for VHS in Denmark

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

Yes

PURPOSE OF THE PROFICIENCY TESTS: 1	ROLE OF YOUR REFERENCE LABORATORY (ORGANISER/ PARTICIPANT)	NO. PARTICIPANTS	PARTICIPATING WOAH REF. LABS/ ORGANISING WOAH REF. LAB.
Inter-laboratory proficiency test 2021 for identification and titration of VHSV, IHNV, EHNV, SVCV, IPNV (PT1) and identification of CyHV-3(KHV), SAV and ISAV (PT2)	Participant	45	WOAH reference laboratory for VHS in Korea / WOAH reference laboratory for VHS in Denmark

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?

Yes

TITLE OF THE PROJECT OR CONTRACT	SCOPE	NAME(S) OF RELEVANT WOAH REFERENCE LABORATORIES
Memorandum of agreement (MOA) between the national institute of aquatic resources (WOAH reference laboratory for VHS in Denmark) and National Institute of Fisheries Science (NIFS, WOAH reference laboratory for VHS in Korea) on cooperative research project for fish disease control	Enhance and strengthen the bilateral relationship through cooperative research and meetings of the Sides for the development and standardization of diagnostic tools; methods to prevent the spread of infectious agents; disease prevention systems etc., in accordance with basic regulations of the WOAH aquatic animal health code	WOAH reference laboratory for VHS in Korea(NIFS) and WOAH reference laboratory for VHS in Denmark (DTU, National Institute of Aquatic Resources)

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 comparisons ¹	Role of your reference laboratory (organizer/participant)	No. participating laboratories	Name of the Test	WOAH Member Countries
To primarily assess the identification of the fish viruses: VHSV, IHNV, EHNV, SVCV, IPNV, Ranavirus by cell culture	Participant	45	EURL for fish diseases ILPT 2022	KOREA (REP. OF),
Assessing the ability of participating laboratories to identify the fish pathogens: ISAV, SAV and CyHV-			EURL for fish diseases	

Identify the fish pathogens ISAV, IPNV and CyHV-3(KHV) by biomolecular methods (PCR, sequencing and genotyping

Participant

45

Centre for fish diseases
ILPT 2022

KOREA (REP. OF),

TOR12: EXPERT CONSULTANTS

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

Yes

KIND OF CONSULTANCY	Location	SUBJECT (FACULTATIVE)
Meeting about WOA? Aquatic focal point semina and steering committee of the regional collaboration framework in Asia and Pacific	National Institute of Fisheries Science (Busan)	Meeting about WOA? Reference Laboratory for VHS in Korea

29. Additional comments regarding your report:

No