World Organisation for Animal Health

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WOAH Reference Laboratory Reports Activities 2025

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LABORATORY INFORMATION

***Name of disease (or topic) for which you are a designated WOAH 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:**	+82-51 720.2114
***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 WOAH 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 WOAH Manual (Yes/No)	Total number of test performed last year	
Indirect diagnostic tests		Nationally	Internationally
Direct diagnostic tests		Nationally	Internationally
Conventional RT-PCR method	Yes	266	0
Cell culture method	Yes	2	0
Real-time RT-PCR method	Yes	2	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
Multiple positive control DNA for fish diseases	Pathogen gene detection of WOAH liated disease for fish diseases	Yes	1mL	1mL	1	FIJI,

Multiple positive control DNA for crustacean diseases	Pathogen gene detection of WOAH liated disease for crustacean diseases	Yes	1mL	1mL	1	FIJI,

4. Did your laboratory produce vaccines?

No

5. Did your laboratory supply vaccines to WOAH Members?

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 WOAH 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 WOAH 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

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

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

TOR4: DIAGNOSTIC TESTING FACILITIES

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

No

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

Yes

Name of the WOAH Member Country receiving a technical consultancy	Purpose	How the advice was provided
ECUADOR PERU	enhance the disgnostic capacity agaist animal diseases	Discussed by WOAH general assembly and online meeting
FIJI	enhance the disgnostic capacity agaist animal diseases	Discussed the KOICA program between Korea and Fiji
PERU	enhance the disgnostic capacity agaist animal diseases	Discussed by WOAH general assembly and online meeting

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

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

Yes

Title of the study	Duration	Purpose of the study	Partners (Institutions)	WOAH Member Countries involved other than your country
VHS research of WOAH reference laboratories between Korea and Denmark	2 weeks	Research of virulence factor using recombinant VHS virus	WOAH reference laboratory for VHS in Denmark (DTU Aqua)	DENMARK
Meeting of WOAH collaborating centre between Korea and Chile	10 days	Diagnostic reference material and bio-security for salmon industry in Chile	Chile National University (CASA)	CHILE

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?

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 2025. We will check the gene analysis using WOAH 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:

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Improved Detection Sensitivity of Spring Viremia of Carp Virus by Substituting a Two-Step with a One-Step Nested Reverse Transcription Polymerase Chain Reaction Method (Microorganisms)

Development of a neutralization Ccombody, synthetic hagfish antibody, for viral hemorrhagic septicemia virus (VHSV) targeting glycoprotein G (Fish & Shellfish Immunology)

Molecularly Imprinted Poly(o-aminophenol)-Based Electrochemical Sensor for the Quantitative Detection of a VP28 Biomarker for White Spot Syndrome Virus (Sensors and Actuators Reports)

Validation of a dual-probe quantitative reverse transcription polymerase chain reaction for rapid detection of spring viremia of carp virus (Aquaculture)

Evaluation of Inactivated Snakehead Rhabdovirus as an Internal Positive Control for RT-qPCR Diagnosis of Viral Hemorrhagic Septicemia Virus in Fish (Journal of Virological Methods)

b) International conferences:

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Development of a novel strategy to reduce diagnostic errors of fish diseases using reference material in conventional PCR and real-time PCR (KOFFST international conference 2025)

c) National conferences:

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 WOAH Members?

Yes

a) Technical visit : 1

b) Seminars : 1

c) Hands-on training courses: 1

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	FIJI	24
B	FIJI	24
C	FIJI	24

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 I7025:2017	PDF	20240523_KT664_National_Istitute_of_Fisheries_Science_(NIFS).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?

Yes

Our laboratory has established both the normal cell room and the inoculation cell room for live virus culture as cleanrooms, implementing a system designed to prevent the spread of pathogens.

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?

Yes

Title of event	Date	location	Role (speaker, presenting poster, short communications)	Title of the work presented
WOAH General Assembly	2025-05-25	Paris	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. Are you a member of a network of 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 2025 for identification and titration of VHSV, IHNV, EHNV, SVCV, IPNV (PT1) and identification of CyHV-3(KHV), SAV and	Participant	45	WOAH reference laboratory for VHS in Korea / WOAH reference laboratory for VHS in Denmark

ISAV (PT2)			

25. Did you organise or participate in inter-laboratory proficiency tests with WOAH Reference Laboratories designated for the same pathogen during the past 2 years?

Yes

Purpose of the proficiency test:	Role of your Reference Laboratory (organiser/ participant)	No. participating Laboratories	Participating WOAH Ref. Labs/ organising WOAH Ref Lab
Inter-laboratory proficiency test 2025 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 during the past 2 years?

Yes

Purpose for inter-laboratory test comparisons1	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 2024	DENMARK, KOREA (REP. OF),
Assessing the ability of participating laboratories to identify the fish pathogens: ISAV, SAV and CyHV- identify the fish pathogens: ISAV, SAV and CyHV-3(KHV) by biomolecular methods (PCR, sequencing and genotyping	Participant	45	EURL for fish diseases ILPT 2024	DENMARK, KOREA (REP. OF),

TOR12: EXPERT CONSULTANTS

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

Yes

Kind of consultancy	Location	Subject (facultative)
Scientific consultation of quarantine method between Korea and Ecuador	WOAH general assembly in Paris	enhance the disgnostic capacity against animal diseases
Scientific consultation of quarantine method between Korea and Peru	WOAH general assembly in Paris	enhance the disgnostic capacity against animal diseases

29. Additional comments regarding your report:

No