OIE Reference Laboratory Reports Activities

Activities in 2021

This report has been submitted : 2022-01-28 11:45:42

Name of disease (or topic) for which you are a designated OIE Reference Laboratory:	Viral haemorrhagic septicaemia
Address of laboratory:	Technical University of Denmark National Institute of Aquatic Resources Kemitorvet, Building 202 2800 Kgs, Lyngby DENMARK
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Fax:	
E-mail address:	njol@aqua.dtu.dk
Website:	https://www.aqua.dtu.dk/
Name (including Title) of Head of Laboratory (Responsible Official):	Director Friedrich Wilhelm Köster
Name (including Title and Position) of OIE Reference Expert:	professor Niels Jørgen Olesen DVM, PhD, Head of Unit
Which of the following defines your laboratory? Check all that apply:	Academic

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
ELISA	Yes	78	0
RT-PCR	Yes	0	0
IFAT	Yes	0	0
Direct diagnostic tests		Nationally	Internationally
Cell cultivation BF-2	Yes	1040	0
Cell cultivation EPC	Yes	1040	0
RT-qPCR	Yes	71	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
BF-2, EPC, RTG-2	virus isolation on cell culture	yes	0	22x 120 ml (smal cell culture flasks)	5	☐Africa ☐Americas ☐Asia and Pacific ☒Europe ☐Middle East
VHSV isolates of various genotypes	positive control or validation of test etc	yes	0	1 (FTA card)	1	☒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?

No

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

No

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?

Yes

Name of the OIE Member Country receiving a technical consultancy	Purpose	How the advice was provided
TUNISIA	Dialogue on molecular diagnostic test within Interlaboratory proficiency test	E-mail correspondance
GEORGIA	diagnostic procedures for detection of VHSV	e-mail correspondance

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?

Yes

Title of the study	Duration	Purpose of the study	Partners (Institutions)	OIE Member Countries involved other than your country
list of susceptible species for VHSV	2020-2021	update and define list of susceptible and vector species for VHSV in EU	Anses- France IZSVe- Italy CEFAS - UK NVI - Norway	UNITED KINGDOM
Diagnostic manual for detection of infection with VHSV	2020-2021	define surveillance procedure for VHSV in EU	FLI- Germany ANSES- France IZSVe- Italy	ITALY

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:
Annual survey and diagnosis of fish diseases in Europe file:///C:/Users/njol/Downloads/Report-on-Survey-and-Diagnosis-of-Fish-Diseases-in-Europe-2020.pdf

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:
Report on survey and Diagnosis of fish diseases in Europe disseminated at the 25th Annual Workshop of the National Reference Laboratories for Fish Diseases, Copenhagen June 1st 2021 and on website: https://www.eurl-fish-crustacean.eu/fish/survey-and-diagnosis

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: 3
Alencar, ALF; Cuenca, A; Olesen, NJ; Rasmussen, TB (2021) Technical challenges in the development of reverse genetics for a viral haemorrhagic septicaemia virus (VHSV) genotype Ib isolate: Alternative cell lines and general troubleshooting Jour-nal of virological methods Volume 19, March 2021, 100621

Alencar ALF, Kwon SR, Rasmussen TB, Mérour E, Olesen NJ, Cuenca A (2021). Mod-ifications of the nucleoprotein of viral haemorrhagic septicaemia virus showed gain of virulence in intraperitoneally infected rainbow trout. J Fish Dis. 2021;00:1–15. https://doi.org/10.1111/jfd.13395

Marana, M. H., Jørgensen, L. v. G. Lorenzen, N. (2021) Zebrafish (Danio rerio) larvae as a model for real-time studies of propagating VHS virus in-fection, tissue tropism and neutrophil activity https://pubmed.ncbi.nlm.nih.gov/33170959/

b) International conferences: 2
Ito T., Tohru Mekata, Niels Lorenzen, Niels Jørgen Olesen. (2021) Epitope map-ping of monoclonal antibody MAB IP5B11 used for detection of viral haemor-rhagic septicaemia virus by applying NGS on carpione rhabdovirus. EAFP, 20th International Conference on Diseases of Fish and Shellfish. Online (Aberdeen) 20-23. September 2021

Kim HJ., NJ Olesen, MS Kim (2021) Susceptibility of viral haemorrhagic septi-caemia virus (vhsv) genotypes I, II, III, Iva IVb in olive flounder (paralichthys ol-ivaceus), rainbow trout (oncorhynchus mykiss) and zebrafish (danio rerio) EAFP, 20th International Conference on Diseases of Fish and Shellfish Aberdeen, 20-23.

Kwon SR, ALF Alencar, HJ Kim, NJ Olesen (2021) Cell susceptibility of 81 VHSV isolates in three different cell lines. EAFP, 20th International Conference on Diseases of Fish and Shellfish Aberdeen, 20-23. September 2021September 2021

Olesen N.J., Jacob Schmidt, Niccolò Vendramin, Argelia Cuenca Is European sea bass (Dicentrarchus labrax) susceptible to infection with VHSV and IHNV? EAFP, 20th International Conference on Diseases of Fish and Shellfish Aberdeen, 20-23. September 2021
VHS related presentations at the 25th Annual Workshop of the National Reference Laboratories for Fish Diseases, Copenhagen June 1st 2021
DNA vaccination field trial to contain VHS and IHN in rainbow trout farmed in freshwater in Italy, Andrea Marsella
Surveillance methods for infection with VHSV, IHNV and IPNV by qPCR in Germany
Heike Schütze
Viral Hemorrhagic Septicemia (VHS) outbreak in marble trout (Salmo marmoratus)
Anna Toffan

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?

Yes

a) Technical visits: 0
b) Seminars: 116
c) Hands-on training courses: 50
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
B	australia	1
b	Austria	2
b	Belarus	1
b	belgium	5
b/c	bulgaria	1/1
b	Croatia	2
b/c	Cyprus	1/2
b/c	Czech Republic	3/3
b	Danmark	10
b	Estonia	2
b/c	Finland	4/1
b/c	France	1/1
b	Germany	3
b	greece	1
b/c	Iceland	3/3
b/c	Serbia	1/1
b	Spain	5
b/c	Sweden	2/2
b/c	Switzerland	2/1
b/c	turkey	2/13
b/c	UK-Scotland	3/1
b	USA	1
b	Hungary	1
b/c	Ireland, Slovakia, Slovenia	7/2, 1/4, 6/2
b	Israel, Russia	1,1
b	Italy, Tunisia, The Netherlands	4, 1,1

b	Japan, Ukraine, UK-England	1, 1,6
b/c	lithuania, Northern Ireland, Norway, Poland, Latvia	5/2,2/1, 11/4, 2/2,2/2
b	Malta, Portugal, Republic of South Korea, Romenia	1 ,2,2,1
b	Republic of North Macedonia	1

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)
DS/EN ISO/IEC17025:2005	Akk 588 dk-uk.pdf
DS/EN ISO/IEC17043:2010	Akk 515 dk-uk.pdf

16. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
VHSV Cell cultivation	DANAK 17025:2005
VHSV IFAT	DANAK 17025:2005
VHSV ELISA	DANAK 17025:2005
VHSV RT-PCR	DANAK 17025:2005
Proficiency test for viruses in Fish	DANAK 17043:2010

17. Does your laboratory maintain a “biorisk management system” for the pathogen and the disease concerned?

No

(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?

Yes

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?

Yes

Purpose of the proficiency tests: [1]	Role of your Reference Laboratory (organiser/ participant)	No. participants	Participating OIE Ref. Labs/ organising OIE Ref. Lab.
Inter-Laboratory Proficiency Test 2021 for identification and titration of VHSV, IHNV, EHNV, SVCV and IPNV	Organizer	47	2/1

[1] *validation of a diagnostic protocol: specify the test; quality control of vaccines: specify the vaccine type, etc.*

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?

Yes

Title of the project or contract	Scope	Name(s) of relevant OIE Reference Laboratories
MEMORANDUM OF AGREEMENT (MOA) BETWEEN THE NATIONAL INSTITUTE OF AQUATIC RESOURCES OF THE KINGDOM OF DENMARK AND THE NATIONAL INSTITUTE OF FISHERIES SCIENCE OF THE REPUBLIC OF KOREA ON COOPERATIVE RESEARCH PROJECT FOR FISH DISEASES	to 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 OIE Aquatic Animal Health Code.	Dr Hyoung Jun Kim - 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 (REP. OF) hjkim1882@korea.kr
DNA vaccination to prevent VHS and IHN in farmed rainbow trout	to test DNA vaccine prototypes for preventing VHS and IHN outbreaks in farmed rainbow trout	Dr. Anna Toffan- OIE reflab for VNN IZSVe Italy

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
To primarily assess the identification of the fish virsuses: viral haemorragic septicaemia virus(VHSv); Infectious haematopoietic Necrosis virus (IHNv); Epizootic haematopoietic necrosis virus (EHNV); Sprig viraemia of Carp virus (SVCV) AND Infectious Pancreatic necrosis virus (IPNV) by cell culture based methods	47	☒Africa ☒Americas ☒Asia and Pacific ☒Europe ☒Middle East
Proficiency Testing Report Asia Pacific Laboratory (APL) Aquatic Program 2021 Round 6: Diseases of fin fish	22	☐Africa ☐Americas ☒Asia and Pacific ☒Europe ☐Middle East
TiLV inter-laboratory comparability panel testing (Round 2)	7	☐Africa ☐Americas ☒Asia and Pacific ☒Europe ☐Middle East
APL Aquatic Program 2021 Round 6: Diseases of crustacea	28	☐Africa ☐Americas ☒Asia and Pacific ☒Europe ☐Middle East
To assess the ability of participating laboratories to identify the fish pathogens : Infectious salmon anemia virus (ISAV); Salmonid ALphavirus (SAV) and Cyprinid Herpesvirus 3 (KHV) by biomolecular methods PCR based	45	☒Africa ☒Americas ☒Asia and Pacific ☒Europe ☒Middle East
Interlaboratory proficiency test 2020 for detection of White Spot Syndrome Virus (WSSV) in shripm pleopods	25	☐Africa ☐Americas ☐Asia and Pacific ☐Europe ☐Middle East
Interlaboratory proficiency test 2020 for detection of Taura Syndrom Virus (TSV) and Yello Head Virus 1 (YHV1) in Shrimp Pleopods	18	☐Africa ☐Americas ☐Asia and Pacific ☐Europe ☐Middle East
2020-ILC-01 organized by EU reference laboratory for mollusc diseases, histopathology and cytology	20	☐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)
OIE Aquatic Manual VHS chapter	Remote	Final amendments before approval at the OIE General Assembly
Aquatic Manual disease chapters Table 4.1. OIE recommended diagnostic methods and their level of validation for surveillance of apparently healthy animals and investigation of clinically affected animals	Remote	feedback on diagnostic performance of recommended assays

25. Additional comments regarding your report: