

WOAH Reference Laboratory Reports Activities 2023

Activities in 2023

This report has been submitted : 11 juin 2024 09:33

Laboratory Information

Name of disease (or topic) for which you are a designated WOAHO Reference Laboratory:	Infection with spring viraemia of carp virus
Address of laboratory:	1011 of Fuqiang Road, Futianqu, Shenzhen, Guangdong Province, 518045
Tel.:	+86-755 25 58 84 10
E-mail address:	709274714@qq.com
Website:	
Name (including Title) of Head of Laboratory (Responsible Official):	Tikang Lu/Director
Name (including Title and Position) of WOAHO Reference Expert:	Hong Liu/professor
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 WOAHO Manual (Yes/No)	Total number of test performed last year	
		Nationally	Internationally
Indirect diagnostic tests			
Cell culture (EPC)		39	0
Direct diagnostic tests			
Conventional RT-PCR		57	0
Real-time RT-PCR		53	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
cell line	virus isolation	EPC	29 mL	0	1	CHINA (PEOPLE'S REP. OF),
virus suspension	virus isolation	SVCV	155 mg	0	1	CHINA (PEOPLE'S REP. OF),

4. Did your laboratory produce vaccines?

No

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

Yes

NAME OF THE NEW TEST OR DIAGNOSTIC METHOD DEVELOPED	DESCRIPTION AND REFERENCES (PUBLICATION, WEBSITE, ETC.)
high-throughput liquid chip assay	Yu Chen, Shuai Gao, Hao Xu, Songqi Zhu, Guixiang Tong, Xiaoyu Chen, Xinxian Wei, Hong Liu, Xiaocong Zheng, 2024. The development and initial evaluation of a multiplex RT-PCR and high-throughput liquid chip assay for the simultaneous detection of five salmonid virus diseases. Aquaculture Reports, 36:
RT-RAA-LFD assay	ZHU Yu-min, WU Jiang, LIAO Li-shan, WANG Wan-jun, SUN Jie, CHEN Bing, WANG Jing-jing, ZHENG Xiao-cong2, JIA Peng, LIU Hong, 2023. Development of a RT-RAA-LFD assay for the detection of Spring viremia of carp virus. Chinese Journal of Preventive Veterinary Medicine, 45(9): 1-6
high-throughput liquid chip assay	in review
eDNA concentration and validation in the imported aquatic animals	draft
RT-RAA-CRISPR	draft

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

No

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

No

TOR4: DIAGNOSTIC TESTING FACILITIES

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

No

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

No

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

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

Yes

Title of the study	Duration	PURPOSE OF THE STUDY	PARTNERS (INSTITUTIONS)	WOAHA MEMBER COUNTRIES INVOLVED OTHER THAN YOUR COUNTRY
validation on the real-time RT-PCR test on SVCV	2022-2025	validate the test	CEFAS	UNITED KINGDOM
study on the genome of SVCV strains isolated in the world	2022-2025	molecular epidemiology	CEFAS	UNITED KINGDOM

13. In exercising your activities, have you identified any regulatory research needs* relevant for WOAHA?

Yes

Research need : 1**Please type the Research need:** validation on the real-time RT-PCR of SVCV**Relevance for WOAHA Standard Setting,****Relevance for the Codes or Manual Manual,**

Field Diagnostics,

Animal Category Aquatic,

Disease:

Infection with spring viraemia of carp virus

Kind of disease (Zoonosis, Transboundary diseases) Transboundary diseases,

If any, please specify relevance for Codes or Manual, chapter and title

(e.g. Terrestrial Manual Chapter 2.3.5 - Minimum requirements for aseptic production in vaccine manufacture)

Answer: Aquatic Manual Chapter 2.3.9

Notes:

Answer:

Research need : 2

Please type the Research need: eDNA test on SVCV in practical cases, such as the biosecurity system of free compartment or free zone, or imported broodstock or eyed-eggs, or early warning system

Relevance for WOAH Disease Control, Capacity Building, Standard Setting, Facilitation of international collaboration,

Relevance for the Codes or Manual Manual,

Field Epidemiology and Surveillance, Diagnostics,

Animal Category Aquatic,

Disease:

Infection with spring viraemia of carp virus

Kind of disease (Zoonosis, Transboundary diseases) Transboundary diseases,

Additional keywords if needed: One keyword per entry

Nondestructive testing

If any, please specify relevance for Codes or Manual, chapter and title

(e.g. Terrestrial Manual Chapter 2.3.5 - Minimum requirements for aseptic production in vaccine manufacture)

Answer: Aquatic Manual Chapter 2.3.9

Notes:

Answer:

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:

P. R. China carried the domestic surveillance in 2022 with 262 samples collected from the national to local hatchery farms and growing-up farms. Only 1 sample was positive, showing that the infection of IHNV only distributed in very limited zones which is benefit from the fruitful prevention and control measures of aquatic animal health in China. (cited from the status analyzing report of important aquatic animal diseases in P. R. China, published by China Agriculture Press, 2023)

The status of the infection of SVCV is as follows (WOAH WAHIS):

- 1) Canada: present in inf./infest. Limited zones in wild aquatic animals in 2023
- 2) Czech Republic: present in domestic aquatic animals in 2023
- 3) Korea (Rep. of): present in domestic aquatic animals in limited zones in 2023
- 4) United States of America: present in wild aquatic animals in limited zones in 2023

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:

This study aimed to molecularly characterize the circulating SVCV isolates in Serbia over a 17-year period and phylogenetic analysis showed that the dominant

SVCV isolates in Serbia belong to the SVCV d genogroup, with only one isolate belonging to genogroup SVCV b (Radosavljevic V, Cuenca A, Wood G, Glisic D, Maksimovic-Zoric J, Stone D. Phylogenetic analysis of spring viraemia of carp virus isolated in Serbia. *J Fish Dis.* 2023 Dec;46(12):1343-1355. doi: 10.1111/jfd.13852. Epub 2023 Aug 27. PMID: 37635442.)

SVCV infection induced carp IL-10 mRNA and protein expression, both in vitro and in vivo. However, the upregulation of carp IL-10 by SVCV was hindered by specific inhibitors of the JAK inhibitor (CP-690550), STAT3 inhibitor (STA-21), NF-κB inhibitor (BAY11-7082) and p38 MAPK (mitogen-activated protein kinase) inhibitor (SB202190), but not JNK inhibitor (SP600125) (Ouyang P, Tao Y, Wei W, Li Q, Liu S, Ren Y, Huang X, Chen D, Geng Y. Spring Viremia of Carp Virus Infection Induces Carp IL-10 Expression, Both In Vitro and In Vivo. *Microorganisms.* 2023 Nov 20;11(11):2812. doi: 10.3390/microorganisms11112812. PMID: 38004823; PMCID: PMC10673272.)

il-27a and ebi3 were significantly upregulated in the ZF4 cells by SVCV and poly(I:C), and in the zebrafish caudal fin (ZFIN) cells overexpressed with SVCV genes (Shi Y, Chen K, Zhao X, Lu Y, Huang W, Guo J, Ji N, Jia Z, Xiao H, Dang H, Zou J, Wang J. IL-27 suppresses spring viremia of carp virus replication in zebrafish. *Fish Shell*

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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ZHU Yu-min, WU Jiang, LIAO Li-shan, WANG Wan-jun, SUN Jie, CHEN Bing, WANG Jing-jing, ZHENG Xiao-cong, JIA Peng, LIU Hong, 2023. *Development of a RT-RAA-LFD assay for the detection of Spring viremia of carp virus. Chinese Journal of Preventive Veterinary Medicine, 45(9): 1-6*

The status report of important aquatic animal diseases in P. R. China, published by China Agriculture Press, 2023

The epidemiological analysis report of important aquatic animal disease in P. R. China, published by China Agriculture Press, 2023

b) International conferences:

0

c) National conferences:

3

1. *Annual meeting on domestic aquatic animal health prevention and control, Huzhou, Dec. 11-13th 2023*

2. *Meeting on the surveillance of animal and aquatic animal disease of imported and exported trade, Shenzhen, Nov. 24-28th, 2023.*

3. *Training on improve the detection ability on important aquatic animal diseases, Oct. 25th, 2023*

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

0

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

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

No

TOR8: QUALITY ASSURANCE

18. Does your laboratory have a Quality Management System?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)	
ISO 17025	PDF	certificate-ISO 17025.pdf
GB 19489-2008	PDF	certificate-Biosafety.pdf

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 (CNAS)
Conventional RT-PCR	China National Accreditation Service for Conformity Assessment (CNAS)
real-time RT-PCR	China National Accreditation Service for Conformity Assessment (CNAS)

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

Yes

Have a series of protocols or procedures to maintain the biorisk management system; Apply for the accreditation of Bio-safety 2 and have a annual audit; Have all the necessary facilities or instruments to meet the requirement of Bio-safety 2 accreditation.

TOR9: SCIENTIFIC MEETINGS

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

No

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

No

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

Yes

NETWORK/DISEASE	ROLE OF YOUR LABORATORY (PARTICIPANT, ORGANISER, ETC)	NO. PARTICIPANTS	PARTICIPATING WOAHP REF. LABS
Infecton with spring viraemia of carp virus	organiser	1	1

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?

Yes

TITLE OF THE PROJECT OR CONTRACT	SCOPE	NAME(S) OF RELEVANT WOAHP REFERENCE LABORATORIES
validation on the real-time RT-PCR test	diagnostic	the Centre for Environment, Fisheries and Aquaculture Science (CEFAS), UK
study on the genome analyse of SVCV strains isolated in the world	Molecular epidemiology	the Centre for Environment, Fisheries and Aquaculture Science (CEFAS), UK

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	Name of the Test	WOAHP Member Countries
To confirm the ability of the laboratory who will join the active surveillance program at different levels or test on the fry of aquatic animals	organizer	57	virus isolation and identification with conventional RT-PCR or real-time RT-PCR	

TOR12: EXPERT CONSULTANTS

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

Yes

KIND OF CONSULTANCY	Location	SUBJECT (FACULTATIVE)
WOAH Commission meeting in Feb. 2023	Paris, France	review of WOA?H Standards
WOAH Commission meeting in Sep. 2023	Paris, France	review of WOA?H Standards
WOAH ad hoc group meeting	virtual meeting	assessment of susceptible species of fish diseases (ISKNV)
WOAH ad hoc group meeting	virtual meeting	assessment of susceptible species of fish diseases (EUS)

29. Additional comments regarding your report:

Yes

We are waiting for the authority to distribute the ring test samples to WOA?H members.