

WOAH Reference Laboratory Reports Activities 2023

Activities in 2023

This report has been submitted : 6 mai 2024 18:16

Laboratory Information

Name of disease (or topic) for which you are a designated WOA Reference Laboratory:	WSSV
Address of laboratory:	1117 E. Lowell St. Bldg 90, Room 114, Tucson AZ, 85721
Tel.:	+1-520 621 87.27
E-mail address:	adhar@arizona.edu
Website:	https://aquapath.caes.arizona.edu/
Name (including Title) of Head of Laboratory (Responsible Official):	Dr. Arun Dhar
Name (including Title and Position) of WOA Reference Expert:	Arun K. Dhar, Professor & Director, Aquaculture Pathology Laboratory
Which of the following defines your laboratory? Check all that apply:	Academic institution

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	
		Nationally	Internationally
Indirect diagnostic tests			
0		0	0
Direct diagnostic tests			
PCR / Real-time PCR		1442	599
Histology		80	25

TOR2: REFERENCE MATERIAL

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

No

3. Did your laboratory supply standard reference reagents (nonWOAH-approved) and/or other diagnostic reagents to WOA 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 MEMBER COUNTRIES	COUNTRY OF RECIPIENTS
Positive Control	PCR	Produced	200 mg	1300 mg	8	CHILE, ECUADOR, INDIA, KOREA (REP. OF), MEXICO, SINGAPORE, UNITED STATES OF AMERICA,

Plasmid DNA	PCR	Produced	2-10 ng	9-45 ng	3	VIETNAM, ECUADOR, SINGAPORE, VIETNAM,
PCR 10 ⁸ standards	PCR	Produced	na	na	1	UNITED STATES OF AMERICA,

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?

No

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

No

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?

Yes

NAME OF WOAHA MEMBER COUNTRY SEEKING ASSISTANCE	DATE	WHICH DIAGNOSTIC TEST USED	NO. SAMPLES RECEIVED FOR PROVISION OF DIAGNOSTIC SUPPORT	NO. SAMPLES RECEIVED FOR PROVISION OF CONFIRMATORY DIAGNOSES
AUSTRALIA	2023-12-12	WSSV	16	0
BELGIUM	2023-12-13	WSSV	21	0
BRAZIL	2023-12-14	WSSV	7	0
CANADA	2023-12-15	WSSV	3	0
CHILE	2023-12-18	WSSV	1	0
DENMARK	2023-12-15	WSSV	12	0
ECUADOR	2023-12-13	WSSV	5	0
FRANCE	2023-12-13	WSSV	72	0
HONDURAS	2023-12-13	WSSV	116	0
INDIA	2023-12-12	WSSV	10	0
INDONESIA	2023-12-15	WSSV	13	0
ISRAEL	2023-12-12	WSSV	8	0
JAPAN	2023-12-12	WSSV	3	0
MALAYSIA	2023-12-14	WSSV	1	0
MEXICO	2023-12-20	WSSV	19	0
MOZAMBIQUE	2023-12-21	WSSV	1	0
THE NETHERLANDS	2023-12-25	WSSV	12	0
NORWAY	2023-12-05	WSSV	18	0
OMAN	2023-12-13	WSSV	49	0
RUSSIA	2023-12-19	WSSV	35	0
SEYCHELLES	2023-12-19	WSSV	1	0
SPAIN	2023-12-21	WSSV	4	0
THAILAND	2023-12-14	WSSV	163	0
UNITED KINGDOM	2023-12-20	WSSV	1	0
UNITED STATES OF AMERICA	2023-12-13	WSSV	1442	0

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

Yes

NAME OF THE WOA MEMBER COUNTRY RECEIVING A TECHNICAL CONSULTANCY	PURPOSE	HOW THE ADVICE WAS PROVIDED
COLOMBIA	OIE Twinning project focused on fish and shrimp viral diseases.	Two visiting scientists from ICA, Bogota, Colombia attended a training in the Aquaculture Pathology Laboratory (APL), University of Arizona.
INDIA	Sponsored project with the Government of West Bengal, India to build capabilities on shrimp disease diagnosis.	A training on shrimp disease diagnostics was conducted in West Bengal, India.
VIETNAM	Sponsored project with the Ca Mau Province, Vietnam to build capabilities on shrimp disease diagnosis.	A scientist from the Analysis Testing Center of Camau (ATCC), Vietnam attended a training on molecular diagnostics and histopathology of crustaceans in APL, University of Arizona. In addition, scientists from the APL visited ATCC, Ca Mau, Vietnam to audit disease diagnostic activities of the lab and conducted a proficiency test in the laboratory.

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

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

No

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

No

TOR6: EPIZOOLOGICAL DATA

14. Did your Laboratory collect epidemiological data relevant to international disease control?

No

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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1. Lee, Y., Vijayan, J., Roh, H. J., Park, J., Lee, J.-Y., Luan, N. T., Kim, H. J., Kim, W.-S., Dhar, Arun K., Park, C.-I., and Kim, D.-H. 2023. Nucleic acid-based methods for diagnosis of shrimp viral diseases. *Rev Aquac.* 2023;1–31, DOI: 10.1111/raq.12873
2. Alenton, Rod Russel R., Mai, Hung N. and Dhar, Arun K. 2023. Engineering a replication incompetent viral vector for delivery of therapeutic RNA in crustacean. *Proc. Natl. Acad. Sci- Nexus*, 2: 1-9, <https://doi.org/10.1093/pnasnexus/pgad278>
3. Major, Samuel R., Harke, Matthew J, Cruz-Flores, Roberto, Dhar, Arun K., Bodnar, Andrea G., and Trigg, Shelly A. 2023. Rapid detection of DNA and RNA shrimp viruses using CRISPR-based diagnostics. *Appl. Environ. Microbiol.* 89: 1-13, <https://doi.org/10.1128/aem.02151-22>

b) International conferences:

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1. Dhar, Arun K. 2023. "Keynote address: Expediting pathogen discovery and developing antiviral therapy in shrimp", 4th International Mini-Symposium on the Control of Aquatic Animal Disease 2023 (CAAD 2023) was held at National Cheng

- Kung University, Taiwan (NCKU) on November 26-29, 2023, Taiwan.
2. Dhar, Arun K. 2023. "Engineering a Viral Vector Platform for the Delivery of therapeutic RNA in Crustacean & Developing Oral Vaccine in Fish", Global Fisheries Conference, November 21-22, 2023, India.
3. Dhar, Arun K. 2023. "Major Diseases & Disease Management in Shrimp Aquaculture", College of Veterinary Medicine, Mississippi State University, Starkville, MS., November 10, 2023.
4. Dhar, Arun K. 2023. "Diseases & Disease Management in Shrimp Aquaculture", Bandung Institute of Technology (Intitut Teknologi Badung), Jawa Barat, Indonesia, November 01, 2023.
5. Dhar, Arun K. 2023. Reverse genetics approaches to study viral pathogenesis and developing viral vector for an oral delivery of therapeutic molecules in shrimp, Central Fisheries Education Institute, Mumbai, India, September 09, 2023, (Lecture as a part of Fulbright Specialist Visit to CIFE, Mumbai, India).
6. Alenton, R. R.R., Mai, H. N. & Dhar, A. K. 2023. An oral RNA delivery platform using reverse-engineered Nodavirus for marine shrimp Aquaculture America 2023 Conference, World Aquaculture Society, February 23-26, 2023, New Orleans, Louisiana.
7. Alenton, R. R.R., Mai, H. N. & Dhar, A. K. 2023. 2023. Overcoming roadblocks for RNA-targeted antiviral therapy in shrimp through a vector-based oral delivery platform. The Conference of Research Workers in Animal Diseases, January 22-24, 2023, Chicago, Illinois.

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 WOA H Members?

Yes

- a) Technical visit : 0
- b) Seminars : 0
- c) Hands-on training courses: 4
- 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
C	UNITED STATES OF AMERICA	5
C	ECUADOR	1
C	COLOMBIA	2
C	VIETNAM	3
C	INDIA	7
C	MEXICO	2
C	VENEZUELA	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 17025	PDF	UAZAPL 17025 Scope 2024.pdf

ISO 17043	PDF	UAZAPL 17043 Scope 2024.pdf
USDA	PDF	UAZ_567.2_October 2023 approval letter.pdf

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Histology for all the OIE-listed pathogens	ANSI-ASQ National Accreditation Board
PCR for all the OIE-listed pathogens	ANSI-ASQ National Accreditation Board

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?

No

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

Yes

Title of event	Date (mm/yy)	Location	Role (speaker, presenting poster, short communications)	Title of the work presented
The Launch of a Regional Aquatic Animal Health Laboratory Network (RAAHLN) for Africa	2023-12-05	South Africa	Presentation about our laboratory activities	Aquaculture Pathology Laboratory, University of Arizona - The World Organization for Animal Health Reference Laboratory of Crustacean Diseases

TOR10: NETWORK WITH WOAHP REFERENCE LABORATORIES

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

No

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

Not applicable (Only WOAHP Reference Laboratory designated for the disease)

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	Name of the Test	WOAHP Member Countries
Proficiency Test in shrimp pathogens detection by PCR - Ring Test February 2023	Organiser	31	Ring Test	BRAZIL, ECUADOR, GUATEMALA, INDIA, ITALY, MALAYSIA, MEXICO, NICARAGUA, OMAN, PERU, SAUDI ARABIA, THAILAND, VIETNAM, AUSTRALIA, CANADA, COLOMBIA, ECUADOR,
Proficiency Test in shrimp pathogens detection by PCR -	Organiser	31	Ring Test	HONDURAS, INDIA, INDONESIA, KOREA (REP. OF), MADAGASCAR, MALAYSIA, MEXICO, OMAN,

Ring Test August 2023

PANAMA, PERU, SINGAPORE, THAILAND, UNITED STATES OF AMERICA, VIETNAM,

TOR12: EXPERT CONSULTANTS

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

Yes

KIND OF CONSULTANCY	Location	SUBJECT (FACULTATIVE)
Ad hoc Group meeting	USA (Communications via video conference and emails)	Determining WSSV susceptibility hosts.

29. Additional comments regarding your report:

No