

WOAH Reference Laboratory Reports Activities 2024

This report has been submitted: 31 janvier 2025 17:55

LABORATORY INFORMATION

*Name of disease (or topic) for which you are a designated WOAH Reference Laboratory:	Acute hepatopancreatic necrosis disease
*Address of laboratory:	1117 E. Lowell St. Bldg 90, Room 114, Tucson AZ, 85721
*Tel:	+1-520 621 8727
*E-mail address:	adhar@arizona.edu
Website:	https://aquapath.cales.arizona.edu/
*Name (including Title) of Head of Laboratory (Responsible Official):	Dr. Arun K. Dhar
*Name (including Title and Position) of WOAH 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 WOAH Manual (Yes/No)	Total number of test performed last year	
Indirect diagnostic tests		Nationally	Internationally
Direct diagnostic tests		Nationally	Internationally
PCR/ Real-time PCR	Yes	1103	599
Histopathology	Yes	40	28

TOR2: REFERENCE MATERIAL

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

No

3. Did your laboratory supply standard reference reagents (nonWOAH-approved) and/or other diagnostic reagents to WOA?H 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?H Member Countries	Country of recipients
Positive Control (inactivated tissue)	PCR	Produced	200 mg	500 mg	7	BRAZIL, ECUADOR, GUATEMALA, INDIA, MALAYSIA, NICARAGUA, VIETNAM,
Plasmid DNA	PCR	Produced	15 ng	5-25 ng	2	ECUADOR, GUATEMALA,

4. Did your laboratory produce vaccines?

No

5. Did your laboratory supply vaccines to WOA?H Members?

Not applicable

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 WOA?H 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 WOA?H Standards for the designated pathogen or disease?

No

TOR4: DIAGNOSTIC TESTING FACILITIES

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

Yes

Name of WOA?H 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
BELGIUM	2024-01-12	PCR	28	0
CANADA	2024-01-12	PCR	2	0

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COSTA RICA	2024-01-12	PCR	1	0
ECUADOR	2024-01-12	PCR	1	0
FRANCE	2024-01-12	PCR	19	0
HONDURAS	2024-01-12	PCR	77	0
INDIA	2024-01-12	PCR	14	0
INDONESIA	2024-01-12	PCR	3	0
ISRAEL	2024-01-12	PCR	39	0
MADAGASCAR	2024-01-12	PCR	4	0
MALAYSIA	2024-01-12	PCR	4	0
MEXICO	2024-01-12	PCR	38	0
THE NETHERLANDS	2024-01-12	PCR	18	0
NORWAY	2024-01-12	PCR	35	0
RUSSIA	2024-01-12	PCR	27	0
OMAN	2024-01-12	PCR	44	0
THAILAND	2024-01-12	PCR	243	0
UNITED KINGDOM	2024-01-12	PCR	1	0
UNITED STATES OF AMERICA	2024-01-12	PCR	1103	0
UZBEKISTAN	2024-01-12	PCR	1	0

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

No

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:

2

1. Ampofo, Issabelle, O'Neil, Shauneen, Kent, Holsinger E., Dhar, Arun K., and Fragomeni, Breno, O. 2024. Impact of different breeding

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strategies on the accuracy of genomic selection in a population of Pacific white shrimp (*Penaeus Vannamei*): A simulation study. *Aquaculture Reports*, 39: 102436.

2. Dhar, Arun K. and Pantoja-Morales, Carlos. 2024. Reestablishing the need to include histopathology for health assessment of farmed shrimp in the era of molecular diagnostics. *Reviews in Fisheries Science & Aquaculture*, <https://doi.org/10.1080/23308249.2024.2401583>.

2. 7. Dhar, Arun K. and Pantoja-Morales, Carlos. 2024. Reestablishing the need to include histopathology for health assessment of farmed shrimp in the era of molecular diagnostics. *Reviews in Fisheries Science & Aquaculture*, <https://doi.org/10.1080/23308249.2024.2401583>.

b) International conferences:

5

1. Dhar, Arun K. and Thales P. De Andrade. 2024. Current and Emerging Diseases in shrimp: Their Diagnosis and Prevention. XX International Shrimp Farming Symposium, FENECAM 2024, November 19-22, Natal, Brazil.

2. Dhar, Arun K. 2024. Comprehensive health assessment in shrimp aquaculture by combining histopathology and molecular tools. The 1st Brawijaya International Conference on Shrimp (BICoS) 2024: "Promoting Sustainable Shrimp Aquaculture: Innovations, Challenges, and Opportunities", Universitas Brawijaya, Faculty of Fisheries and Marine Science, Malang, Indonesia, November 13, 2024

3. Dhar, Arun K. 2024. "Combining histopathology & molecular diagnosis in shrimp disease surveillance". In on-line Conference on "Precision Control of Aquatic Animal Diseases", Department of Biotechnology and Bioindustry Sciences, National Cheng Kung University, Tainan, Taiwan, July 07, 2024.

4. Pantoja, Carlos R. and Dhar, Arun K. 2024. Histopathological differences among septic hepatopancreatic necrosis (SHPN), acute hepatopancreatic necrosis (AHPND), necrotizing hepatopancreatitis (NHP) and hepatopancreatic microsporidiosis (HPM). Health and Diseases/ Shrimp Health Session, Latin America Aquaculture (LAQUA) Conference, Medellin, Columbia, September 24-27, 2024.

5. Ampofo, Issabelle, Hung N. Mai, Arun K. Dhar, Grevers, Daniel, Wright, Harris and Fragomeni, Breno O. 2024. Genomic evaluation and genetic parameters for acute hepatopancreatic necrosis disease (AHPND) resistance in *Penaeus vannamei* (Pacific white shrimp): insights from controlled challenge experiments and population genomics. *Aquaculture America 2024 Conference*, World Aquaculture Society, February 18-23, 2024, San Antonio, Texas.

c) National conferences:

0

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 WOA Members?

Yes

a) Technical visit : 0

b) Seminars : 0

c) Hands-on training courses: 11

d) Internships (> 1 month) 0

Type of technical training provided (a, b, c)	Country of origin of the expert(s) provided with	No. participants from the corresponding
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or d)	training	country
C	UNITED STATES OF AMERICA	4
C	BRAZIL	2
C	FRANCE	1
C	PERU	1
C	SINGAPORE	1
C	CHINA (PEOPLE'S REP. OF)	2

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 2025.pdf
ISO 17043	PDF	UAZAPL 17043 Scope 2025.pdf
USDA Approval	PDF	UAZAPL Animal Import Permit 2024.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?

Yes

The laboratory follows the University of Arizona Biosafety & Biosecurity Plans

TOR9: SCIENTIFIC MEETINGS

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

No

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

No

TOR10: NETWORK WITH WOA REFERENCE LABORATORIES

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

Yes

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

No

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

No

NO.

26. Did your laboratory collaborate with other WOA 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 WOA Reference Laboratories for the same pathogen during the past 2 years?

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
Proficiency Test in shrimp pathogens detection by PCR - Ring Test February 2024	Organizer	33	AHPND Proficiency Test	AUSTRALIA, BELIZE, BRUNEI, CHINA (PEOPLE'S REP. OF), COLOMBIA, ECUADOR, GUATEMALA, INDIA, ITALY, MALAYSIA, MEXICO, MOZAMBIQUE, PANAMA, PERU, SAUDI ARABIA, SINGAPORE, THAILAND, UNITED ARAB EMIRATES, UNITED STATES OF AMERICA, VIETNAM,
Proficiency Test in shrimp pathogens detection by PCR - Ring Test August 2024	Organizer	36	AHPND Proficiency Test	ECUADOR, HONDURAS, INDIA, MADAGASCAR, MALAYSIA, MEXICO, NICARAGUA, OMAN, PERU, SINGAPORE, THAILAND, UNITED ARAB EMIRATES, UNITED STATES OF AMERICA, VIETNAM,
Proficiency Test in shrimp pathogens detection by PCR	Participant	1	AHPND Proficiency Test	AUSTRALIA,

TOR12: EXPERT CONSULTANTS

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

No

29. Additional comments regarding your report:

N/A