

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:	Acute hepatopancreatic necrosis disease
*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 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	
		Nationally	Internationally
Indirect diagnostic tests			
Direct diagnostic tests			
PCR/Real-time PCR	Yes	1257	745
Histopathology	Yes	8	5

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
Positive Control (Inactive tissue)	PCR	Produced	200mg	500mg	5	BRAZIL, COSTA RICA, ECUADOR, MADAGASCAR, NICARAGUA,
Plasmid DNA	PCR	Produced	15 ng	5-25 ng	1	ECUADOR,

4. Did your laboratory produce vaccines?

No

5. Did your laboratory supply vaccines to WOAHA Members?

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?

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

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	2025-01-07	PCR	26	0
BELGIUM	2025-01-07	PCR	44	0
CANADA	2025-01-07	PCR	1	0
CHILE	2025-01-07	PCR	3	0
CHINA (PEOPLE'S REP. OF)	2025-01-07	PCR	1	0
COLOMBIA	2025-01-07	PCR	24	0
CYPRUS	2025-01-07	PCR	1	0
CZECH REPUBLIC	2025-01-07	PCR	1	0
ECUADOR	2025-01-07	PCR	2	0
FRANCE	2025-01-07	PCR	76	0
HONDURAS	2025-01-07	PCR	83	0
INDIA	2025-01-07	PCR	14	0
INDONESIA	2025-01-07	PCR	1	0
ISRAEL	2025-01-07	PCR	7	0
JAPAN	2025-01-07	PCR	7	0
KAZAKHSTAN	2025-01-07	PCR	3	0
MALAYSIA	2025-01-07	PCR	5	0
MEXICO	2025-01-07	PCR	12	0
NEW ZEALAND	2025-01-07	PCR	14	0
NORWAY	2025-01-07	PCR	2	0
PERU	2025-01-07	PCR	1	0
RUSSIA	2025-01-07	PCR	48	0
SINGAPORE	2025-01-07	PCR	1	0
THAILAND	2025-01-07	PCR	350	0
UNITED STATES OF AMERICA	2025-01-07	PCR	1257	0
UZBEKISTAN	2025-01-07	PCR	4	0

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?

No

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

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:

0

b) International conferences:

6

Dhar, Arun K. 2025. Current and Emerging Diseases in Farmed Shrimp. Plenary talk, International Congress on Invertebrate Pathology and Microbial Control & 57th Annual Meeting of the Society for Invertebrate Pathology, Puerto Varas, Chile August 3 to 7, 2025

Issabelle Ampofo, Hung N. Mai, Daniel Grevers, Monique Luna, Harris Wright, Arun K. Dhar, and Breno O. Fragomeni. Genomic Insights into AHPND Resistance in Litopenaeus vannamei: Heritability, Prediction Accuracy, and Candidate Loci. Aquaculture Europe, Valencia, Spain, September 22-25, 2025.

Arun K. Dhar, Dinh-Hung Nguyen, Paul J. Schofield and Hung N. Mai. 2025. DEVELOPING A HIGHLY SPECIFIC AND ROBUST TAQMAN REAL-TIME PCR ASSAY FOR THE DETECTION OF AN EMERGENT PATHOGEN, Enterocytozoon hepatopenaei (EHP) AND ACUTE HEPATOPANCREATIC NECROSIS DISEASE (AHPND) SIMULTANEOUSLY IN SHRIMP. In: APHIS VS AQUACULTURE HEALTH INITIATIVES – SHOWCASING WHAT VS IS DOING TO SUPPORT U.S. AQUACULTURE Session, Aquaculture America 2025 Conference, World Aquaculture Society, March 06-10, 2025, New Orleans, Louisiana.

Breno Fragomeni, Issabelle Ampofo, Hung Mai, Daniel Grevers, Monique Luna, Harris Wright, Arun K. Dhar. IMPLEMENTATION OF A GENOMIC EVALUATION PROGRAM FOR ACUTE HEPATOPANCREATIC NECROTIC DISEASE RESISTANCE IN Penaeus vannamei. Aquaculture America 2025 Conference, World Aquaculture Society, March 06-10, 2025, New Orleans, Louisiana.

Issabelle Ampofo, Hung N. Mai, Daniel Grevers, Monique Luna, Harris Wright, Arun K. Dhar, and Breno O. Fragomeni. 2025. Single-Step Genomic Evaluation Improves Accuracy of Predictions for Survival to Acute Hepatopancreatic Necrosis Disease in Litopenaeus vannamei (White Pacific Shrimp) Under Challenge Conditions. Plant & Animal Genome (PAG) Mapping Conference, January 10-15, San Diego, CA.

Breno O. Fragomeni, Issabelle Ampofo, Hung N. Mai, Daniel Grevers, Monique Luna, Harris Wright, and Arun K. Dhar. 2025. Evaluation of Genomic Selection for Acute Hepatopancreatic Necrosis Disease Resistance in White Pacific Shrimp: Genomic Prediction. The Conference of Research Workers in Animal Diseases, January 17-22, 2025, 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 WOAHP Members?

Arun Dhar - - UNITED_STATES_OF_AMERICA

Yes

a) Technical visit : 0

b) Seminars : 0

c) Hands-on training courses: 16

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	BRAZIL	1
C	ECUADOR	1
C	PERU	1
C	SINGAPORE	2
C	KOREA (REP. OF)	2
C	UNITED STATES OF AMERICA	6
C	CHINESE TAIPEI	3

TOR8: QUALITY ASSURANCE

18. Does your laboratory have a Quality Management System?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)	
USDA APPROVAL	PDF	UAZAPL_2026 - Animal Permit.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 lab follows the University of Arizona Biosafety and Biosecurity Plans

TOR9: SCIENTIFIC MEETINGS

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

No

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

No

TOR10: NETWORK WITH WOA?H REFERENCE LABORATORIES

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

Yes

24. Are you a member of a network of WOA?H Reference Laboratories designated for the same pathogen?

No

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

No

no.

26. Did your laboratory collaborate with other WOA?H 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 - RT February 2025	Organizer	33	Aquaculture Pathology Laboratory Proficiency Test	AUSTRALIA, BELIZE, BRAZIL, CANADA, COLOMBIA, ECUADOR, GUATEMALA, INDIA, ITALY, MALAYSIA, MEXICO, PERU, SAUDI ARABIA, THAILAND, UNITED ARAB EMIRATES, UNITED STATES OF AMERICA,
Proficiency Test in shrimp pathogens detection by PCR - RT August 2025	Organizer	29	Aquaculture Pathology Laboratory Proficiency Test	COLOMBIA, ECUADOR, HONDURAS, INDIA, INDONESIA, MADAGASCAR, MALAYSIA, MEXICO, NICARAGUA, OMAN, PERU, SINGAPORE, THAILAND, UNITED STATES OF AMERICA,

TOR12: EXPERT CONSULTANTS

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

No

29. Additional comments regarding your report:

No

N/A