World Organisation for Animal Health

Arun Dhar - - UNITED_STATES_OF_AMERICA

WOAH Reference Laboratory Reports Activities 2025

This report has been submitted: 29 janvier 2026 23:04

LABORATORY INFORMATION

***Name of disease (or topic) for which you are a designated WOAH Reference Laboratory:**	White spot syndrome
***Address of laboratory:**	1117 E. Lowell St. Bldg 90, Room 102, Tucson AZ, 85721
***Tel:**	+1-520 621 87.27
***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		1348	852
Histopathology		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 (inactivated tissue)	PCR	Produced	200mg	500mg	6	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 WOAH Members?

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 WOAH Standards for the designated pathogen or disease?

Yes

Name of the new test or diagnostic method developed	Description and References (Publication, website, etc.)
We have developed a PCR assay to screen aquafeed for white spot syndrome virus to determine the biosecurity risk of aquafeed.	Mai, Hung N., Schofield, Paul J., Wendy Sealey, Baker, Tressa M. and Dhar, Arun K. 2025. Development of a PCR-based assay for assessing biosecurity risk of aquafeed for white spot disease. Journal of Fish Diseases, 48(12):e70008. doi: 10.1111/jfd.70008.

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

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

TOR4: DIAGNOSTIC TESTING FACILITIES

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

Yes

Name of WOAH 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	2025-01-11	PCR	7	0
BELGIUM	2025-01-11	PCR	44	0
CHILE	2025-01-11	PCR	3	0
CHINA (PEOPLE'S REP. OF)	2025-01-11	PCR	1	0
CANADA	2025-01-11	PCR	1	0
COLOMBIA	2025-01-11	PCR	54	0
COSTA RICA	2025-01-11	PCR	2	0
CZECH REPUBLIC	2025-01-11	PCR	1	0
DENMARK	2025-01-11	PCR	2	0
ECUADOR	2025-01-11	PCR	20	0
FRANCE	2025-01-11	PCR	126	0
HONDURAS	2025-01-11	PCR	83	0
INDIA	2025-01-11	PCR	15	0
INDONESIA	2025-01-11	PCR	1	0
ISRAEL	2025-01-11	PCR	7	0
JAPAN	2025-01-11	PCR	7	0
MALAYSIA	2025-01-11	PCR	5	0
MEXICO	2025-01-11	PCR	12	0
NEW ZEALAND	2025-01-11	PCR	2	0
NORWAY	2025-01-11	PCR	14	0
PERU	2025-01-11	PCR	2	0
RUSSIA	2025-01-11	PCR	48	0
SINGAPORE	2025-01-11	PCR	3	0
SPAIN	2025-01-11	PCR	1	0
THAILAND	2025-01-11	PCR	370	0
UZBEKISTAN	2025-01-11	PCR	5	0
UNITED STATES OF AMERICA	2025-01-11	PCR	1348	0
KAZAKHSTAN	2025-01-11	PCR	5	0

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

No

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

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

No

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

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:

1

Mai, Hung N., Schofield, Paul J., Wendy Sealey, Baker, Tressa M. and Dhar, Arun K. 2025. Development of a PCR-based assay for assessing biosecurity risk of aquafeed for white spot disease. Journal of Fish Diseases, 48(12):e70008. doi: 10.1111/jfd.70008.

b) International conferences:

10

1. Dhar, Arun K. 2025. Reverse genetics approaches in developing oral vaccines and therapeutics in fish and shrimp. Lead Speaker Talk: Diseases in Asian Aquaculture 12 (DAA 12), Chennai, India, September 23-27, 2025.

2. 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

3. Dhar, Arun K. 2025. "Disease diagnosis and engineering a viral vector for an oral delivery of therapeutic RNA in shrimp", ICAR-Central Institute of Fisheries Education, Kolkata, West Bengal, India, February 25, 2025.

4. Dhar, Arun K. 2025. "Leveraging Technology for Genetic Improvement in Aquaculture Production" in the Technical Session of the theme "Blue Revolution: Harnessing Science and Technology". XVII Agricultural Science Congress, Govind Ballabh Pant University of Agriculture and Technology, Pantnagar, Uttarakhand, India, February 20- 22, 2025.

5. Dhar, Arun K. 2025. "Comprehensive monitoring of animal health and developing oral therapeutics are needed for sustainability of shrimp farming worldwide", Lead Speaker Talk, 14th Asian Fisheries and Aquaculture Forum (14AFAF), Greening the Blue Growth in Asia Pacific February 12-15, 2025, New Delhi, India.

6. Dhar, Arun K. 2025. "Engineering a viral vector for the delivery of therapeutic RNA in invertebrates". ICAR-National Institute for Plant Biotechnology, February 09, 2025, New Delhi, India.

7. Calvin Ng, Sage Lyon, Sheree Pagsuyoin, Paul J. Schofield, Arun K. Dhar, and Yan Luo. 2025. Networked Multimodal Sensor Framework for Shrimp Health and Behavior Analysis. In "Proceedings of MobiCom 2025 (MobiCom'25)". ACM, New York, NY, USA, November 04-08, 2025

8. Jarvin Nipales, Maia Koliopolous, Ma Exanil Plantig, Thi Hyunh, Hung N. Mai, Douglas Marthaler, and Arun K. Dhar. 2025. Comparative evaluation and validation of platforms in isolating total nucleic acid (TNA) vs. isolating DNA and RNA separately for shrimp pathogen detection in a diagnostic laboratory setting. American Association of Veterinary Laboratory Diagnosticians (AAVLD). October 30 – November 5, 2025, Aurora (Denver), Colorado.

9. Dhar, Arun K., Jarvin Nipales, Ma Exanil L. Plantig, Carlos R. Pantoja-Morales and Mai, Hung N. 2025. Identifying infectious pathogenic entities associated with reduced growth in farmed shrimp from Latin America. Abstract ID SH 227, Diseases in Asian Aquaculture, Chennai, India, September 23-27, 2025.

10. Dhar, Arun K., Nipales, Jarvin, Plantig, Ma Exanil L., Pantoja-Morales, Carlos R. and Mai, Hung N. 2025. Identifying infectious pathogenic entities associated with reduced growth in farmed shrimp from Latin America. Diseases in Asian Aquaculture, Chennai, India, September 23-27, 2025.

c) National conferences:

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

1
Book Chapter:
K. V. Rajendran, K. Sreedharan, Indrani Karunasagar, Iddya Karunasagar, and Arun K. Dhar. 2025. White Spot Syndrome Virus (WSSV). In: Aquatic Animal Health Management, Rajendran Kooloth Valappil, Iddya Karunasagar, Indrani Karunasagar (Editors), Springer Nature, Pages 293- 406

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

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

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
Histopathology for all the OIS-listed pathogens	ANSI-ASQ National Accreditation Board
PCR for all the OIS-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 WOAH?

No

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

No

TOR10: NETWORK WITH WOAH REFERENCE LABORATORIES

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

No

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

No

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

No

no

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

Yes

Purpose for inter-laboratory test comparisons1	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 2025	Organizer	33	Aquaculture Pathology Laboratory Proficiency Test	AUSTRALIA, BELIZE, 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 - Ring Test August 2025	Organizer	29	Aquaculture Pathology Laboratory Proficiency Test	COLOMBIA, ECUADOR, HONDURAS, INDIA, INDONESIA, MADAGASCAR, MALAYSIA, MEXICO, MOZAMBIQUE, NICARAGUA, OMAN, PERU, SINGAPORE, THAILAND, UNITED STATES OF AMERICA,

TOR12: EXPERT CONSULTANTS

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

No

29. Additional comments regarding your report:

No

N/A