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 23:47**

## LABORATORY INFORMATION

| | |
|---|---|
| ***Name of disease (or topic) for which you are a designated WOAH Reference Laboratory:** | Infectious hypodermal and haematopoietic necrosis |
| ***Address of laboratory:** | 1117 E Lowell Street, Bldg 90, RM 102 |
| ***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 | Yes | 1143 | 709 |
| 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 (inactivated tissue) | PCR | PRODUCED | 200mg | 500mg | 6 | BRAZIL, COSTA RICA, ECUADOR, MADAGASCAR, NICARAGUA, UNITED STATES OF AMERICA, |
| Plasmid DNA | PCR | PRODUCED | 15ng | 5-25ng | 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?

No

7. Did your laboratory validate diagnostic methods according to WOAH 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 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 | 1 | 0 |
| BELGIUM | 2025-01-11 | PCR | 44 | 0 |
| CANADA | 2025-01-11 | PCR | 1 | 0 |
| CHINA (PEOPLE'S REP. OF) | 2025-01-11 | PCR | 1 | 0 |
| CHILE | 2025-01-11 | PCR | 3 | 0 |
| COLOMBIA | 2025-01-11 | PCR | 24 | 0 |
| COSTA RICA | 2025-01-11 | PCR | 2 | 0 |
| CZECH REPUBLIC | 2025-01-11 | PCR | 1 | 0 |
| FRANCE | 2025-01-11 | PCR | 76 | 0 |
| INDIA | 2025-01-11 | PCR | 14 | 0 |
| INDONESIA | 2025-01-11 | PCR | 1 | 0 |
| ISRAEL | 2025-01-11 | PCR | 7 | 0 |
| HONDURAS | 2025-01-11 | PCR | 83 | 0 |
| JAPAN | 2025-01-11 | PCR | 7 | 0 |
| KAZAKHSTAN | 2025-01-11 | PCR | 3 | 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 | 13 | 0 |
| PERU | 2025-01-11 | PCR | 1 | 0 |
| RUSSIA | 2025-01-11 | PCR | 48 | 0 |
| SINGAPORE | 2025-01-11 | PCR | 1 | 0 |
| THAILAND | 2025-01-11 | PCR | 341 | 0 |
| UNITED STATES OF AMERICA | 2025-01-11 | PCR | 1143 | 0 |
| UZBEKISTAN | 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*

*4. Caicedo, JA., Vásquez GM., Calderón CP., Celis ELH., Castro JN., Araujo-Junior JP., Mai, Hung, N., and Dhar, Arun K. 2024. Detection of infectious hypodermic and hematopoietic necrosis virus (IHHNV) from a shrimp farm in the north coast of Colombia: A case report. J. Inv. Pathol. 212: 108382, https://doi.org/10.1016/j.jip.2025.108382*

b) International conferences:

*3*

*1. 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*

*1. 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.*

*2. Dhar, Arun K., Nipales, Jarvin, Ma Exanil Plantig, Pantoja-Morales, Carlos, and Mai, Hung N. 2025. Association of NHP and DHPV with reduced growth in farmed shrimp from Latin America. Annual Meeting of the Society of Invertebrate Pathology, Puerto Varas, Chile, August 03-07, 2025.*

c) National conferences:

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

*1*

*1. José Mazón-Suástegui, Antonio López Carvallo, Milagro Garcia-Bernal, Roberto Cruz Flores, Arun Dhar, Nelson Peña-Navarro, Ana Claudia Sánchez-Ortiz, Marco López-Torres. 2025. Practices for shrimp disease detection, control, management, and genetics improvement. IN: Strategies for Sustainable Shrimp Aquaculture, LUIS RAFAEL MARTÍNEZ-CÓRDOVA and MARCEL MARTÍNEZ-PORCHAS, Academic Press, Pages 71-123.*

# 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 |
|---|---|
| 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 WOAH?

No

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

Yes

| Title of event | Date | location | Role (speaker, presenting poster, short communications) | Title of the work presented |
|---|---|---|---|---|
| Virtual meeting organised by the AAH Commission to discuss how to address problems with the specificity of molecular methods due to endogenous viral elements (EVEs). | 2025-07-17 | On-line meeting | Serve as a WOAH Expert of IHHNV | Discussing technical issues to distinguish presence of EVE from active IHHNV infection in crustaceans. |

# 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 by PCR - Ring Test 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 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 ARAB EMIRATES, 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*