

# WOAH Reference Laboratory Reports Activities 2023

## Activities in 2023

This report has been submitted : 12 juin 2024 09:46

### Laboratory Information

<b>Name of disease (or topic) for which you are a designated WOAHO Reference Laboratory:</b>	Acute hepatopancreatic necrosis disease
<b>Address of laboratory:</b>	No.500, Sec. 3, Anming Rd., Annan Dist., Tainan City 709, Taiwan
<b>Tel.:</b>	+886-6 384 24 48
<b>E-mail address:</b>	wanghc@mail.ncku.edu.tw
<b>Website:</b>	
<b>Name (including Title) of Head of Laboratory (Responsible Official):</b>	Dr. Han-Ching Wang
<b>Name (including Title and Position) of WOAHO Reference Expert:</b>	Dr. Han-Ching Wang
<b>Which of the following defines your laboratory? Check all that apply:</b>	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 WOAHO Manual (Yes/No)	Total number of test performed last year	
		Nationally	Internationally
Indirect diagnostic tests			
IQ2000 (PCR)		633	0
Direct diagnostic tests			
Real-time PCR		24	0

### TOR2: REFERENCE MATERIAL

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

No

3. Did your laboratory supply standard reference reagents (nonWOAH-approved) and/or other diagnostic reagents to WOAHO Members?

No

4. Did your laboratory produce vaccines?

No

5. Did your laboratory supply vaccines to WOAHO 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 WOAHO 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 WOAHP Standards for the designated pathogen or disease?

No

**TOR4: DIAGNOSTIC TESTING FACILITIES**

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

No

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

Yes

NAME OF THE WOAHP MEMBER COUNTRY RECEIVING A TECHNICAL CONSULTANCY	PURPOSE	HOW THE ADVICE WAS PROVIDED
KOREA (REP. OF)	AHPND-related scientific issues	Remote/in loco
FIJI	Dr. Malan Bandara Veterinarian Biosecurity Authority of Fiji Biosecurity House, Nadi Airport, Fiji AHPND- related scientific issues	Remote/in loco

**TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES**

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

Yes

Title of the study	Duration	PURPOSE OF THE STUDY	PARTNERS (INSTITUTIONS)	WOAHP MEMBER COUNTRIES INVOLVED OTHER THAN YOUR COUNTRY
AHPND/shrimp interaction	3 years	To find the AHPND toxin targeting mechanisms	Chulalongkorn University, Thailand	THAILAND

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?

Yes

IF THE ANSWER IS YES, PLEASE PROVIDE DETAILS OF THE DATA COLLECTED:

We collected and analyzed AHPND-related samples

15. Did your laboratory disseminate epidemiological data that had been processed and analysed?

Yes

IF THE ANSWER IS YES, PLEASE PROVIDE DETAILS OF THE DATA COLLECTED:

We published our epidemiological findings for AHPND as scientific papers.

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 YK, Lin BY, Weng TH\*, Huang CK\*, Liu C, Liu CC, Lin SS, Wang HC. (2023) Counting and measuring the size and stomach fullness levels for an intelligent shrimp farming system. *Connection Science*. VOL. 35, NO. 1, 2268878. Ranking: 0.16 (COMPUTER SCIENCE, THEORY & METHODS, 18/111), IF: 5.2

2. Chang YT, Ko HT, Wu PL, Kumar R, Wang HC, Lu HP\* (2023) Gut microbiota of Pacific white shrimp (*Litopenaeus vannamei*) exhibits distinct responses to pathogenic and non-pathogenic *Vibrio parahaemolyticus*. *Microbiology Spectrum*. e01180-23. Ranking: 0.45 (MICROBIOLOGY, 62/135), IF: 3.7.
3. Kumar R, Huang MY, Chen CL, Wang HC\*, Lu HP\* (2023) Resilience and probiotic interventions to prevent and recover from shrimp gut dysbiosis. *Fish Shellfish Immunol*. 139:108886. Ranking: 0.034 (VETERINARY SCIENCES, 5/143), IF: 4.7.
4. Ng YS, Cheng CS, Ando M, Tseng YT, He ST, Li CY, Cheng SW, Chen YM, Kumar R, Liu CH, Takeyama H, Hirono I, Wang HC\*. (2023) White spot syndrome virus (WSSV) modulates lipid metabolism in white shrimp. *Commun. Biol.* 6:546. Ranking: 0.130 (BIOLOGY, 12/92) IF: 5.9.
5. Wang HoC\*, Lin SJ, Wang HC, Kumar R, Le PT, Leu JH\*. (2023) A bacterial binary toxin system that kills both insects and aquatic crustaceans: *Photobacterium* insect-related toxins A and B. *PLoS Pathogens*. 19:e1011330. Ranking: 0.155 (MICROBIOLOGY, 21/135) IF: 6.7.
6. Chen PY, Yi YC, Wang HC, Ng IS\*. (2023) Heterologous Expression of Toxic White Spot Syndrome Virus (WSSV) Protein in Engineered *Escherichia coli* Strains. *Appl. Biochem. Biotechnol.* 195(7):4524-4536. <https://doi.org/10.1007/s12010-023-04369-1> Ranking: 0.570 (BIOTECHNOLOGY & APPLIED MICROBIOLOGY, 89/156) IF:3.0
7. Wu YY, Kumar R, Wong CC, Reddy DNK, Huang FY. Synthesis and Characterization of Curcumin Incorporated Multi Component Nano-Scaffold with Enhanced Anti-bacterial and Wound Healing Properties. *Current Drug Delivery*, 2023; 20(4):400-413. Ranking: 0.70 (PHARMACOLOGY & PHARMACY, 197/278), IF: 2.4.

b) International conferences:

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1. Kumar R and Wang HC\* (2023). Role of Gut Health and Microbiome in Shrimp Aquaculture. "17th International Symposium on Biocatalysis and Agricultural Biotechnology (17th ISBAB)", Taichung, Taiwan. Nov. 8-10, 2023 (Invited Speaker).
2. Wang HC\* (2023). Fostering Sustainability in Shrimp Aquaculture: Enhancing Disease Control and Shrimp Broodstock Breeding for a Sustainable Future. The FOSIC conference. Nov. 6-9, 2023, Nigeria (Plenary speaker; on-line)
3. Wang HC\* (2023). "Empowering Shrimp Aquaculture: From Disease Control to Breeding Suitable *P. monodon* Broodstock for a Sustainable Future". Global Agri-food Scientific Symposium at Singapore International Agrifood Week (SIAW) 2023 November 1-2, Singapore (Invited speaker)
4. Wang HC\* (2023). From Challenges to Solutions: Advancing Shrimp Aquaculture for a Sustainable Future. 13th Asia Pacific Marine Biotechnology Conference (APMBC) and 5th Australia New Zealand Marine Biotechnology Society Conference (5th ANZMBS) October 2-6, Adelaide, Australia (Plenary speaker)
5. Lo CF (2023). Passing on the Torch of Wisdom in Shrimp Aquaculture. "Fish Health Section Conference: From the Pillars to the Next" September 6-9, Bangkok, Thailand. (Plenary speaker)
6. Wang HC\* (2023). Taking up the Torch of Wisdom: An Interdisciplinary Cooperation of Science, Implementation and Vision for Shrimp Aquaculture Research. "Fish Health Section Conference: From the Pillars to the Next" September 6-9, Bangkok, Thailand. (Plenary speaker)
7. Wang HC\* (2023). Activities in 2022/2023 & plans of OIE reference labs for shrimp WSD and AHPND. the 4th meeting of the ad hoc Steering Committee for the Regional Collaboration Framework on Aquatic Animal Health for Asia and the Pacific. June 29 (On-line), Busan, Korea. (Invited speaker)
8. Kumar R and Wang HC\* (2023). AHPND: Update and Challenges in Diagnosis. "Regional Workshop for World Organization for Animal Health (WOAH) National Focal Points for Aquatic Animals", Busan, Republic of Korea June 26 – 28, 2023 (Invited Speaker).
9. Kumar R and Wang HC\* (2023). An Update on the Evaluation of the Existing AHPND Diagnostic Methods. "The 4th Meeting of the ad hoc Steering Committee on Regional Collaboration Framework on Aquatic Animal Health in Asia and the Pacific", Busan, Republic of Korea June 29, 2023 (Invited Speaker).
10. Wang HC\*, Lo CF (2023) A Long and Challenging Path from Bench to Shrimp Breeding. 2023 Science and Technology Undergraduate Research Symposium. April 25, 2023. Manila, Philippines (Keynote Speaker)
11. Wang HC\*, Lo CF (2023) Challenges, Potential, Hopes and The Future of Shrimp Aquaculture. 2023 Taiwan-Africa Smart Sustainable Agriculture and Marine & Aquaculture Forum. Tainan, Taiwan. 24-25 March, 2023 (Oral presentation) (Invited Speaker)

c) National conferences:

0

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

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International Center for the Scientific Development of Shrimp Aquaculture  
<https://sites.google.com/view/icdsa/>

## TOR7: SCIENTIFIC AND TECHNICAL TRAINING

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

Yes

a) Technical visit : 2

b) Seminars : 2

c) Hands-on training courses: 0

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
	UNITED STATES OF AMERICA	

B		1
B	THAILAND	1

## TOR8: QUALITY ASSURANCE

18. Does your laboratory have a Quality Management System?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)	
AHPND PCR detection	Taiwan Accreditation Foundation	2023-2026 ISO17025.pdf

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
AHPND PCR detection	Taiwan Accreditation Foundation

20. Does your laboratory maintain a "biorisk management system" for the pathogen and the disease concerned?

Yes

Our system follows the regulations of ISO17025:2017

## 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?

No

## TOR10: NETWORK WITH WOAHP REFERENCE LABORATORIES

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

Yes

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

No

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?

No

## TOR12: EXPERT CONSULTANTS

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

Yes

KIND OF CONSULTANCY	Location	SUBJECT (FACULTATIVE)
OIE expert	remote	OIE Aquatic Manual progress updated in 2023 / Request for assistance for the chapter on infection with acute hepatopancreatic necrosis disease (AHPND)

29. Additional comments regarding your report:

No