

WOAH Reference Laboratory Reports Activities 2023

Activities in 2023

This report has been submitted : 30 avril 2024 08:43

Laboratory Information

Name of disease (or topic) for which you are a designated WOA Reference Laboratory:	African swine fever
Address of laboratory:	No. 369 Nanjing Road, Qingdao, P.R.China
Tel.:	+86-532 85.63.91.66
E-mail address:	zlwang111@163.com
Website:	https://www.cahec.cn/
Name (including Title) of Head of Laboratory (Responsible Official):	Zhiliang Wang, Prof. , PhD. DVM
Name (including Title and Position) of WOA Reference Expert:	Zhiliang Wang, Prof. , PhD. DVM, Deputy Director General of China Animal Health and Epidemiology Center
Which of the following defines your laboratory? Check all that apply:	Governmental

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 WOA Manual (Yes/No)	Total number of test performed last year	
		Nationally	Internationally
Indirect diagnostic tests			
c-ELISA		8681	0
Direct diagnostic tests			
Real-time PCR		28363	0
Virus isolation		300	0

TOR2: REFERENCE MATERIAL

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

No

3. Did your laboratory supply standard reference reagents (nonWOA-approved) and/or other diagnostic reagents to WOA 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 MEMBER COUNTRIES	COUNTRY OF RECIPIENTS
ASFV P30 antigen	b-ELISA	Produced/ provide	15mg	/	1	CHINA (PEOPLE'S REP. OF),
ASFV P30 mAb	b-ELISA	b-ELISA	5ml	/	1	CHINA (PEOPLE'S REP. OF),

4. Did your laboratory produce vaccines?

Not applicable

5. Did your laboratory supply vaccines to WOAHA Members?

Not applicable

TOR3: NEW PROCEDURES

6. Did your laboratory develop new diagnostic methods for the designated pathogen or disease?

Yes

NAME OF THE NEW TEST OR DIAGNOSTIC METHOD DEVELOPED	DESCRIPTION AND REFERENCES (PUBLICATION, WEBSITE, ETC.)
Differential diagnostic test for genotype I and II recombinant ASF	A triplex real-time quantitative PCR for detection and differentiation of genotype I and II recombinant African swine fever viruses (unpublished)

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?

Yes

NAME OF THE NEW VACCINE DEVELOPED	DESCRIPTION AND REFERENCES (PUBLICATION, WEBSITE, ETC.)
Naturally MGF deleted vaccine	A large-scale MGF deleted ASFV strain (ASFV-China 2018/1-ΔLVR) was obtained through continuous passage. The strain was tested to be an attenuated vaccine candidate and could provide solid protection against challenge with highly virulent ASFV. (Virus Genes. 2022 Oct 14:1–12. doi: 10.1007/s11262-022-01939-z.)

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

No

TOR4: DIAGNOSTIC TESTING FACILITIES

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

No

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

Yes

NAME OF THE WOAHA MEMBER COUNTRY RECEIVING A TECHNICAL CONSULTANCY	PURPOSE	HOW THE ADVICE WAS PROVIDED
MALAYSIA	Provide practice experience and measures of China for ASF prevention and control	Workshop(online)

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

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

Yes

Title of the study	Duration	PURPOSE OF THE STUDY	PARTNERS (INSTITUTIONS)	WOAHA MEMBER COUNTRIES INVOLVED OTHER THAN YOUR COUNTRY
Triplex Real time PCR to differential diagnosis for MGF/CD2v/P72 genes	3 years	Triplex Real time PCR to differential diagnosis for MGF/CD2v/P72 genes 3 years Developing new method and protocols for ASF diagnosis WOAHA ASF RL CSIRO, ACDP; WOAHA ASF RL OVI Australia South Africa 13. In exercising your activities, have you identified any	Triplex Real time PCR to differential diagnosis for MGF/CD2v/P72 genes 3 years Developing new method and protocols for ASF diagnosis WOAHA ASF RL CSIRO, ACDP; WOAHA ASF RL OVI Australia South Africa 13. In exercising your activities, have you identified any	AUSTRALIA SOUTH AFRICA

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

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:

Global Distribution and Genetic Characterization of African swine fever virus, sourced from WAHIS, EMPRES-i, Published research paper, international meetings, etc.

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:

Global Distribution and Genetic Characterization of African swine fever virus, disseminated by MARA website, CAHEC website, Research paper, international/national meetings, Wechat official account.

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] Han, N.; Qu, H.; Xu, T.; Hu, Y.; Zhang, Y.; Ge, S. Summary of the Current Status of African Swine Fever Vaccine Development in China. *Vaccines* 2023, 11, 762. <https://doi.org/10.3390/vaccines11040762>

[2] Qian B, Hu Y, Liu C, Zheng D, Han X, Gong M, Zou Y, Zeng D, Liao K, Miao Y, Wu X, Dai J, Wang Z, Xue F. Tetrandrine (TET) inhibits African swine fever virus entry into cells by blocking the PI3K/Akt pathway. *Virus Res.* 2024 Jan 2;339:199258. doi: 10.1016/j.virusres.2023.199258. Epub 2023 Nov 4. PMID: 37923171; PMCID: PMC10661491.

[3] Zeng D, Qian B, Li Y, Zong K, Ding L, Wang M, Zhou T, Lv X, Zhu K, Yu X, Jiang Y, Wu X, Xue F, Dai J. Quickly assessing disinfection effectiveness to control the spread of African swine fever virus. *Appl Microbiol Biotechnol.* 2023 Aug;107(15):4947-4959. doi: 10.1007/s00253-023-12611-3. Epub 2023 Jun 12. PMID: 37306707.

[4] Zhang X, Wang Z, Ge S, Zuo Y, Lu H, Lv Y, Han N, Cai Y, Wu X, Wang Z. Attenuated African swine fever virus through serial passaging of viruses in cell culture: a brief review on the knowledge gathered during 60 years of research. *Virus Genes.* 2023 Feb;59(1):13-24. doi: 10.1007/s11262-022-01939-z. Epub 2022 Oct 14. PMID: 36229722; PMCID: PMC9560881.

[5] Qi C, Zhang Y, Wang Z, Li J, Hu Y, Li L, Ge S, Wang Q, Wang Y, Wu X, Wang Z. Development and application of a TaqMan-based real-time PCR method for the detection of the ASFV MGF505-7R gene. *Front Vet Sci.* 2023 Apr 4;10:1093733. doi: 10.3389/fvets.2023.1093733. PMID: 37256000; PMCID: PMC10226079.

b) International conferences:

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[1] ASF RL Network meeting (WOAH, Mar 23, 2023)

[2] ASF RL Network meeting (WOAH, Jul 5, 2023)

[3] 8th Standing Group of Experts on African swine fever for Asia and the Pacific (WOAH, Jul 27-28, 2023)

[4] ASF RL Network meeting (WOAH, Oct 19, 2023)

[5] 1st Meeting for Malaysia-China Technical Working Group on Livestock (Sep 14, 2023)

c) National conferences:

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[1] ASF NRL Network meeting (MARA, Mar 23, 2023)

[2] ASF NRL Network meeting (MARA, Oct 25, 2023)

[3] National meeting for ASF prevention and control (Oct 25, 2023)

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 WOAHO Members?

Yes

a) Technical visit : 0

b) Seminars : 30

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
B		30

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	ISO 17025	ISO 17025.jpg

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Real-time PCR	China National Accreditation Service for Conformity Assessment (ilac-MRA, APLAC-MRA)
ELISA	China National Accreditation Service for Conformity Assessment (ilac-MRA, APLAC-MRA)
virus isolation	China National Accreditation Service for Conformity Assessment (ilac-MRA, APLAC-MRA)

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

Yes

The experiments related to ASFV are conducted in ABSL-3 laboratory(CNAS BL0008,CNAS-CL 05:2009)

TOR9: SCIENTIFIC MEETINGS

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

Yes

NATIONAL/INTERNATIONAL	TITLE OF EVENT	CO-ORGANISER	DATE (MM/YY)	LOCATION	NO. PARTICIPANTS
National	National workshop for ASF laboratory network	CADC	2023-03-23	Online	17
National	National workshop for ASF laboratory network	CADC	2023-10-25	Online	16
International	8th Standing Group of Experts on African swine fever for Asia and the Pacific(WOAH, Jul 27-28, 2023)	WOAH/FAO/MARA	2023-07-27	Qingdao, P.R.China	34

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

Yes

Title of event	Date (mm/yy)	Location	Role (speaker, presenting poster, short communications)	Title of the work presented
8th Standing Group of Experts on African swine fever for Asia and	2023-07-27	Qingdao, P.R.China	speaker, presenting poster	Biosafety and biosecurity management for ASF

the Pacific				
ASF RL Network meeting	2023-03-23	online	communication	Comments on ASF guideline draft
ASF RL Network meeting	2023-07-05	online	communication	Comments on ASF guideline draft
ASF RL Network meeting	2023-10-19	online	communication	Comments on ASF guideline draft

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?

Yes

NETWORK/DISEASE	ROLE OF YOUR LABORATORY (PARTICIPANT, ORGANISER, ETC)	NO. PARTICIPANTS	PARTICIPATING WOAHP REF. LABS
African swine fever	PARTICIPANT	13	AAHL, Pirbright, ARC-OVI, CFIA, UCM, etc

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?

Yes

TITLE OF THE PROJECT OR CONTRACT	SCOPE	NAME(S) OF RELEVANT WOAHP REFERENCE LABORATORIES
EU project 862874- VACDIVA	Providing three safe and effective pilot vaccines for wild boars and domestic pigs	WOAHP ASF Reference Laboratory, Universidad Complutense de Madrid
Addressing African swine fever Protocols and Guidelines For Laboratory Diagnosis	Developing new tests and review existing protocols for ASF diagnosis.	WOAHP ASF Reference Laboratory, CSIRO, Australian Centre for Disease Preparedness, Geelong, Victoria, Australia WOAHP ASF Reference Laboratory, Onderstepoort Veterinary Institute, Agricultural Research Council, Onderstepoort, South Africa

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?

Yes

Purpose for inter-laboratory test comparisons ¹	Role of your reference laboratory (organizer/participant)	No. participating laboratories	Name of the Test	WOAHP Member Countries
Validation of ASFV Real-time PCR	Organiser	6	ASFV Real-time PCR	CHINA (PEOPLE'S REP. OF),

TOR12: EXPERT CONSULTANTS

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

Yes

KIND OF CONSULTANCY	Location	SUBJECT (FACULTATIVE)
responding to specific technical queries from WOAHP	Online	WOAHP manual

29. Additional comments regarding your report:

No