

# WOAH Reference Laboratory Reports Activities 2022

## Activities in 2022

This report has been submitted : 7 mars 2023 23:46

### Laboratory Information

<b>Name of disease (or topic) for which you are a designated WOA Reference Laboratory:</b>	African swine fever
<b>Address of laboratory:</b>	No. 369 Nanjing Road, Qingdao, P.R.China
<b>Tel.:</b>	+8653285639166
<b>E-mail address:</b>	zlwang111@163.com
<b>Website:</b>	
<b>Name (including Title) of Head of Laboratory (Responsible Official):</b>	Zhiliang Wang, Prof. , PhD, DVM
<b>Name (including Title and Position) of WOA Reference Expert:</b>	Zhiliang Wang, Prof. , PhD, DVM, Deputy Director General of China Animal Health and Epidemiology Center
<b>Which of the following defines your laboratory? Check all that apply:</b>	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	
Indirect diagnostic tests		Nationally	Internationally
c-ELISA	Yes	7745	0
Direct diagnostic tests		Nationally	Internationally
Real-time PCR	Yes	22012	7
Virus isolation	Yes	45	0

### TOR2: REFERENCE MATERIAL

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

No

3. Did your laboratory supply standard reference reagents (nonWOAH-approved) and/or other diagnostic reagents to WOA?H 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?H MEMBER COUNTRIES	COUNTRY OF RECIPIENTS
ASFV P30 antigen	bELISA	PRODUCED/ PROVIDE	12mg	/	/	Asia and Pacific
ASFV P30 mAb	bELISA	PRODUCED/ PROVIDE	7ml	/	/	Asia and Pacific

4. Did your laboratory produce vaccines?

Not applicable

5. Did your laboratory supply vaccines to WOA?H Members?

Not applicable

## 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 WOA?H Standards for the designated pathogen or disease?

Yes

NAME OF THE NEW TEST OR DIAGNOSTIC METHOD DEVELOPED	DESCRIPTION AND REFERENCES (PUBLICATION, WEBSITE, ETC.)
Triplex PCR for ASFV differential diagnosis	The OIE ASF Reference Laboratory Network's overview of African swine fever diagnostic tests for field application. (2022) <a href="https://www.woah.org/en/document/oie-asf-reference-laboratory-networks-overview-of-african-swine-fever-diagnostic-tests-for-field-application/">https://www.woah.org/en/document/oie-asf-reference-laboratory-networks-overview-of-african-swine-fever-diagnostic-tests-for-field-application/</a>
A duplex real-time PCR assay for differentiation of genotypes I and II African swine fever viruses	Li X, Hu Y, Liu P, Zhu Z, Liu P, Chen C, Wu X. Development and application of a duplex real-time PCR assay for differentiation of genotypes I and II African swine fever viruses. Transbound Emerg Dis. 2022 Sep;69(5):2971-2979. doi: 10.1111/tbed.14459. Epub 2022 Jan 28. PMID: 35061937.
Real-time qPCR (modified)	GB-T 18648-2020 Diagnostic techniques for African swine fever
Fluorescent RAA	GB-T 18648-2020 Diagnostic techniques for African swine fever
High sensitivity fluorescence immunoassay	GB-T 18648-2020 Diagnostic techniques for African swine fever
Fluorescent immunochromatography test strip	Li C, He X, Yang Y, Gong W, Huang K, Zhang Y, Yang Y, Sun X, Ren W, Zhang Q, Wu X, Zou Z, Jin M. Rapid and visual detection of African swine fever virus antibody by using fluorescent immunochromatography test strip. Talanta. 2020 Nov 1;219:121284. doi: 10.1016/j.talanta.2020.121284. Epub 2020 Jun 13. PMID: 32887174.
Microfluidic-CFPA chip	Ye X, Li L, Li J, Wu X, Fang X, Kong J. Microfluidic-CFPA Chip for the Point-of-Care Detection of African Swine Fever Virus with a Median Time to Threshold in about 10 min. ACS Sens. 2019 Nov 22;4(11):3066-3071. doi: 10.1021/acssensors.9b01731. Epub 2019 Oct 24. PMID: 31602971.

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.)
Sub-unit vaccine	ASFV epitopes were selected, synthesized and tested for vaccine candidate. (Unpublished)

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

No

## TOR4: DIAGNOSTIC TESTING FACILITIES

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

No

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

Yes

NAME OF THE WOAHS MEMBER COUNTRY RECEIVING A TECHNICAL CONSULTANCY	PURPOSE	HOW THE ADVICE WAS PROVIDED
PHILIPPINES	Verification of diagnostic reagents	Diagnostic methods and suggestions were provided by email
KOREA (REP. OF)	Validation of diagnostic reagents	Validation report

## TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

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

Yes

Title of the study	Duration	PURPOSE OF THE STUDY	PARTNERS (INSTITUTIONS)	WOAHS MEMBER COUNTRIES INVOLVED OTHER THAN YOUR COUNTRY
Triplex Real time PCR to differential diagnosis for MGF/CD2v/P72 genes 2021-2023	2021-2023	Developing new method and protocols for ASF diagnosis	WOAHS ASF RL ACDP; WOAHS ASF RL OVI	AUSTRALIA SOUTH AFRICA

## 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] Zhenzhong W, Chuanxiang Q, Shengqiang G, Jinming L, Yongxin H, Xiaoyue Z, Yan L, Naijun H, Xiaodong W, Zhiliang W, Yingjuan Q. Genetic variation and evolution of attenuated African swine fever virus strain isolated in the field: A review. *Virus Res.* 2022 Oct 2;319:198874.
- [2] Zhu Z, Ge S, Cai Z, Wu Y, Lu C, Zhang Z, Fu P, Mao L, Wu X, Peng Y. Systematic identification and characterization of repeat sequences in African swine fever virus genomes. *Vet Res.* 2022 Dec 2;53(1):101.
- [3] Bao J, Zhang Y, Shi C, Wang Q, Wang S, Wu X, Cao S, Xu F, Wang Z. Genome-Wide Diversity Analysis of African Swine Fever Virus Based on a Curated Dataset. *Animals (Basel).* 2022 Sep 16;12(18):2446.
- [4] Qu H, Ge S, Zhang Y, Wu X, Wang Z. A systematic review of genotypes and serogroups of African swine fever virus. *Virus Genes.* 2022 Apr;58(2):77-87. doi: 10.1007/s11262-021-01879-0. Epub 2022 Jan 21. PMID: 35061204; PMCID: PMC8778497.

b) International conferences:

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- [1] Standing Group of Experts on African swine fever for Asia and the Pacific(WOAH, Mar2022)
- [2] ASF RL Network meeting(WOAH, Mar2022)
- [3] ASF RL Network meeting( WOAH, Jun 2022)
- [4] ASF RL Network meeting( WOAH,Sep2022)
- [5] China - Thailand meeting on Prevention and Control of African Swine Fever(Jan2022)

c) National conferences:

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- [1] National conference for animal disease surveillance and investigation( July 2022)
- [2] National meeting for ASF prevention and control (Nov 2022)

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

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- [1] <http://www.xmsyj.moa.gov.cn/yqfb/>  
 [2] <https://www.cahec.cn/imgList/85.html>  
 [3] WeChat Official Account

## TOR7: SCIENTIFIC AND TECHNICAL TRAINING

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

Yes

- a) Technical visit :  
 b) Seminars : 60  
 c) Hands-on training courses:  
 d) Internships (> 1 month)

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	Thailand	60

## TOR8: QUALITY ASSURANCE

18. Does your laboratory have a Quality Management System?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)	
ISO/IEC 17025		ISO 17025.jpg

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Real-time qPCR	China National Accreditation Service for Conformity Assessment (ilac-MRA, APLAC-MRA)
ELISA	China National Accreditation Service for Conformity Assessment (ilac-MRA, APLAC-MRA)
ASFV 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 carried out 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 WOAHA?

Yes

NATIONAL/ INTERNATIONAL	TITLE OF EVENT	CO-ORGANISER	DATE (MM/YY)	LOCATION	NO. PARTICIPANTS

National	National workshop for ASF laboratory network	CADC	2022-01-05	Online	16
National	National workshop for ASF laboratory network	CADC	2022-06-28	Online	18
National	National meeting for ASF prevention and control	/	2022-11-30	Online	45

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

Yes

Title of event	Date (mm/yy)	Location	Role (speaker, presenting poster, short communications)	Title of the work presented
Standing Group of Experts on African swine fever for Asia and the Pacific	2022-03-09	Online	Participant	/
ASF RL Network meeting	2022-12-03	Online	communication	Comments on ASF guidelines draft
ASF RL Network meeting	2022-06-30	Online	communication	Comments on ASF guidelines draft
ASF RL Network meeting	2022-09-29	Online	communication	Comments on ASF guidelines draft

## **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?

Yes

PURPOSE OF THE PROFICIENCY TESTS: 1	ROLE OF YOUR REFERENCE LABORATORY (ORGANISER/ PARTICIPANT)	NO. PARTICIPANTS	PARTICIPATING WOA?H REF. LABS/ ORGANISING WOA?H REF. LAB.
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25. Did you organise or participate in inter-laboratory proficiency tests with WOA?H Reference Laboratories designated for the same pathogen?

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?

Yes

TITLE OF THE PROJECT OR CONTRACT	SCOPE	NAME(S) OF RELEVANT WOA?H REFERENCE LABORATORIES
EU project 862874- VACDIVA	Providing three safe and effective pilot vaccines for wild boars and domestic pigs	WOAH 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.	WOAH ASF Reference Laboratory, CSIRO, Australian Centre for Disease Preparedness, Geelong, Victoria, Australia; WOAH ASF Reference Laboratory, Onderstepoort Veterinary Institute, Agricultural Research Council, Onderstepoort, South Africa
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## 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?

Yes

Purpose for inter-laboratory test comparisons <sup>1</sup>	Role of your reference laboratory (organizer/participant)	No. participating laboratories	Region(s) of participating WOAH Member Countries
Validation of ASFV Real-time qPCR	Organizer	6	Asia and Pacific
Validation of ASFV Real-time qPCR	Participant	6	Asia and Pacific

## TOR12: EXPERT CONSULTANTS

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

Yes

KIND OF CONSULTANCY	Location	SUBJECT (FACULTATIVE)
Responding to specific technical queries from WOAH	Online	Reviewed and Provided comments on Recommendation to support the development of international guidelines for ASF MLV first generation vaccine purity, potency, safety and efficiency (African swine fever Project contract No PO22-00179, drafts)
Responding to specific technical queries from WOAH	Online	Reviewed and Provided comments on African swine fever diagnostic tests for field samples.( <a href="https://reliefweb.int/attachments/6a5c367e-b595-49c6-a848-5663128ca744/en-oie-asf-poc-tests-guide-final.pdf">https://reliefweb.int/attachments/6a5c367e-b595-49c6-a848-5663128ca744/en-oie-asf-poc-tests-guide-final.pdf</a> )

29. Additional comments regarding your report:

Yes

*COVID-19 situation and restriction on international exchange of material with biological hazard limited some international activities.*