OIE Reference Laboratory Reports Activities

Activities in 2019

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Name of disease (or topic) for which you are a designated OIE Reference Laboratory:	Classical swine fever
Address of laboratory:	China Institute of Veterinary Drug Control (IVDC)/Center for Veterinary Drug Evaluation (CVDE) Department of Reference Substance Research No.8 Zhongguancun South Street Haidian District Beijing 100081 CHINA (PEOPLES REP. OF)
Tel.:	+86-010 612 55 400,+
Fax:	+86-10 62 10 36 70
E-mail address:	wq551@vip.sina.com
Website:	
Name (including Title) of Head of Laboratory (Responsible Official):	Prof. Zhao Qizu
Name (including Title and Position) of OIE Reference Expert:	Prof. Qin Wang
Which of the following defines your laboratory? Check all that apply:	Governmental Research Academic

ToR 1: To use, promote and disseminate diagnostic methods validated according to OIE Standards

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 OIE Manual (Yes/No)	Total number of test performed last year	
Indirect diagnostic tests		Nationally	Internationally
fluorescent antibody virus neutralisation test	no	0	0
Indirect ELISA Kit to Detect Antibody against Classical Swine Fever Virus	yes	1518	0
Blocking ELISA Kit to Detect the Antibody against Classical Swine Fever Virus	yes	9493	0
CLIA Kit to Detect Antibody against Classical Swine Fever Virus	yes	1518	0
Direct diagnostic tests		Nationally	Internationally
Reverse-transcription quantitative polymerase chain reaction (CSFV)	yes	8537	
Reverse-transcription nest polymerase chain reaction (CSFV)	yes	1034	
Genetic Typing (CSFV phylogenetic analysis)	yes	16	
Virus isolation (CSFV)	yes	6	
Fluorescent antibody test (CSFV)	yes	6	

ToR 2: To develop reference material in accordance with OIE requirements, and implement and promote the application of OIE Standards.
To store and distribute to national laboratories biological reference products and any other reagents used in the diagnosis and control of the designated pathogens or disease.

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

No

3. Did your laboratory supply standard reference reagents (non OIE-approved) and/or other diagnostic reagents to OIE Member Countries?

Yes

Type of reagent available	Related diagnostic test	Produced/ provide	Amount supplied nationally (ml, mg)	Amount supplied internationally (ml, mg)	No. of recipient OIE Member Countries	Region of recipients
Reference positive sera for antibody detection	Fluorescent antibody virus neutralisation test/ three types of enzyme-linked immunosorbent assay (ELISA) for antibody detection	Produced & provided	594ml			☐Africa ☐Americas ☒Asia and Pacific ☐Europe ☐Middle East
Reference negative sera for antibody detection	Fluorescent antibody virus neutralisation test/ three types of enzyme-linked immunosorbent assay (ELISA) for antibody detection	Produced & provided	21ml			☐Africa ☐Americas ☒Asia and Pacific ☐Europe ☐Middle East
Reference sera pannel against CSFV	Fluorescent antibody virus neutralisation test/ three types of enzyme-linked immunosorbent assay (ELISA) for antibody detection	Produced & provided	70ml			☐Africa ☐Americas ☒Asia and Pacific ☐Europe ☐Middle East
Monoclonal antibody for antigen and antibody detection	Fluorescent antibody virus neutralisation test for antigen, antibody detection and for research / virus isolation	Produced & provided	20ml			☐Africa ☐Americas ☒Asia and Pacific ☐Europe ☐Middle East
Specific pathogens sera against PRV, PRRSV	Three types of enzyme-linked immunosorbent assay (ELISA) for discriminating serology testing	Produced & provided	281ml			☐Africa ☐Americas ☒Asia and Pacific ☐Europe ☐Middle East

4. Did your laboratory produce vaccines?

No

5. Did your laboratory supply vaccines to OIE Member Countries?

No

ToR 3: To develop, standardise and validate, according to OIE Standards, new procedures for diagnosis and control of the designated pathogens or diseases

6. Did your laboratory develop new diagnostic methods validated according to OIE Standards for the designated pathogen or disease?

Yes

7. Did your laboratory develop new vaccines according to OIE Standards for the designated pathogen or disease?

Yes

Name of the new test or diagnostic method or vaccine developed	Description and References (Publication, website, etc.)
ASFV Real-time RT-PCR kit	Chinese Registration certificates: under review□Passed preliminary review□
CLIA Kit to Detect Antibody against Classical Swine Fever Virus	The kit has passed the comfirmation test and will be approval a new national registration certificate of new veterinary drugs.
Blocking ELISA Kit to Detect the Antibody against Classical Swine Fever Virus	The kit has passed the comfirmation test and will be approval a new national registration certificate of new veterinary drugs.
Diagnostic Techniques for Classical Swine Fever	Version of National standard□GB/T16551—2008 is being revised.
ASFV Real-time RT-PCR test	Chinese industry standard:T/CVMA5-1018

ToR 4: To provide diagnostic testing facilities, and, where appropriate, scientific and technical advice on disease control measures to OIE Member Countries

8. Did your laboratory carry out diagnostic testing for other OIE Member Countries?

No

9. Did your laboratory provide expert advice in technical consultancies on the request of an OIE Member Country?

Yes

Name of the OIE Member Country receiving a technical consultancy	Purpose	How the advice was provided
PHILIPPINES	epidemiological surveillance□diagnostic tests□control and eradication strategies for surveillance and eradication program of CSF in Philippiens	Provide on-site training Courses and experiment practice in China.
THAILAND	epidemiological surveillance□diagnostic tests□control and eradication strategies for surveillance and eradication program of CSF in Thailand.	visited Thailand and gave presentations, communication.
PHILIPPINES	epidemiological surveillance□diagnostic tests□control and eradication strategies for surveillance and eradication program of CSF in Philippiens	Visited Philippiens and gave presentations,and communicated about CSF control and further collaboration with local CSF researchers.

ToR 5: To carry out and/or coordinate scientific and technical studies in collaboration with other laboratories, centres or organisations

10. Did your laboratory participate in international scientific studies in collaboration with OIE Member Countries other than the own?

Yes

Title of the study	Duration	Purpose of the study	Partners (Institutions)	OIE Member Countries involved other than your country
CSF surveillance and eradication program	April 8-12, 2019 in China,December 11-14, 2019 in Philippines	epidemiological surveillance□diagnostic tests□ control and eradication strategies for surveillance and eradication program of CSF in Philippiens	Central Mindanao University of Philippines	PHILIPPINES
New diagnostic approach	December 15-18, 2019	Detection of Viral Nucleic Acid and diagnostic gene chips for CSFV/ASFV/APPV	Chulalongkorn University of Thailand	THAILAND

ToR 6: To collect, process, analyse, publish and disseminate epizootiological data

relevant to the designated pathogens or diseases

11. Did your Laboratory collect epizootiological data relevant to international disease control?

Yes

If the answer is yes, please provide details of the data collected:
642 CSFV E2 sequences from 35 countries between 1958 to 2006, introduced from Hannover CSF database,http://viro08.tiho-hannover.de/eg/csf

12. Did your laboratory disseminate epizootiological data that had been processed and analysed?

Yes

If the answer is yes, please provide details of the data collected:
In order to clarify the molecular epidemiology of CSF in China, 941 E2 sequences of CSFV from 1979 to 2019 are collected and classified into 3 major genotypes (Ⅰ,Ⅱand Ⅲ) and 5 subgenotypes (2.1, 2.2, 2.3 1.1 and 3.4) in 32 provinces including Taiwan province in China. After analyzing the data of 927 E2 sequences collected from China territory, the proportions of subgenotype 1.1, 2.1, 2.2, 2.3 are 23.34%, 64.27%, 10.40% and 1.99 % respectively. The results show that genotypeⅡwhich covers 29 provinces of China is most popular strain from 1979 to 2019. This data shows that the CSFV genomes are very stable in 40 years. So it is realizable to eradicate CSFV theoretically. However, the genotype 3 had once appeared in adjacent countries and reginal, so it's important to monitor along the borders of these countries and reginal. In order to carry out accurate prediction and tracking of the epidemic trend of CSF, we developed the first CSFV epidemiology information system□CSFinfo□based on MapObject and geographic information software ArcGIS.CSFinfo includes more than 1200 CSFV isolates, 941 E2 gene sequences and other gene sequences. As a result, China has now become the second country which has a complete CSF database after Germany. The CSFinfo system can help understand the current status, perform the epidemic surveillance and prediction, as well as establish the control and eradication strategies in the future.

13. What method of dissemination of information is most often used by your laboratory? (Indicate in the appropriate box the number by category)

a) Articles published in peer-reviewed journals: 3
1.Han Changfu, minister of agriculture and rural areas, as a chief editor. 70 years of agricultural development in P.R.China - science and technology volume□China Agriculture Press, 2019. Wang Qin and Zhao Qizu Be involved in writing CSF.
2.Ning Yibao, as a chief editor. Veterinary Vaccinology (second edition), China Agriculture Press, 2019. Fan Xuezheng and Zhao Qizu as the deputy editors, Wang Qin and Xu Lu as the proofreaders.
3.NIU Kang□XU Lu□ZHANG Qian-yi□XIA Ying-ju□ZHU Yuan-yuan, ZOU Xing-qi□LI Cui□ZHAO Qi-zu□WANG Qin*. Expression and purification of classical swine fever virus Erns protein in baculovirus system. Chinese Journal of Veterinary Medicine, 2019 (55)2:31-35+38

b) International conferences: 5
1. 2nd OIE Regional Meeting of OIE Reference Centres in Asia and the Pacific 12-13 March 2019, Tokyo, Japan
Wang Qin. Reference laboratory for CSF /Duties and responsibilities in China, Oral Presentation.
Xia Yingju and Xu Lu, Session III: How to activate the network amongst RCs? Discusses,comments and summary
2.2019 China-Sudan Standardization Cooperation Seminar,Changzhou,China 2019.8.14
Wang Qin,Animal disease prevention and control and technical standardization, Key Speaker.
3.2019 China-belarus Standardization Cooperation Seminar,Changzhou,China 2019.9.30
Wang Qin,Animal disease prevention and control and technical standardization, Key Speaker.
4.2019 International Symposium of Classical Swine Fever,Beijing,China,23-25th Oct 2019
Wang Qin.Research Achievements of CSF in National/OIE RL for CSF in IVDC, Key Speaker.

Zhao Qi-Zu.Vaccine research on African swine fever and Classical Swine Fever, Key Speaker.
Xia Ying-Ju.The role of RIG-I in CSFV infection, Key Speaker.
Dr.Xia Ying-Ju simultaneous interpreted part of the conference Presentation
5.Regional Workshop on Swine Disease Diagnosis Beijing,China,30-31 October 2019
Wang Qin and Zou Xingqi organized and attended this symposium on behave of IVDC.

c) National conferences: 4
1.Workshop of Executive Director of Beijing Association of Animal Science and Veterinary Medicine.Beijing,China,15 January 2019,Discusses and comments.Wang Qin
2.African swine fever risk assessment meeting organized by Beijing Animal Disease Control Center.Beijing,China,20 Mar 2019,Discusses and comments.Wang Qin
3.8th Veterinary Congress, Nanjing, China, 4-6 November 2019,
Wang Qin,CSF eradication-our commitment, Key Speaker.
4.Conference of Beijing Association of Animal Science and Veterinary Medicine. Beijing, China, 7 December 2019,
Wang Qin,Research Achievements of CSF in China,Key Speaker.

d) Other:
(Provide website address or link to appropriate information) 6
1.According to the request of the Animal Husbandry and Veterinary Bureau of the Ministry of Agriculture and Rural Affairs of the P. R. China "Regarding on Assisting in Providing Reports Related to the Participation of the 31st Regional Conference of the World Animal Health Organization",OIE/NCSFRL in IVDC submitted the report of Research Achievements of CSF in National/OIE RL for CSF in IVDC to the animal husbandry and veterinary bureau in August this year,also Poster Presentation.
2.According to the notice of the animal husbandry and veterinary bureau of the ministry of agriculture and rural affairs of the People's Republic of China on holding a seminar on the prevention and control of African swine fever and the biosafety management of veterinary laboratories,Wang Qin attended the meetings and submitted the report of biosafety management of OIE/NCSFRL in IVDC to the Animal Husbandry and Veterinary Bureau in July this year.
3.Wang Qin and Xia Yingju Communicated with OIE-CSF groups about revision and update of OIE Mannual Chapter 2.8.3.
4.Completed Questionnaire: from OIE in February 2019 about Veterinary Services.
5.Wang Qin submitted new version "Final suggestion report of CSF prevention and control in China" again to Ministry of Agriculture and Rural Affairs of the People’s Republic of China.
6.Wang Qin received the Outstanding Contribution Award of the Journal of Integrative Agriculture 2019.

ToR 7: To provide scientific and technical training for personnel from OIE Member Countries
To recommend the prescribed and alternative tests or vaccines as OIE Standards

14. Did your laboratory provide scientific and technical training to laboratory personnel from other OIE Member Countries?

Yes

a) Technical visits: 2
b) Seminars: 3
c) Hands-on training courses: 1
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
a.Visited Central Mindanao University of Philippines, December 11-14, 2019	China	200 Students and faculty from Central Mindanao University in Philippines
a.Visited Chulalongkorn University of Thailand, December 15-18, 2019	China	10 faculty and Practitioners
b.2019 China-Sudan Standardization Cooperation Seminar, Changzhou, China 2019.8.14	China	30 Sudan Inspection and Quarantine Officers
b. 2019 International Symposium of Classical Swine Fever, Beijing, China, 23-25th Oct 2019	China, France, Spain, Japan, United States, Germany, UK, Poland, Russia, Sweden, Cuba	500
b. 2019 China-belarus Standardization Cooperation Seminar, Changzhou, China 2019.9.30	China	25 Belarus Inspection and Quarantine Officer
c	China	3

ToR 8: To maintain a system of quality assurance, biosafety and biosecurity relevant for the pathogen and the disease concerned

15. Does your laboratory have a Quality Management System?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)
ISO/IEC 17025:2005	689815812420946162.jpg
CNAS-CL05:2009	229849278036585477.jpg

16. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Reverse-transcription nest polymerase chain reaction (CSFV)	CNAS
Reverse-transcription quantitative polymerase chain reaction (CSFV)	CNAS
Immunoperoxidase test for CSFV antigen detection	CNAS
Isolation of CSFV in cell culture	CNAS
Detection of CSFV antigen by ELISA	CNAS
Indirect ELISA Kit to Detect Antibody against Classical Swine Fever	CNAS
Blocking ELISA Kit to Detect the Antibody against Classical Swine Fever Virus	CNAS
Florescent antibody virus neutralization test	CNAS
ASFV virus isolation viral isolation in porcine leukocytes and hemadsorption	CNAS
ASFV virus isolation in porcine alveolar macrophages and hemadsorption	CNAS
Polymerase chain reaction for ASFV	CNAS
Quantitative polymerase chain reaction for ASFV	CNAS
Genotyping of ASFV strains	CNAS

17. Does your laboratory maintain a “biorisk management system” for the pathogen and the disease concerned?

Yes

(See Manual of Diagnostic Tests and Vaccines for Terrestrial Animals, Chapter 1.1.4)

ToR 9: To organise and participate in scientific meetings on behalf of the OIE

18. Did your laboratory organise scientific meetings on behalf of the OIE?

No

19. Did your laboratory participate in scientific meetings on behalf of the OIE?

Yes

Title of event	Date (mm/yy)	Location	Role (speaker, presenting poster, short communications)	Title of the work presented
2nd OIE Regional Meeting of OIE Reference Centres in Asia and the Pacific	12-14 March 2019	Tokyo, Japan	Oral Presentation(Wang Qin)	Reference laboratory for CSF /Duties and responsibilities in China
2nd OIE Regional Meeting of OIE Reference Centres in Asia and the Pacific	12-14 March 2019	Tokyo, Japan	short communications(Xia Yingju and Xu Lu)	How to activate the network amongst RCs?
Risk assessment of ASFV in Biologics in China	12th March 2019	EU embassy,Beijing,China	Key speaker(Zhao Qi-Zu)	Comparison CSF and ASF--How to Evaluate African swine fever vaccine
2019 International Symposium on prevention and control of African Swine Fever	9th April 2019	Beijing, China	short communications(Zhao Qizu)	prevention and control of African Swine Fever
2019 China-Sudan Standardization Cooperation Seminar	14 Aug 2019	Changzhou, China	Key speaker(Wang Qin)	Animal disease prevention and control and technical standardization
2019 China-Belarus Standardization Cooperation Seminar	30 Sep 2019	Changzhou, China	Key speaker(Wang Qin)	Animal disease prevention and control and technical standardization
2019 International Symposium of Classical Swine Fever	23-25th Oct 2019	Beijing, China	Key speaker(Wang Qin)	Research Achievements of CSF in National/OIE RL for CSF in IVDC
2019 International Symposium of Classical Swine Fever	23-25th Oct 2019	Beijing, China	Key speaker(Zhao Qi-Zu)	Comparison CSF and ASF--How to Evaluate African swine fever vaccine
2019 International Symposium of Classical Swine Fever	23-25th Oct 2019	Beijing, China	Key speaker(Xia Ying-Ju)	The role of RIG-I in CSFV infection

Regional Workshop on Swine Disease Diagnosis	30-31 October 2019	Beijing, China	short communications(Wang Qin and Zou Xingqi)	Swine Disease Diagnosis
Workshop of Executive Director of Beijing Association of Animal Science and Veterinary Medicine	15 January 2019	Beijing, China	short communications(Wang Qin)	prevention and control of CSF
African swine fever risk assessment meeting organized by Beijing animal disease control center	20 Mar 2019	Beijing, China	short communications(Wang Qin)	prevention and control of ASF
8th veterinary congress	4-6 November 2019	Nanjing, China	Key Speaker(Wang Qin)	CSF eradication-our commitment
Conference of Beijing Association of Animal Science and Veterinary Medicine	7 December 2019	Beijing, China	Key Speaker(Wang Qin)	Research Achievements of CSF in China

ToR 10: To establish and maintain a network with other OIE Reference Laboratories designated for the same pathogen or disease and organise regular inter-laboratory proficiency testing to ensure comparability of results

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

Yes

21. Was your laboratory involved in maintaining a network with OIE Reference Laboratories designated for the same pathogen or disease by organising or participating in proficiency tests?

Yes

Purpose of the proficiency tests: [1]	Role of your Reference Laboratory (organiser/ participant)	No. participants	Participating OIE Ref. Labs/ organising OIE Ref. Lab.
Validation of CSFV serological diagnostic protocol and tests for quality control of CSFV vaccines	Participant	47	Participated CSF inter-laboratory proficiency tests 2018 organised by OIE/EU Ref Lab for CSF from TiHo Hannover Germany. The evaluation letter shows the results are completely in line with OIE/EU Ref.Lab's expectations in 2019.

[1] *validation of a diagnostic protocol: specify the test; quality control of vaccines: specify the vaccine type, etc.*

22. Did your laboratory collaborate with other OIE Reference Laboratories for the same disease on scientific research projects for the diagnosis or control of the pathogen of interest?

No

ToR 11: To organise inter-laboratory proficiency testing with laboratories other than OIE Reference Laboratories for the same pathogens and diseases to ensure equivalence of results

23. Did your laboratory organise or participate in inter-laboratory proficiency tests with laboratories other than OIE Reference Laboratories for the same disease?

Yes

Note: See Interlaboratory test comparisons in: Laboratory Proficiency Testing at: http://www.oie.int/en/our-scientific-expertise/reference-laboratories/proficiency-testing see point 1.3

Purpose for inter-laboratory test comparisons[1]	No. participating laboratories	Region(s) of participating OIE Member Countries
National inter-laboratory proficiency test for CSF antigen and antibody detection had been organized by OIE/National Reference Laboratory for CSF in IVDC first time in 2019 in China.	122 laboraries Participant this PT, theevaluation result shows that only one laborary is not completely in line with OIE/National Reference Laboratory for CSF in IVDC. It shows that more than 90% of the institutions carrying out CSFV detection in China can meet the national standards and meet the task requirements of diagnosis and monitoring of CSFV in China.	☐Africa ☐Americas ☒Asia and Pacific ☐Europe ☐Middle East

ToR 12: To place expert consultants at the disposal of the OIE

24. Did your laboratory place expert consultants at the disposal of the OIE?

Yes

Kind of consultancy	Location	Subject (facultative)
Email	Beijing PR. China	Review and finish the update of OIE Terrestrial Manual Chapter 2.8.3

25. Additional comments regarding your report:

OIE reference laboratory for classical swine fever (CSF) in IVDC has conducted the following activities in 2019 for a better control of CSF in China and neighboring countries.
1.Complete disease surveillance of CSF and African swine fever in key areas in China according to the requirement from the Ministry of Agriculture and Rural Affairs（MOARA）
2.Successfully held '2019 International Symposium for Classical Swine Fever'. We invited fifteen well-known international scientists in CSF or ASF field from OIE reference laboratories or research institutes as well as 15 national scientists who worked at the front line for control CSF or ASF to give their presentations in the symposium. Chinese government pays great attention for this International Symposium. Mr. Ma youxiang, Chief livestock officer of MOARA, and Dr. Vincent Martin, FAO representative of China and the DPRK, attended and addressed the opening ceremony of this great event. Over 500 participates from 19 countries attended this symposium, which further strengthens international communication and collaboration among OIE reference laboratories. The conference proposed a higher goal and theme - "global goal - eradication of CSF", which caused strong repercussions in the industry at home and abroad.
3.Activities in South Asia:
1)Conducted our first international training on molecular epidemiology, diagnostic technology and control and prevention of CSF for three veterinary research scientists from Central Mindanao University in Philippines.
2)Organized first national proficiency test for diagnostic techniques of CSF with 122 participates from CNAS certified laboratories, laboratories from Customs, national and local animal disease control centers, third party diagnostic institution and research institutions. The result showed that over 90% participates meet the national standards which can fulfill our requirements of CSF diagnosis and surveillance in China.
4.Development of multiple diagnostic gene chips for the detection of CSF, African swine fever and atypical porcine pestivirus.

We hope to have your support for the future activities, especially for the following aspects:
1.Assign tasks and funding support for our international training program from the laboratories of Asia countries. We found that the epidemic situation of CSF in neighboring countries is unclear, and diagnosis and surveillance technology are insufficient, and prevention and control awareness is poor. This situation may affect the control and eradication of CSF in this area, even the global after visiting the Southeast Asian countries such as the Philippines and Thailand, who are willing to send staff to our reference laboratory for training. We believe it is important for us to provide services in the prevention and control of CSF in the region on behave of OIE.
2.We plan hold International conference for CSF once every two years. We hope OIE funding support this great events.
3.We plan to develop CSF network in Asia to support the diagnosis and control of CSF in other Asian countries. We hope OIE could provide us applicable guidelines or experiences for the development of CSF network in Asia.
4.We plan to organize international proficiency test for CSF diagnosis in Asian countries. We hope OIE could provide us national Vet Labs contact information in Asian.
Thank you for your support!