

OIE Reference Laboratory Reports Activities

Activities in 2020

This report has been submitted : 2020-12-22 03:37:49

Name of disease (or topic) for which you are a designated OIE Reference Laboratory:	Porcine reproductive and respiratory syndrome
Address of laboratory:	No.17 Tiangui Street Biomedical Base Daxing District Beijing 102618 CHINA (PEOPLES REP. OF)
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Name (including Title) of Head of Laboratory (Responsible Official):	Zhi Zhou
Name (including Title and Position) of OIE Reference Expert:	Kegong Tian
Which of the following defines your laboratory? Check all that apply:	Governmental

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	
		Nationally	Internationally
Indirect diagnostic tests		Nationally	Internationally
LSIVET SUIS PRRS A/S (LSI) (type North American)	Yes	546	0
Porcine reproductive and respiratory syndrome virus antibody test kit (IDEXX) (type North American)	Yes	4652	0
Direct diagnostic tests		Nationally	Internationally
Cell Culture (Marc-145)	Yes	97	0
Real-time RT-PCR gene Nsp2	No	4856	0

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?

No

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.)
diagnostic method	.Establishment and Application of Universal Real-time RT-PCR Assay of Porcine Reproductive and Respiratory Syndrome Virus
diagnostic method	Chemiluminescent Immunoassay for Detection of Porcine Reproductive and Respiratory Syndrome Virus Antibody
diagnostic method	Establishing of a digital RT-PCR assay for porcine reproductive and Respiratory syndrome virus.
diagnostic method	Nanopore sequencing for porcine reproductive and Respiratory syndrome virus.
vaccine	Highly Pathogenic Porcine Reproductive and Respiratory Syndrome Purification and Thermo-stable Vaccine, live (JXA1-R Strain□Suspension culture)

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
COLOMBIA	<p>1. To facilitate information sharing of the current status of major swine diseases (CSF, HP-PRRS, ASF, FMD) in the region. 2. To introduce advance laboratory diagnosis method of major swine disease (e.g. ASF and HP-PRRS) to Members in Asia and Pacific region 3. To strengthen network and explore potential regional swine disease collaborations mechanisms among member countries in the region</p>	<p>control in the Asian Pacific region, the training covered various topics such as: 1) information sharing on the current status of swine diseases; 2) important issues in laboratory diagnosis such as QC, biosafety and evaluation of diagnostic kits; 3) advanced laboratory technologies for swine disease diagnosis such as viral isolation and sequencing. It was suggested by the trainers and trainees: 1) ASF, CSF and FMD are considered the most important swine diseases in the region, and trainings/workshops on ASF diagnosis, clinical identification and control measures are highly needed in the near future. 2) A virtual training/workshop is an acceptable way to overcome current obstacles such as travel restrictions and should be open to a broader range of participants; 3) more hands-on videos and interactions in discussion sessions are needed to help trainees gain better understanding of the laboratory procedures in more deep details; 4) more in-depth trainings/workshops on new technologies such as genome sequencing and phylogenetic analysis</p>
INDONESIA	<p>1. To facilitate information sharing of the current status of major swine diseases (CSF, HP-PRRS, ASF, FMD) in the region. 2. To introduce advance laboratory diagnosis method of major swine disease (e.g. ASF and HP-PRRS) to Members in Asia and Pacific region 3. To strengthen network and explore potential regional swine disease collaborations mechanisms among member countries in the region</p>	<p>control in the Asian Pacific region, the training covered various topics such as: 1) information sharing on the current status of swine diseases; 2) important issues in laboratory diagnosis such as QC, biosafety and evaluation of diagnostic kits; 3) advanced laboratory technologies for swine disease diagnosis such as viral isolation and sequencing. It was suggested by the trainers and trainees: 1) ASF, CSF and FMD are considered the most important swine diseases in the region, and trainings/workshops on ASF diagnosis, clinical identification and control measures are highly needed in the near future. 2) A virtual training/workshop is an acceptable way to overcome current obstacles such as travel restrictions and should be open to a broader range of participants; 3) more hands-on videos and interactions in discussion sessions are needed to help trainees gain better understanding of the laboratory procedures in more deep details; 4) more in-depth trainings/workshops on new technologies such as genome sequencing and phylogenetic analysis</p>
JAPAN	<p>1. To facilitate information sharing of the current status of major swine diseases (CSF, HP-PRRS, ASF, FMD) in the region. 2. To introduce advance laboratory diagnosis method of major swine disease (e.g. ASF and HP-PRRS) to Members in Asia and Pacific region 3. To strengthen network and explore potential regional swine disease collaborations mechanisms among member countries in the region</p>	<p>control in the Asian Pacific region, the training covered various topics such as: 1) information sharing on the current status of swine diseases; 2) important issues in laboratory diagnosis such as QC, biosafety and evaluation of diagnostic kits; 3) advanced laboratory technologies for swine disease diagnosis such as viral isolation and sequencing. It was suggested by the trainers and trainees: 1) ASF, CSF and FMD are considered the most important swine diseases in the region, and trainings/workshops on ASF diagnosis, clinical identification and control measures are highly needed in the near future. 2) A virtual training/workshop is an acceptable way to overcome current obstacles such as travel restrictions and should be open to a broader range of participants; 3) more hands-on videos and interactions in discussion sessions are needed to help trainees gain better understanding of the laboratory procedures in more deep details; 4) more in-depth trainings/workshops on new technologies such as genome sequencing and phylogenetic analysis</p>

<p>LAOS</p>	<p>1. To facilitate information sharing of the current status of major swine diseases (CSF, HP-PRRS, ASF, FMD) in the region. 2. To introduce advance laboratory diagnosis method of major swine disease (e.g. ASF and HP-PRRS) to Members in Asia and Pacific region 3. To strengthen network and explore potential regional swine disease collaborations mechanisms among member countries in the region</p>	<p>control in the Asian Pacific region, the training covered various topics such as: 1) information sharing on the current status of swine diseases; 2) important issues in laboratory diagnosis such as QC, biosafety and evaluation of diagnostic kits; 3) advanced laboratory technologies for swine disease diagnosis such as viral isolation and sequencing. It was suggested by the trainers and trainees: 1) ASF, CSF and FMD are considered the most important swine diseases in the region, and trainings/workshops on ASF diagnosis, clinical identification and control measures are highly needed in the near future. 2) A virtual training/workshop is an acceptable way to overcome current obstacles such as travel restrictions and should be open to a broader range of participants; 3) more hands-on videos and interactions in discussion sessions are needed to help trainees gain better understanding of the laboratory procedures in more deep details; 4) more in-depth trainings/workshops on new technologies such as genome sequencing and phylogenetic analysis</p>
<p>MONGOLIA</p>	<p>1. To facilitate information sharing of the current status of major swine diseases (CSF, HP-PRRS, ASF, FMD) in the region. 2. To introduce advance laboratory diagnosis method of major swine disease (e.g. ASF and HP-PRRS) to Members in Asia and Pacific region 3. To strengthen network and explore potential regional swine disease collaborations mechanisms among member countries in the region</p>	<p>control in the Asian Pacific region, the training covered various topics such as: 1) information sharing on the current status of swine diseases; 2) important issues in laboratory diagnosis such as QC, biosafety and evaluation of diagnostic kits; 3) advanced laboratory technologies for swine disease diagnosis such as viral isolation and sequencing. It was suggested by the trainers and trainees: 1) ASF, CSF and FMD are considered the most important swine diseases in the region, and trainings/workshops on ASF diagnosis, clinical identification and control measures are highly needed in the near future. 2) A virtual training/workshop is an acceptable way to overcome current obstacles such as travel restrictions and should be open to a broader range of participants; 3) more hands-on videos and interactions in discussion sessions are needed to help trainees gain better understanding of the laboratory procedures in more deep details; 4) more in-depth trainings/workshops on new technologies such as genome sequencing and phylogenetic analysis</p>
<p>KOREA (REP. OF)</p>	<p>1. To facilitate information sharing of the current status of major swine diseases (CSF, HP-PRRS, ASF, FMD) in the region. 2. To introduce advance laboratory diagnosis method of major swine disease (e.g. ASF and HP-PRRS) to Members in Asia and Pacific region 3. To strengthen network and explore potential regional swine disease collaborations mechanisms among member countries in the region</p>	<p>control in the Asian Pacific region, the training covered various topics such as: 1) information sharing on the current status of swine diseases; 2) important issues in laboratory diagnosis such as QC, biosafety and evaluation of diagnostic kits; 3) advanced laboratory technologies for swine disease diagnosis such as viral isolation and sequencing. It was suggested by the trainers and trainees: 1) ASF, CSF and FMD are considered the most important swine diseases in the region, and trainings/workshops on ASF diagnosis, clinical identification and control measures are highly needed in the near future. 2) A virtual training/workshop is an acceptable way to overcome current obstacles such as travel restrictions and should be open to a broader range of participants; 3) more hands-on videos and interactions in discussion sessions are needed to help trainees gain better understanding of the laboratory procedures in more deep details; 4) more in-depth trainings/workshops on new technologies such as genome sequencing and phylogenetic analysis</p>

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
Linking Epidemiology and Laboratory Research on Transboundary Animal Diseases and Zoonoses in China, Lao and Myanmar (LinkTADS)	2020-2025	LinkTADS brings together world-class research institutes and experts in cross-border cooperation with the aim to coordinate research among the Lao, Myanmar and China, thus improving scientific excellence in animal health(epidemiology and laboratory).	FAO,OIE	LAOS
Linking Epidemiology and Laboratory Research on Transboundary Animal Diseases and Zoonoses in China, Lao and Myanmar (LinkTADS)	2020-2025	LinkTADS brings together world-class research institutes and experts in cross-border cooperation with the aim to coordinate research among the Lao, Myanmar and China, thus improving scientific excellence in animal health(epidemiology and laboratory).	FAO,OIE	MYANMAR

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?

No

If the answer is no, please provide a brief explanation of the situation:
There is no way to collect

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:

OIE Regional Virtual Training on Swine Disease Laboratory Diagnosis. Beijing, China, 3-4 November 2020.

**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

Chang Y, Deng Y, Li T, Wang J, Wang T, Tan F, Li X, Tian K Visual detection of porcine reproductive and respiratory syndrome virus using CRISPR-Cas13a. *Transbound Emerg Dis.* 2020 Mar;67(2):564-571. doi: 10.1111/tbed.13368.

Yu ZQ, Yi HY, Ma J, Wei YF, Cai MK, Li Q, Qin CX, Chen YJ, Han XL, Zhong RT, Chen Y, Liang G, Deng Q, Tian K, Wang H, Zhang GH. Ginsenoside Rg1 Suppresses Type 2 PRRSV Infection via NF-kappaB Signaling Pathway In Vitro, and Provides Partial Protection against HP-PRRSV in Piglet. *Viruses.* 2019 Nov 10;11(11):1045.

Chen N, Ye M, Huang Y, Li S, Xiao Y, Li X, Li S, Li X, Yu X, Tian K, Zhu J. Identification of Two Porcine Reproductive and Respiratory Syndrome Virus Variants Sharing High Genomic Homology but with Distinct Virulence. *Viruses.* 2019 Sep 18;11(9):875.

b) International conferences: 1

OIE Regional Virtual Training on Swine Disease Laboratory Diagnosis. Beijing, China, 3-4 November 2020.

c) National conferences: 3

Prevention and control measures against swine diseases & laboratory diagnostic techniques in Beijing, China. 2020

National /OIE Reference Laboratory for Porcine Reproductive and Respiratory Syndrome meeting in Beijing, China. 2020

The Academic Committee seminar of National /OIE Reference Laboratory of Porcine Reproductive and Respiratory Syndrome in Beijing, China. 2020

d) Other:

(Provide website address or link to appropriate information) 1

Monitoring of porcine reproductive and respiratory syndrome virus was published in the veterinary bulletin. <http://www.cadc.net.cn/sites/MainSite/tzgg/sygb/>

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: 0

b) Seminars: 46

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	China	Indonesia, Nepal, Malaysia, Laos, Mongolia, Myanmar, Philippines, Korea RO, Thailand, Vietnam, Cambodia, Japan

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	BSL-3□□□□.pdf

16. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
ASFV/PRRSV/CSF	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?

Yes

National/ International	Title of event	Co-organiser	Date (mm/yy)	Location	No. Participants
International	OIE Regional Virtual Training on Swine Disease Laboratory Diagnosis. Beijing, China,	OIE	11/2020	Beijing/China	Indonesia, Nepal, Malaysia, Laos, Mongolia, Myanmar, Philippines, Korea RO, Thailand, Vietnam, Cambodia, Japan.

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
OIE Regional Virtual Training on Swine Disease Laboratory Diagnosis. Beijing, China,	11/2020	Beijing/China	Speaker	Sample preparation, inoculation and viral culture preparation
OIE Regional Virtual Training on Swine Disease Laboratory Diagnosis. Beijing, China,	11/2020	Beijing/China	Speaker	Next-Generation Sequencing in disease diagnosis and screening for emerging diseases
OIE Regional Virtual Training on Swine Disease Laboratory Diagnosis. Beijing, China,	11/2020	Beijing/China	Speaker	Novel technologies and applications of serological methods
OIE Regional Virtual Training on Swine Disease Laboratory Diagnosis. Beijing, China,	11/2020	Beijing/China	Speaker	Determination of virus titer and neutralization antibody titer

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?

No

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?

No

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?

No

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

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?

No

25. Additional comments regarding your report:

No