OIE Reference Laboratory Reports Activities

Activities in 2019

This report has been submitted : 2019-12-12 12:15:43

Name of disease (or topic) for which you are a designated OIE Reference Laboratory:	Highly and low pathogenic avian influenza
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Name (including Title) of Head of Laboratory (Responsible Official):	Yoshihiro Sakoda (Professor)
Name (including Title and Position) of OIE Reference Expert:	Hiroshi Kida (Professor), Masatoshi Okamatsu (Associate Prof.), Keita Matsuno (Lectuer)
Which of the following defines your laboratory? Check all that apply:	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
HI test H5	Yes	40	300
HI test H5	Yes	40	300
Direct diagnostic tests		Nationally	Internationally
Virus isolation	Yes	500	1500
RT-qPCR	Yes	0	2800

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
cDNA synthesized from viral RNA	RT-PCR and sequencing	Produced and provide	0 ml	0.5 ml	1	☐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?

No

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

No

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?

Yes

Name of OIE Member Country seeking assistance	Date (month)	No. samples received for provision of diagnostic support	No. samples received for provision of confirmatory diagnoses
CONGO (DEM. REP. OF THE)	Sep 20 2019	33	33

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
CONGO (DEM. REP. OF THE)	Improvement of diagnosis of avian influenza	In loco and remote assistance
MONGOLIA	Improvement of diagnosis of avian influenza	In loco and remote assistance

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
Surveillance of avian influenza in Mongolia	19 years	Monitoring of avian influenza	State Central Veterinary Laboratory	MONGOLIA
Surveillance of avian influenza in Vietnam	11 years	Monitoring of avian influenza	Department of Animal Health	VIETNAM
Surveillance of avian influenza in DR Congo	3 years	Monitoring of avian influenza	Central Veterinary Laboratory	CONGO (DEM. REP. OF THE)

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:
Genetic, antigenetic and spatiotemporal data of H5 highly pathogenic avian influenza in Vietnam

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:
Spatiotemporal and risk analysis of H5 highly pathogenic avian influenza in Vietnam A systematic study towards evolutionary and epidemiological dynamics of currently predominant H5 highly pathogenic avian influenza viruses in Vietnam.

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: 9
1. Bazarragchaa E, Okamatsu M, Ulaankhuu A, Twabela AT, Matsuno K, Kida H, Sakoda Y. 2019. Evaluation of a rapid isothermal nucleic acid amplification kit, Alere i Influenza A&B, for the detection of avian influenza viruses. J Virol Methods 265:121-125.
2. Hideshima S, Hayashi H, Hinou H, Nambuya S, Kuroiwa S, Nakanishi T, Momma T, Nishimura SI, Sakoda Y, Osaka T. 2019. Glycan-immobilized dual-channel field effect transistor biosensor for the rapid identification of pandemic influenza viral particles. Sci Rep 9:11616.
3. Hiono T, Matsuda A, Wagatsuma T, Okamatsu M, Sakoda Y, Kuno A. 2019. Lectin microarray analyses reveal host cell-specific glycan profiles of the hemagglutinins of influenza A viruses. Virology 527:132-140.
4. Le KT, Okamatsu M, Nguyen LT, Matsuno K, Chu DH, Tien TN, Le TT, Kida H, Sakoda Y. 2019. Genetic and antigenic characterization of the first H7N7 low pathogenic avian influenza viruses isolated in Vietnam. Infect Genet Evol 78:104117.
5. Nguyen LT, Firestone SM, Stevenson MA, Young ND, Sims LD, Chu DH, Nguyen TN, Van Nguyen L, Thanh Le T, Van Nguyen H, Nguyen HN, Tien TN, Nguyen TD, Tran BN, Matsuno K, Okamatsu M, Kida H, Sakoda Y. 2019. A systematic study towards evolutionary and epidemiological dynamics of currently predominant H5 highly pathogenic avian influenza viruses in Vietnam. Sci Rep 9:7723.
6. Nguyen LT, Stevenson MA, Firestone SM, Sims LD, Chu DH, Nguyen LV, Nguyen TN, Le KT, Isoda N, Matsuno K, Okamatsu M, Kida H, Sakoda Y. 2019. Spatiotemporal and risk analysis of H5 highly pathogenic avian influenza in Vietnam, 2014-2017. Prev Vet Med doi:10.1016/j.prevetmed.2019.04.007:104678.
7. Shibata A, Harada R, Okamatsu M, Matsuno K, Arita T, Suzuki Y, Shirakura M, Odagiri T, Takemae N, Uchida Y, Saito T, Sakoda Y, Osaka H. 2019. Characterization of a novel reassortant H7N3 highly pathogenic avian influenza virus isolated from a poultry meat product taken on a passenger flight to Japan. J Vet Med Sci 81:444-448.
8. Taniguchi K, Ando Y, Nobori H, Toba S, Noshi T, Kobayashi M, Kawai M, Yoshida R, Sato A, Shishido T, Naito A, Matsuno K, Okamatsu M, Sakoda Y, Kida H. 2019. Inhibition of avian-origin influenza A(H7N9) virus by the novel cap-dependent endonuclease inhibitor baloxavir marboxil. Sci Rep 9:3466.
9. Twabela AT, Okamatsu M, Tshilenge GM, Mpiana S, Masumu J, Nguyen LT, Matsuno K, Monne I, Zecchin B, Sakoda Y. 2019. Molecular, antigenic, and pathogenic characterization of H5N8 highly pathogenic avian influenza viruses isolated in the Democratic Republic of Congo in 2017. Arch Virol doi:10.1007/s00705-019-04456-x.

b) International conferences: 1
1. Yoshihiro Sakoda, How to implement cooperation among Asian countries for the control of highly pathogenic avian influenza (HPAI)? May 21-23, 2019, NIES_NIER_USGS International workshop 2019, National Institute for Environmental Studies, Tsukuba, Japan

c) National conferences: 2
1. Yoshihiro Sakoda, Present status and future issues of highly pathogenic avian influenza. Mie Prefecture (Mie, Aug 1, 2019)
2. Yoshihiro Sakoda, Avian Influenza virus infection in humans. Japanese Society of Pediatric Infectious Disease (Asahikawa, Oct 27, 2019)

d) Other:
(Provide website address or link to appropriate information) 1
https://virusdb.czc.hokudai.ac.jp/

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: 0
c) Hands-on training courses: 2
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, c	Mongolia	3
c	China	1

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 17025:2017	ISO Certification2017e.pdf

16. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Hemagglutination test and hemagglutination inhibition test	ISO/IEC 17025:2017

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 Meeting for diseases of poultry in Asia	OIE Tokyo office	2-4 October 2019	Sapporo	60

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

No

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.
Molecular diagnosis of avian influenza	participant	12	CSIRO, Australian Animal Health Laboratory, Australia

[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?

Yes

Title of the project or contract	Scope	Name(s) of relevant OIE Reference Laboratories
Genetic characterization of H5N8 highly pathogenic avian influenza virus isolated in DR Congo	To characterize isolated viruses and publish this data to the international journal	Istituto Zooprofilattico Sperimentale delle Venezie Research and Innovation Dept., Italy

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: