

OIE Reference Laboratory Reports Activities

Activities in 2020

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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):	Bong Kyun Park(Commissioner, APQA)
Name (including Title and Position) of OIE Reference Expert:	Dr. Youn-Jeong Lee. Head of Avian Influenza Virus Research Laboratory (AIL), Avian Influenza Research and Diagnostic Division (ARDD)
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			
c-ELISA (AI type A)	Yes	817	0
HI (H5/H7)	Yes	2966	0
Direct diagnostic tests			
Virus isolation	Yes	2154	57
RT-PCR	Yes	10240	0
H5/H7 pathotyping by Sanger sequencing	Yes	107	0
Next Generation Sequencing for AIV gene	Yes	420	33

**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?

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?

No

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

No

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
The monitoring and characteristic studies for avian influenza and foot and mouth disease viruses in Vietnam	10 years	Monitoring of highly pathogenic avian influenza in Vietnam	National Center for Veterinary Diagnosis	VIETNAM
Studies on genetic characterization of foot and mouth disease viruses and avian influenza virus in FMD and AI endemic countries (Cambodia and LAO PDR)	5 years	Monitoring of highly pathogenic avian influenza in Cambodia and LAO PDR	National Animal Health and Production Research Institute (Cambodia) National Animal Health Laboratory (Lao PDR)	CAMBODIA LAOS

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:
The information on the isolated viruses of avian influenza, e.g. origin, subtype, pathotype or nucleotide sequences, for the molecular epidemiological studies on the outbreaks of HPAI in Vietnam, Cambodia, and LAO PDR. The information on the avian influenza viruses isolated from the migratory birds from active surveillance, e.g. origin, subtype, pathotype or nucleotide sequences, for the molecular epidemiological studies and providing early warning for the disease control in poultry.

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:
The publication of the studies about molecular epidemiological characterization of avian influenza viruses isolated from wild birds or poultry in South Korea and other countries.

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: 6

1. Baek YG, Lee YN, Lee DH, Cheon SH, Kye SJ, Park YR, Si YJ, Lee MH, Lee YJ. A novel reassortant clade 2.3.4.4 highly pathogenic avian influenza H5N6 virus identified in South Korea in 2018. *Infect Genet Evol.* 2020, 78:104056.

2. Park YR, Lee YN, Lee DH, Baek YG, Si YJ, Meeduangchanh P, Theppangna W, Douangngeun B, Kye SJ, Lee MH, Park CK, Lee YJ. Genetic and pathogenic characteristics of clade 2.3.2.1c H5N1 highly pathogenic avian influenza viruses isolated from poultry outbreaks in Laos during 2015-2018. *Transbound Emerg Dis.* 2020, 67(2):947-955.
 3. Lee YN, Lee DH, Cheon SH, Park YR, Baek YG, Si YJ, Kye SJ, Lee EK, Heo GB, Bae YC, Lee MH, Lee YJ. Genetic characteristics and pathogenesis of H5 low pathogenic avian influenza viruses from wild birds and domestic ducks in South Korea. *Sci Rep.* 2020, 10(1):12151.
 4. Si YJ, Lee YN, Cheon SH, Park YR, Baek YG, Kye SJ, Lee MH, Lee YJ. Isolation and characterization of low pathogenic H7N7 avian influenza virus from a red-crowned crane in a zoo in South Korea. *BMC Vet Res.* 2020, 16(1):432.
 5. Park YR, Lee YN, Lee DH, Si YJ, Baek YG, Bunnary S, Theary R, Tum S, Kye SJ, Lee MH, Park CK, Lee YJ. Phylogeographic analysis of H5N1 highly pathogenic avian influenza virus isolated in Cambodia from 2018 to 2019. *Infect Genet Evol.* 2020, 86:104599.
 6. Lycett SJ, Pohlmann A, Staubach C, Caliendo V, Woolhouse M, Beer M, Kuiken T; Global Consortium for H5N8 and Related Influenza Viruses. Genesis and spread of multiple reassortants during the 2016/2017 H5 avian influenza epidemic in Eurasia. *Proc Natl Acad Sci USA.* 2020, 117(34):20814-20825.
- b) International conferences: 2
1. Lee YN, Si YJ, Park YR, Baek YG, Kye SJ, Lee MH, Lee YJ. Genetic characterization of avian influenza H10 viruses isolated from wild birds in South Korea during 2010-2019. *International Union of Microbiological Societies (2020.11.)*
 2. Lee EK, Heo GB, Sagong M, Noh EB, Lee YJ, Lee MH, Lee KN. Wild bird surveillance for avian influenza virus in South Korea, 2019-2020. *The seventh ESWI Influenza Conference(2020.12.)*
- c) National conferences: 1
1. "2020 Avian influenza on-line Symposium", held at APQA, Gimcheon, ROK on 24 September 2020. This symposium was organized by APQA and broadcast to the public.
- d) Other:
(Provide website address or link to appropriate information) 0

**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?

No

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 17025	20201020 KOLAS Eng Certificate.jpg

16. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Identification of the agent(molecular techniques)	KOLAS-Korean Laboratory Accrediation Scheme
Serological test(HA and HI)	KOLAS-Korean Laboratory Accrediation Scheme

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
Regional Expert Group Meeting on AI(REG-AI)	16 October 2020	Zoom meeting	Speaker	The situation of avian influenza in the Republic of Korea
OIE Regional Expert Group Meeting for diseases of poultry in Asia and the Pacific Region	1-2 December 2020	Zoom meeting	Speaker	Avian Influenza surveillance in the Republic of Korea
OFFLU Wildlife meeting	10 December 2020	Zoom meeting	Speaker	HPAI situation of the Republic of Korea

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.
Conventional Proficiency Ring Trial(AI/ND PCR and classical HI typing)	Participant	Information available from organiser APHA(UK)	APHA(UK)

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 Proficiency test for avian influenza (organiser)	37	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input checked="" type="checkbox"/> Asia and Pacific <input type="checkbox"/> Europe <input type="checkbox"/> 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)
Provision of comments on OIE Standards	Korea	Comments to Chapter 3.3.4 OIE Terrestrial Manual

25. Additional comments regarding your report: