

WOAH Reference Laboratory Reports Activities 2022

Activities in 2022

This report has been submitted : 25 avril 2023 15:02

Laboratory Information

Name of disease (or topic) for which you are a designated WOAH Reference Laboratory:	Avian influenza
Address of laboratory:	North 20, West 10 Kita-Ku Sapporo 001-0020 JAPAN
Tel.:	+81-11 706 52 07
E-mail address:	sakoda@vetmed.hokudai.ac.jp
Website:	
Name (including Title) of Head of Laboratory (Responsible Official):	Yoshihiro Sakoda (Professor)
Name (including Title and Position) of WOAH Reference Expert:	Yoshihiro Sakoda (Professor)
Which of the following defines your laboratory? Check all that apply:	Academic institution

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 WOAH Manual (Yes/No)	Total number of test performed last year	
Indirect diagnostic tests		Nationally	Internationally
HI test H5	YES	50	0
HI test H7	YES	50	0

Direct diagnostic tests		Nationally	Internationally
Virus isolation	YES	430	230
RT-qPCR	YES	100	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?

No

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?

No

7. Did your laboratory validate diagnostic methods according to WOA?H Standards for the designated pathogen or disease?

No

8. Did your laboratory develop new vaccines for the designated pathogen or disease?

No

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

No

TOR4: DIAGNOSTIC TESTING FACILITIES

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

No

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

Yes

NAME OF THE WOA?H MEMBER COUNTRY RECEIVING A TECHNICAL CONSULTANCY	PURPOSE	HOW THE ADVICE WAS PROVIDED
VIETNAM	Improvement of diagnosis of avian influenza	In loco and remote assistance

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

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

Yes

			PARTNERS	WOA?H MEMBER COUNTRIES INVOLVED

Title of the study	Duration	PURPOSE OF THE STUDY	(INSTITUTIONS)	OTHER THAN YOUR COUNTRY
Surveillance of avian influenza	22 years	Monitoring of avian influenza	State Central Veterinary Laboratory	MONGOLIA
Surveillance of avian influenza	14 years	Monitoring of avian influenza	Department of Animal Health	VIETNAM
Surveillance of avian influenza	6 years	Monitoring of avian influenza	Central Veterinary Laboratory	CONGO (REP. OF THE)

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:

Knowledge, attitude, and practice (KAP) analysis of avian influenza epidemic in Vietnam

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:

Epidemiological information of high pathogenicity avian influenza in the Far East, including Japan, Sakhalin, in 2021 was shared through the scientific article.

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:

12

Harima H, Okuya K, Kajihara M, Ogawa H, Simulundu E, Bwalya E, Qiu Y, Mori-Kajihara A, Munyeme M, Sakoda Y, Saito T, Hang'ombe BM, Sawa H, Mweene AS, Takada A. 2022. Serological and molecular epidemiological study on swine influenza in Zambia. *Transbound Emerg Dis* 69, e931-e943.

Soda K, Tomioka Y, Usui T, Uno Y, Nagai Y, Ito H, Hiono T, Tamura T, Okamatsu M, Kajihara M, Nao N, Sakoda Y, Takada A, Ito T. 2022. Susceptibility of herons (family: Ardeidae) to clade 2.3.2.1 H5N1 subtype high pathogenicity avian influenza virus. *Avian Pathol* 51, 146-153.

Spruit CM, Zhu X, Tomris I, Ríos-Carrasco M, Han AX, Broszeit F, van der Woude R, Bouwman KM, Luu MMT, Matsuno K, Sakoda Y, Russell CA, Wilson IA, Boons GJ, de Vries RP. 2022. N-glycolylneuraminic acid binding of avian and equine H7 influenza A viruses. *J Virol* 96, e0212021.

Taniguchi K, Ando Y, Kobayashi M, Toba S, Nobori H, Sanaki T, Noshi T, Kawai M, Yoshida R, Sato A, Shishido T, Naito A, Matsuno K, Okamatsu M, Sakoda Y, Kida H. 2022. Characterization of the in vitro and in vivo efficacy of baloxavir marboxil against H5 highly

pathogenic avian influenza virus infection. *Viruses* 14, 111.

Hiono T, Kuno A. 2022. Glycan profiling of viral glycoproteins with the lectin microarray. *Methods Mol Biol* 2556, 59-68.

Sakoda Y. 2022. Highly pathogenic avian influenza in wild birds: Situational update from Asia. In: *Proceedings of the highly pathogenic avian influenza and wild birds webinar series, August 2-5, 2021*, Hopkins MC, Masson JR, Haddock G, Ramey AM eds. U.S. Geological Survey, open-file report 2022-1066. pp.4.

Kobayashi D, Hiono T, Ichii O, Nishihara S, Takase-Yoden S, Yamamoto K, Kawashima H, Isoda N, Sakoda Y. 2022. Turkeys possess diverse Sia α 2-3Gal glycans that facilitate their dual susceptibility to avian influenza viruses isolated from ducks and chickens. *Virus Res* 315, 198771.

LE KT, Isoda N, Nguyen LT, Chu DH, VAN Nguyen L, Phan MQ, Nguyen DT, Nguyen TN, Tien TN, LE TT, Hiono T, Matsuno K, Okamatsu M, Sakoda Y. 2022. Risk profile of low pathogenicity avian influenza virus infections in farms in southern Vietnam. *J Vet Med Sci* 84, 860-868.

Panzarin V, Marciano S, Fortin A, Brian I, D'Amico V, Gobbo F, Bonfante F, Palumbo E, Sakoda Y, Le KT, Chu DH, Shittu I, Meseko C, Haido AM, Odoom T, Diouf MN, Djegui F, Steensels M, Terregino C, Monne I. Redesign and Validation of a Real-Time RT-PCR to Improve Surveillance for Avian Influenza Viruses of the H9 Subtype. *Viruses* 14, 1263.

Isoda N, Onuma M, Hiono T, Sobolev I, Lim HY, Nabeshima K, Honjyo H, Yokoyama M, Shestopalov A, Sakoda Y. 2022. Detection of New H5N1 High Pathogenicity Avian Influenza Viruses in Winter 2021-2022 in the Far East, Which Are Genetically Close to Those in Europe. *Viruses* 14, 2168, 2022.

Hiono T, Kobayashi D, Kobayashi A, Suzuki T, Satake Y, Harada R, Matsuno K, Sashika M, Ban H, Kobayashi M, Takaya F, Fujita H, Isoda N, Kimura T, Sakoda Y. 2022. Virological, pathological, and glycovirological investigations of an Ezo red fox and a tanuki naturally infected with H5N1 high pathogenicity avian influenza viruses in Hokkaido, Japan. *Virology* 578, 35-44.

Fujimoto Y, Ogasawara K, Isoda N, Hatai H, Okuya K, Watanabe Y, Takada A, Sakoda Y, Saito K, Ozawa M. Experimental and natural infections of white-tailed sea eagle (*Haliaeetus albicilla*) with high pathogenicity avian influenza virus of H5 subtype. *Front Microbiol* 13: 1007350.

b) International conferences:

6

Hiono T. Ezo red foxes and tanukis were naturally susceptible for the infection of highly pathogenic avian influenza viruses. *Sialoglyco*. 5-8 Sep., 2022 (Nagoya, Japan)

Kobayashi D. Glycoscientific approaches to understand the ecology of avian influenza viruses. *Sialoglyco*. 5-8 Sep., 2022 (Nagoya, Japan)

Sakoda Y. Updates on avian influenza in Japan in 2021-2022 winter. WOA (OIE) Regional Expert Group Meeting for diseases of poultry in Asia and the Pacific Region. 31 Oct., 2022 (Geelong, Australia)

Sakoda Y. Information sharing of avian diseases in East Asia sub-region. WOA (OIE) Regional Expert Group Meeting for diseases of poultry in Asia and the Pacific Region. 31 Oct., 2022 (Geelong, Australia)

Sakoda Y. Current status and challenge for the control of avian influenza. 21st Federation of Asian Veterinary Associations Congress. 11 Nov., 2022 (Fukuoka, Japan)

Sakoda Y. Detection of H5Nx HPAI viruses from poultry and wild animals in winters 2021-2022 and 2022-2023 in Japan. IV International scientific conference "The Impact of Climate Change on Biological Diversity and the Spread of Viral Infections of Animals in Eurasia" 6 Dec., 2022 (online)

c) National conferences:

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Sakoda Y. Efficacy of human anti-influenza drug in endangered birds. Annual meeting for Japan Veterinary Medical Association in 2022 (online presentation, Jan. 2022)

Hiono T. Detection of high pathogenicity avian influenza viruses from wild birds and mammals in the winter of 2021-2022, Hokkaido. Hokkaido Branch of the Japanese Society for Virology. 2-3 Jul., 2022 (Sapporo, Japan)

Sakoda Y. Characterization of H5N1 high pathogenicity avian influenza viruses found in wild birds and mammals in the winter of 2021-2022, Hokkaido and future preparedness. Hokkaido Branch of the Japanese Society on Poultry Diseases. 15, Jul., 2022 (Sapporo, Japan)

Isoda N. Genetic analyses of high pathogenicity avian influenza viruses isolated from wild birds in the winter of 2021-2022, Hokkaido, and trial treatment against its infection in raptors. 165th annual meeting for the Japanese Society of Veterinary Science. 6-8 Sep., 2022 (online)

Hiono T. Isolation of high pathogenicity avian influenza viruses from Ezo red fox and tanuki. 165th annual meeting for the Japanese Society of Veterinary Science. 6-8 Sep., 2022 (online)

Kobayashi D. Pathological analysis and detection of influenza virus receptors of an Ezo red fox and a tanuki infected with high pathogenicity avian influenza virus. 165th annual meeting for the Japanese Society of Veterinary Science. 6-8 Sep., 2022 (online)

Sakoda Y. Characterization of H5N1 high pathogenicity avian influenza viruses found in wild birds and mammals in the winter of 2021-2022, Hokkaido and future preparedness. 28th annual meeting for Japanese Society of Zoo and Wildlife Medicine. 23 Sep., 2022 (Tsukuba, Japan).

Kobayashi D. Isolation of high pathogenicity avian influenza viruses from an Ezo red fox and a tanuki in Hokkaido, Japan. 69th annual meeting for the Japanese Society for Virology. 15 Nov., 2022 (Nagasaki, Japan)

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

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<https://virusdb.czc.hokudai.ac.jp>

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

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

No

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 17025:2017		【2022】ISO Certification_e.pdf

19. 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

20. Does your laboratory maintain a "biorisk management system" for the pathogen and the disease concerned?

Yes

- Allocate the responsibility to each of the workers with training system and the SOP. - Zoning of biohazard area with locked system not to allow unrelated persons entering in. - Management of laboratory equipment including PPE with open-end system. - Held team-meeting once a week to conduct the risk communication.

TOR9: SCIENTIFIC MEETINGS

21. Did your laboratory organise scientific meetings related to the pathogen in question on behalf of WOA?

Yes

NATIONAL/ INTERNATIONAL	TITLE OF EVENT	CO-ORGANISER	DATE (MM/YY)	LOCATION	NO. PARTICIPANTS
International	Workshop for the OIE avian disease network in east Asia	WOAH Tokyo office	2022-04-21	Online	50

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

No

TOR10: NETWORK WITH WOA REFERENCE LABORATORIES

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

Yes

24. Are you a member of a network of WOA 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 REF. LABS/ ORGANISING WOA REF. LAB.
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25. Did you organise or participate in inter-laboratory proficiency tests with WOA 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 REF. LABS/ ORGANISING WOA REF. LAB.
Molecular diagnosis of avian influenza	participant	11	Not available

26. Did your laboratory collaborate with other WOA 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 REFERENCE LABORATORIES
Early detection of transboundary avian influenza viruses isolated from wild migratory birds	Early warning of transboundary avian influenza viruses in the Far East	Animal and Plant Quarantine Agency Ministry of Agriculture, Forest and Rural Affairs KOREA (REP. OF)
Early detection of transboundary avian influenza viruses isolated from wild migratory birds	Early warning of transboundary avian influenza viruses in the Far East	Federal State-Financed Institution, Russia
Genetic and antigenic characterization of recent H9 low pathogenicity avian influenza viruses	To characterize isolated viruses to develop the new diagnostic method for H9 low pathogenicity avian influenza	Istituto Zooprofilattico Sperimentale delle Venezie Research and Innovation Dept., Italy

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 ¹	Role of your reference laboratory (organizer/participant)	No. participating laboratories	Region(s) of participating WOAH Member Countries
Quality control of the diagnosis skills of HI test for ISO/IEC 17025:2017	participant	2	Asia and Pacific

TOR12: EXPERT CONSULTANTS

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

No

29. Additional comments regarding your report:

No