

WOAH Reference Laboratory Reports Activities 2023

Activities in 2023

This report has been submitted : 30 mai 2024 09:30

Laboratory Information

Name of disease (or topic) for which you are a designated WOAHO Reference Laboratory:	Avian Influenza
Address of laboratory:	Südufer 10, D-17493 Greifswald-Insel Riems
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Website:	www.fli.de
Name (including Title) of Head of Laboratory (Responsible Official):	Prof. Dr. Martin Beer
Name (including Title and Position) of WOAHO Reference Expert:	Prof. Dr. Timm Harder
Which of the following defines your laboratory? Check all that apply:	Governmental

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 WOAHO Manual (Yes/No)	Total number of test performed last year	
		Nationally	Internationally
Indirect diagnostic tests			
ELISA		481	316
HI		63	72
Direct diagnostic tests			
Virus isolation		68	16
RT-qPCR		3930	555
RT-PCR		130	65
Sanger Sequencing		32	10
NGS Sequencing		220	40
IVPI		4	0

TOR2: REFERENCE MATERIAL

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

No

3. Did your laboratory supply standard reference reagents (nonWOAH-approved) and/or other diagnostic reagents to WOAHO Members?

Yes

TYPE OF REAGENT AVAILABLE	RELATED DIAGNOSTIC TEST	PRODUCED/ PROVIDE	AMOUNT SUPPLIED	AMOUNT SUPPLIED INTERNATIONALLY	NO. OF RECIPIENT WOAHO MEMBER	COUNTRY OF
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			NATIONALLY (ML, MG)	(ML, MG)	COUNTRIES	RECIPIENTS
Viral RNA	RT-qPCR, RT-PCR	on demand	31 x 0.1 mL	4 x 0.1 mL	2	DENMARK, THE NETHERLANDS,
Virus antigen, inactivated	HI, HA	on demand	109 x 0.5 mL	4 x 2 mL	1	ITALY,
Virus isolate, infectious	various	on demand	12 x 1 mL	14 x 1 mL	4	DENMARK, ITALY, SWEDEN, SWITZERLAND,
Immune sera	HI, NT	on demand	8 x 1 mL	6 x 1 mL	3	BANGLADESH, DENMARK, ITALY,

4. Did your laboratory produce vaccines?

No

5. Did your laboratory supply vaccines to WOAHA Members?

No

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 WOAHA 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 WOAHA Standards for the designated pathogen or disease?

Yes

NAME OF THE NEW VACCINE DEVELOPED	DESCRIPTION AND REFERENCES (PUBLICATION, WEBSITE, ETC.)
HPAI vaccines from 4 international producers	On-going experiments in domestic geese, to be published soon in Vaccines

TOR4: DIAGNOSTIC TESTING FACILITIES

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

Yes

NAME OF WOAHA MEMBER COUNTRY SEEKING ASSISTANCE	DATE	WHICH DIAGNOSTIC TEST USED	NO. SAMPLES RECEIVED FOR PROVISION OF DIAGNOSTIC SUPPORT	NO. SAMPLES RECEIVED FOR PROVISION OF CONFIRMATORY DIAGNOSES
BANGLADESH	2023-11-23	NGS, RT-qPCR	30	0
FINLAND	2023-07-13	RT-qPCR, ELISA, HI, NGS	350	0
ICELAND	2023-05-25	RT-qPCR, NGS	25	0

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

No

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

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

Yes

Title of the study	Duration	PURPOSE OF THE STUDY	PARTNERS (INSTITUTIONS)	WOAHA MEMBER COUNTRIES INVOLVED OTHER THAN YOUR COUNTRY
AIV infections in Bangladesh	2 yrs	Characterize AIV in Bangladesh	Bangladesh Agricultural University, CEVA Vaccines	BANGLADESH
HPAI infections in Iceland	1 yr	Incidence and phylogenetic characterization of HPAIV in Iceland	Keldur, Iceland University	ICELAND

13. In exercising your activities, have you identified any regulatory research needs* relevant for WOA?H?

No

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:

Molecular epidemiological data on HPAI infections in Germany, Finland (fur farms), Iceland (wild birds)

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:

Service of the EFSA report system for wild bird and poultry surveillance data from Germany

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:

11

Ahrens AK, Selinka HC, Wylezich C, Wonnemann H, Sindt O, Hellmer HH, Pfaff F, Höper D, Mettenleiter TC, Beer M, Harder TC. Investigating Environmental Matrices for Use in Avian Influenza Virus Surveillance—Surface Water, Sediments, and Avian Fecal Samples. *Microbiol Spectr.* 2023; e0266422. doi: 10.1128/spectrum.02664-22

Baechlein C, Kleinschmidt S, Hartmann D, Kammeyer P, Wöhlke A, Warmann T, Herms L, Kühl B, Beineke A, Wohlsein P, Harder T, Runge M. Temporal clustering of neurotropic HPAIV H5N1 infections in red foxes, Northern Germany. *Emerg Inf Dis.* 2023, accepted.

Begum JA, Hossain I, Nooruzzaman M, King J, Chowdhury EH, Harder TC, Parvin R. Experimental Pathogenicity of H9N2 Avian Influenza Viruses Harboring a Tri-Basic Hemagglutinin Cleavage Site in Sonali and Broiler Chickens. *Viruses.* 2023; 15: 461. doi: 10.3390/v15020461

Fereidouni S, Starick E, Karamendin K, Genova CD, Scott SD, Khan Y, Harder T, Kydyrmanov A. Genetic characterization of a new candidate hemagglutinin subtype of influenza A viruses. *Emerg Microbes Infect.* 2023; 22:25645. doi: 10.1080/22221751.2023.2225645.

Ferrando VA, Friedrich ME, Gandhi S, Mellmann A, Masemann D, Christersson A, Anhlan D, Brunotte L, Stoll M, Harder T, Beer M, Boergeling Y, Ludwig S. Cell-intrinsic genomic reassortment of pandemic H1N1 2009 and Eurasian avian-like swine influenza viruses results in potentially zoonotic variants. *Emerg Microbes Infect.* 2023; 12: 2212809. doi: 10.1080/22221751.2023.2212809

Graaf A, Piesche R, Sehl-Ewert J, Grund C, Pohlmann A, Beer M, Harder T. Low Susceptibility of Pigs against Experimental Infection with HPAI Virus H5N1 Clade 2.3.4.4b. *Emerg Infect Dis.* 2023; 29: 1492-1495. doi: 10.3201/eid2907.230296.

Graaf A, Hennig C, Jaschniski KL, Koechling M, Stadler J, Boehmer J, Ripp U, Pohlmann A, Schwarz BA, Beer M, Harder T. Emergence of swine influenza A virus, porcine respirovirus 1 and swine orthopneumovirus in porcine respiratory disease in Germany. *Emerg Microbes Infect.* 2023 Jul 20:2239938. doi: 10.1080/22221751.2023.2239938

Günther A, Pohlmann A, Globig A, Ziegler U, Calvelage S, Keller M, Fischer D, Staubach C, Groschup MH, Harder T, Beer M. Continuous surveillance of potentially zoonotic avian pathogens detects contemporaneous occurrence of highly pathogenic avian influenza viruses (HPAIV H5) and flaviviruses (USUV, WNV) in several wild and captive birds. *Emerg Microbes Infect.* 2023 Dec;12(2):2231561. doi: 10.1080/22221751.2023.2231561

Harder T, de Wit S, Gonzales JL, Ho JHP, Mulatti P, Prajitno TY, Stegeman A. Epidemiology-driven approaches to surveillance in HPAI-vaccinated poultry flocks aiming to demonstrate freedom from circulating HPAIV. *Biologicals.* 2023 Jul 24;83:101694. doi: 10.1016/j.biologicals.2023.101694

Pohlmann A, Stejskal O, King J, Bouwhuis S, Packmor F, Ballstaedt E, Hälterlein B, Hennig V, Stacker L, Graaf A, Hennig C, Günther A, Liang Y, Hjulsgager C, Beer M, Harder T. Mass mortality among colony-breeding seabirds in the German Wadden Sea in 2022 due to distinct genotypes of HPAIV H5N1 clade 2.3.4.4b. *J Gen Virol.* 2023; 104. doi: 10.1099/jgv.0.001834

Vereecke N, Zwickl S, Gumbert S, Graaf A, Harder T, Ritzmann M, Lillie-Jaschniski K, Theuns S, Stadler J. Viral and Bacterial Profiles in Endemic Influenza A Virus Infected Swine Herds Using Nanopore Metagenomic Sequencing on Tracheo-bronchial Swabs. *Microbiol Spectr.* 2023; e0009823. doi: 10.1128/spectrum.00098-23

EFSA Panel on Animal Health and Animal Welfare (AHAW), European Union Reference Laboratory for Avian Influenza; Nielsen SS, Alvarez J, Bicout DJ, Calistri P, Canali E, Drewe JA, Garin-Bastuji B, Gonzales Rojas JL, Gortázar C, Herskin M, Michel V, Miranda Chueca MÁ, Padalino B, Roberts HC, Spooler H, Stahl K, Velarde A, Winckler C, Bastino E, Bortolami A, Guinat C, Harder T, Stegeman A, Terregino C, Aznar Asensio I, Mur L, Broglia A, Baldinelli F, Viltrop A. Vaccination of poultry against highly pathogenic avian influenza - part 1. Available vaccines and vaccination strategies. *EFSA J.* 2023 Oct 10;21(10):e08271. doi: 10.2903/j.efsa.2023.8271.

b) International conferences:

6

EU-RL, Annual NRL Meeting, Parma, Italy; PIGIE meeting, Berlin, Germany; Schweinefachtagung, Eisenstadt, Austria; ECV Congress, Gdansk, Poland; German-French Virology: ResaFlu Meeting, Lyon, France; Epi-Days, Greifswald, Germany

c) National conferences:

9

Tierseuchensymposium Niedersachsen, Stapelfeld; AfT Frühjahrsymposium, Montabaur; DVG Tierseuchentagung, online; Fachgespräch Nutzgeflügel, Osnabrück/Kalkriese; Jahrestagung des Geflügelverbandes Sachsen, online; Jahrestagung des BB Geflügelverbandes, Seddin; 105. Geflügelfachgespräch, Hannover, online; Krisenmanagement im Veterinärwesen, Stralsund; DLG Geflügelverband, Celle

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

3

International webinars on continuing education:

Emerging and Neglected Zoonoses, online, Uppsala, Sweden; ESVV Webinar, online, international; Kemin HPAI Webinar, online, international

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

17. Did your laboratory provide scientific and technical training to laboratory personnel from other WOAHA 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 17025	DAKKS certificate	akkreditierungsurkunde.pdf

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
All relevant diagnostic assays	DAKKS, Germany

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

Yes

Extensive biosecurity management with monthly meetings of a biosecurity council including an ethical council for validation of gain-of-function/DURC-related research.

TOR9: SCIENTIFIC MEETINGS

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

No

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

Yes

Title of event	Date (mm/yy)	Location	Role (speaker, presenting poster, short communications)	Title of the work presented
Various meetings related to				

OFFLU and EFSA activities	2023-12-31	Various, online	Speaker, co-worker	Various contributions
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TOR10: NETWORK WITH WOAHP REFERENCE LABORATORIES

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

Yes

24. Do you network (collaborate or share information) with other WOAHP Reference Laboratories designated for the same pathogen?

Yes

NETWORK/DISEASE	ROLE OF YOUR LABORATORY (PARTICIPANT, ORGANISER, ETC)	NO. PARTICIPANTS	PARTICIPATING WOAHP REF. LABS
OFFLU/AIV	Member of executive committee	6	Various

25. Did you organise or participate in inter-laboratory proficiency tests with WOAHP Reference Laboratories designated for the same pathogen?

Yes

PURPOSE OF THE PROFICIENCY TESTS: 1	ROLE OF YOUR REFERENCE LABORATORY (ORGANISER/ PARTICIPANT)	NO. PARTICIPANTS	PARTICIPATING WOAHP REF. LABS/ ORGANISING WOAHP REF. LAB.
AIV detection and characterization/European Ref Lab for AI	Participant	>40	Various
AIV detection and characterization/Australian Ref Lab for AI	Participant	15	Various
AIV detection and characterization/APHA, UK	Participant	>40	Various
AIV detection and characterization/GD Deventer, NL	Participant	>40	Various

26. Did your laboratory collaborate with other WOAHP 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 WOAHP REFERENCE LABORATORIES
EFSA ad hoc group on HPAI vaccination	Gathering information on options for HPAI vaccination and surveillance of vaccinated flocks in Europe	EFSA Panel on Animal Health and Animal Welfare (AHAW), European Union Reference Laboratory for Avian Influenza; Nielsen SS, Alvarez J, Bicout DJ, Calistri P, Canali E, Drewe JA, Garin-Bastuji B, Gonzales Rojas JL, Gortázar C, Herskin M, Michel V, Miranda Chueca MÁ, Padalino B, Roberts HC, Spoolder H, Stahl K, Velarde A, Winckler C, Bastino E, Bortolami A, Guinat C, Harder T, Stegeman A, Terregino C, Aznar Asensio I, Mur L, Broglia A, Baldinelli F, Viltrop A. Vaccination of poultry against highly pathogenic avian influenza - part 1. Available vaccines and vaccination strategies. EFSA J. 2023 Oct 10;21(10):e08271. doi: 10.2903/j.efsa.2023.8271

TOR11: OTHER INTERLABORATORY PROFICIENCY TESTING

27. Did your laboratory organise or participate in inter-laboratory proficiency tests with laboratories other than WOAHP Reference Laboratories for the same pathogen?

No

TOR12: EXPERT CONSULTANTS

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

No

29. Additional comments regarding your report:

No