

# OIE Reference Laboratory Reports Activities

## *Activities in 2021*

**This report has been submitted : 2022-01-07 10:55:05**

<b>Name of disease (or topic) for which you are a designated OIE Reference Laboratory:</b>	Avian influenza
<b>Address of laboratory:</b>	Südufer 10 D-17493 Greifswald Insel Riems GERMANY
<b>Tel.:</b>	+49-38351 7 1152 / 1
<b>Fax:</b>	+49-38351 7 1275
<b>E-mail address:</b>	timh.harder@fli.de
<b>Website:</b>	
<b>Name (including Title) of Head of Laboratory (Responsible Official):</b>	Prof. Dr. Martin Beer, director
<b>Name (including Title and Position) of OIE Reference Expert:</b>	Prof. Dr. Timm C. Harder, senior researcher
<b>Which of the following defines your laboratory? Check all that apply:</b>	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
ELISA	Yes	340	0
HI	Yes	110	0
Direct diagnostic tests		Nationally	Internationally
Virus isolation	Yes	90	2
RT-qPCR	Yes	15.000	20
RT-PCR	Yes	200	10
Sanger-Sequencing	Yes	40	10
NGS-Sequencing	Yes	240	0
IVPI	Yes	3	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?

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
Virus RNA	RT-PCR, TR-qPCR	on demand	4	0	1	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East
Immune serum	ELISA, HI	on demand	8	0	1	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East
Primers, probes	RT-qPCR	on demand	1	0	0	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East
Virus antigen	HI	on demand	1	0	0	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> 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?

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
Use of stable isotopes to investigate avian influenza epidemiology	4 yrs	Define the origin of (AIV-positive) wild birds) via stable isotope patterns.	Several national AIV laboratories	CANADA EGYPT GERMANY IRAN KOREA (DEM. PEOPLE'S. REP. OF) NIGERIA RUSSIA UNITED KINGDOM
H9N2 infections in traditional and commercial chicken production in bangladesh	2 yrs	Detect and characterize H9N2 viruses to define epidemiological patterns and optimize vaccination intervention.	Bangladesh Agricultural University, CEVA	FRANCE

**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:
Molecular epidemiological data on HPAIV outbreaks in Germany and Europe 2020-22.

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:
Molecular epidemiological data on HPAIV outbreaks in Germany and Europe 2020-22. Exchange with other national and the European reference laboratories.

**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: 5

Hassan KE, El-Kady MF, El-Sawah AAA, Luttermann C, Parvin R, Shany S, Beer M, Harder T. Respiratory disease due to mixed viral infections in poultry flocks in Egypt between 2017 and 2018: Upsurge of highly pathogenic avian influenza virus subtype H5N8 since 2018. *Transbound Emerg Dis.* 2019 PMID: 31297991. doi: 10.1111/tbed.13281. PMID: 31297991

King J, Harder T, Conraths FJ, Beer M, Pohlmann A. The genetics of highly pathogenic avian influenza viruses of subtype H5 in Germany, 2006-2020. *Transbound Emerg Dis.* 2021; 68: 1136-1150. doi: 10.1111/tbed.13843. PMID: 32964686

Landmann M, Scheibner D, Graaf A, Gischke M, Koethe S, Fatola OI, Raddatz B, Mettenleiter TC, Beer M, Grund C, Harder T, Abdelwhab EM, Ulrich R. A Semiquantitative Scoring System for Histopathological and Immunohistochemical Assessment of Lesions and Tissue Tropism in Avian Influenza. *Viruses.* 2021; 13: 868. doi: 10.3390/v13050868. PMID: 34065126

Lewis NS, Banyard AC, Whittard E, Karibayev T, Thamer Al Kafagi , Chvala I, Byrne A, Saduakassova Meruyert (Akberovna) , King J, Harder TC, Grund C, Essen S, Reid SM, Brouwer A, Zinyakov NG, Tegzhanov A, Irza V, Pohlmann A, Beer M, Fouchier RAM, Sultanov Akhmetzhan (Akievich), Brown IH. Emergence and spread of novel H5N8, H5N5 and H5N1 clade 2.3.4.4 highly pathogenic avian influenza in 2020, *Emerging Microbes & Infections* 2021; 10, 148-151, DOI: 10.1080/22221751.2021.1872355

Schön J, Breithaupt A, Höper D, King J, Pohlmann A, Parvin R, Behr KP, Schwarz A, Stech J, Beer M, Harder TC, Grund C. Plasminogen-mediated systemic spread of a natural AIV H3N1 isolate. *Plos Pathogens* 2021, 17(4):e1009490. doi: 10.1371/journal.ppat.1009490.

b) International conferences: 2

EU-RL annual meeting, September 2021, Padova, Italy/online: Oral presentation on "Improved RT-qPCR diagnostics"

DisConTool EU project meeting, October 2021, Brussels, Belgium, Oral presentation on "Animal influenza"

c) National conferences: 9

Various online and hybrid meetings at the national level including "bpt Congress", "Geflügelfachgespräch" etc.

d) Other:

(Provide website address or link to appropriate information) 1

A webinar series on avian influenza has been established in close cooperation with FAO, Rome, Italy.

**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: 0

c) Hands-on training courses: 0

d) Internships (>1 month): 1

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
d	Iran	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 17025	Akkreditierungsurkunde_FLI-Riems-Jena_2019 (1).pdf

16. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Virus isolation	DAKKS
Antigen detection	DAKKS
Antibody detection	DAKKS
Nucleic acid detection techniques	DAKKS
Sequencing techniques	DAKKS

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?

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: <sup>1</sup>	Role of your Reference Laboratory (organiser/ participant)	No. participants	Participating OIE Ref. Labs/ organising OIE Ref. Lab.
AIV characterization	Participant	>15	Various labs in the OFFLU/FAO network

<sup>1</sup> 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
OFFLU Technical group on wild birds	AI in wild birds	Various scientists including ref labs.
OFFLU Technical group on applied epidemiology	AI-related epidemiology	Various scientists including ref labs.

**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 <sup>1</sup>	No. participating laboratories	Region(s) of participating OIE Member Countries
GD Deventer; Antibody and RNA detection	>30	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East
EU-RL, Padova; Antibody, antigen and RNA detection	>30	<input checked="" type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" 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?

No

25. Additional comments regarding your report:

The AI reference laboratory at FLI also has strong interests in non-avian influenza virology. It is a member of the European research project "PIGIE" and runs a national project on "Transmission of influenza viruses at the swine/human interface".