OIE Reference Laboratory Reports Activities

Activities in 2019

This report has been submitted : 2020-01-15 19:47:57

Name of disease (or topic) for which you are a designated OIE Reference Laboratory:	Highly and low pathogenic avian influenza
Address of laboratory:	Südufer 10 D-17493 Greifswald Insel Riems GERMANY
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Name (including Title) of Head of Laboratory (Responsible Official):	Prof. Dr. Martin Beer, director
Name (including Title and Position) of OIE Reference Expert:	Prof. Dr. Timm C. Harder, head AI reference laboratory
Which of the following defines your laboratory? Check all that apply:	Governmental Research

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
ELISA	Yes	670	0
HI	Yes	70	0
Direct diagnostic tests		Nationally	Internationally
Virus isolation	Yes	54	42
RT-qPCR	Yes	2300	3800
RT-PCR	Yes	120	550
Antigen-ELISA	Yes	25	0
Sanger sequencing	Yes	80	590
IVPI	Yes	2	3

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
Viral RNA	RT-qPCR	on demand	12	3	2	☒Africa ☐Americas ☐Asia and Pacific ☐Europe ☒Middle East
Immune serum	ELISA; HI	archived	15	1	1	☐Africa ☐Americas ☐Asia and Pacific ☐Europe ☒Middle East
Primers, probes	RT-qPCR	archived	0	3		☒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?

Yes

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

No

Name of the new test or diagnostic method or vaccine developed	Description and References (Publication, website, etc.)
Generic Influenza multiplex RT-qPCR	Simultaneously detects RNA of Influenza Virus types A, B, C and D; Henritzi et al., 2019 (PMID: 30264926).

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
EGYPT	February, April	25	25
BANGLADESH	May	500	
UKRAINE	March	20	

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 for investigating avian Influenza epidemiology	4 years	Relate the origin of wild birds by stable isotope Patterns in feathers and overlay with Influenza surveillance data.	Several national avian influenza reference laboratories.	CANADA KOREA (REP. OF) NIGERIA ROMANIA RUSSIA UNITED KINGDOM

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:
Active surveillance data on avian viral pathogens in Bangladesh.

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:
Scientific publications in peer-reviewed journals

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: 8

Henritzi D, Hoffmann B, Wacheck S, Pesch S, Herrler G, Beer M, Harder T. A newly developed tetraplex real-time RT-PCR for simultaneous screening of influenza virus types A, B, C and D. Influenza Other Respir Viruses. 2019; 13: 71-82. PMID: 30264926.

Scheibner D, Ulrich R, Fatola OI, Graaf A, Gischke M, Salaheldin AH, Harder TC, Veits J, Mettenleiter TC, Abdelwhab EM. Variable impact of the hemagglutinin polybasic cleavage site on virulence and pathogenesis of avian influenza H7N7 virus in chickens, turkeys and ducks. Sci Rep. 2019; 9: 11556. PMID: 31399610.

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 [Epub ahead of print] PubMed PMID: 31297991.

Parvin R, Begum JA, Chowdhury EH, Islam MR, Beer M, Harder T. Co- subsistence of avian influenza virus subtypes of low and high pathogenicity in
Bangladesh:
Challenges for diagnosis, risk assessment and control. Sci Rep. 2019;
9: 8306. PMID: 31165743

Moharam I, Razik AAE, Sultan H, Ghezlan M, Meseko C, Franzke K, Harder T, Beer M, Grund C. Investigation of suspected Newcastle disease (ND) outbreaks in Egypt uncovers a high virus velogenic ND virus burden in small-scale holdings and the presence of multiple pathogens. Avian Pathol. 2019; 25:1-10. PMID: 31090444.

Ayim-Akonor M, May J, Krumkamp R, Harder T, Mertens E. Molecular and serological prevalence of influenza A viruses in poultry and poultry farmers in the Ashanti region, Ghana. Infection Ecology & Epidemiology 2019; 9: 1 1698904.

Graaf A, Henritzi D, Harder T. Influenza bei Schweinen in Deutschland und Europa: Neue Herausforderungen für Diagnose und Prävention.
Tierärztl Umschau. 2019; 74: xx-xx.

Pohlmann A, Hoffmann D, Grund C, Koethe S, Hüssy D, Meier SM, King J, Schinköthe J, Ulrich R, Harder T, Beer M. Genetic Characterization and Zoonotic Potential of Highly Pathogenic Avian Influenza Virus A(H5N6/H5N5), Germany, 2017-2018. Emerg Infect Dis. 2019; 25: 1973-1976.
PMID: 31538926

b) International conferences: 4
Congress of the International Association for Biological Standardization, Wiesbaden, April 2019: Invited presentation.

Annual EU-reference laboratory Meeting for AI and ND: Two scientific presentations, Padova, Italy

Continuing education for swine practioners, invited presentation, Gent, Belgium

International Meeting on Veterinary Virus diagnostics, co-authored three presentations, Moderation, Greifswald, Germany

c) National conferences: 2
Annual Meeting of the German Society for Virology, three poster presentation, Düsseldorf, Germany

Continuing education for swine practioners, invited presentation, Muenster, Germany

d) Other:
(Provide website address or link to appropriate information) 12
Direct e-Mail contacts.

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: 0
d) Internships (>1 month): 2

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	Kenia	1
a	Egypt	1
d	Egypt	1
d	Bangladesh	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-2015.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
RNA detection	DAKKS
Nucleic acid sequencing	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: [1]	Role of your Reference Laboratory (organiser/ participant)	No. participants	Participating OIE Ref. Labs/ organising OIE Ref. Lab.
Antibody detection	participant	>40	EU-RL, Padova; OIE_RL Weybridge
Antigen characterization	participant	>40	EU-RL, Padova; OIE_RL Weybridge
RNA detection	participant	>40	EU-RL, Padova; OIE_RL Weybridge; OIE-RL Geelong;
Pathotyping, molecular	participant	>40	EU-RL, Padova; OIE_RL Weybridge; OIE-RL Geelong

[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
Delta-Flu	Advancement of knowledge re avian influenza	Various European RLs.

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
Antibody detection	>30	☐Africa ☐Americas ☐Asia and Pacific ☒Europe ☐Middle East
RNA detection	>30	☐Africa ☐Americas ☐Asia and Pacific ☒Europe ☐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: