

# OIE Reference Laboratory Reports Activities

## *Activities in 2021*

**This report has been submitted : 2022-01-18 11:20:04**

<b>Name of disease (or topic) for which you are a designated OIE Reference Laboratory:</b>	Avian influenza
<b>Address of laboratory:</b>	Reference Laboratory for Veterinary Quality Control on Poultry Production Animal Health Research Institute, AHRI Agriculture research Centre, ARC Ministry of Agriculture and Land Reclamation 7 Nadi el Seidst. Dokki Giza EGYPT
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<b>Name (including Title) of Head of Laboratory (Responsible Official):</b>	Momtaz Shahein, Director of AHRI, ARC, Egypt
<b>Name (including Title and Position) of OIE Reference Expert:</b>	Abdelsatar Arafa, Head of RLQP, AHRI, ARC, Egypt
<b>Which of the following defines your laboratory? Check all that apply:</b>	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	
		Nationally	Internationally
Indirect diagnostic tests		Nationally	Internationally
Haemoagglutination inhibition (H5)	Yes	2898	0
Haemoagglutination inhibition (H9)	Yes	3859	0
Direct diagnostic tests		Nationally	Internationally
PCR	Yes	11532	0
Virus Isolation	Yes	65	0
Sequencing of HA gene	Yes	54	0
Sequencing of NA gene	Yes	31	0
WGS - Whole Genome Sequencing	Yes	7	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?

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
Reverse transcription recombinase polymerase amplification assay for rapid detection of avian influenza virus H9N2 HA gene	2 years	To develop a probe-based RT-RPA and evaluated its performance for field detection of the HA gene of avian influenza H9N2.	University of Goettingen, University of Leipzig, Brandenburg Medical School	GERMANY
Evaluation of protective efficacy of influenza virus like particles prepared from h5n1 virus of clade 2.2.1.2 in chickens	2 years	to evaluate the efficacy of a virus-like particle (VLP) based vaccine in vivo using specific pathogen-free (SPF) chickens.	Medigen, Inc., Frederick, MD	UNITED STATES OF AMERICA
Epidemiology, genetic characterization, and pathogenesis of avian influenza h5n8 viruses circulating in northern and southern parts of egypt, 2017-2019	3 years	epidemiological survey of HPAI H5N8 virus at different geographical locations in Egypt from 2017 to 2019	Uppsala University	SWEDEN

***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:
National targeted surveillance was adopted to enhance avian influenza molecular diagnosis and gene analysis in relation to the co-ordination project "Support to enhance avian influenza molecular diagnosis and gene analysis" with FAO - GOVS

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:

National surveillance program following the Egyptian Ministry of Agriculture to detect avian influenza viruses in the domestic birds and small poultry holders. Laboratory researches with Egyptian and worldwide Universities for avian influenza virus infection in poultry and analysis of avian samples/ genetic materials. The Laboratory Management Information System: it provides regular reports of epidemiological data to the General organization of Veterinary services GOVS, Ministry of Agriculture, Ministry of Health and FAO. OFFLU VCM network: the network identifies animal influenza viruses with zoonotic potential, and that will help to select human vaccines against zoonotic or pandemic influenza viruses from animal source. RLQP provided HA and NA sequences from 36 AI viruses of the H5 subtypes and 6 from H9 subtype. Remote assistance to African labs by email with team collaboration is ongoing to enhance cooperation between veterinary laboratories and scientists from African countries. Meetings and seminars related to AI with regard to the epizootiological information and disease recording, characteristics of circulating viruses and laboratory methods; biosafety management, training and research programs that maintain information exchange with the OIE RL for AI, the FAO, the WHO, Reference Laboratories and National influenza Centres (NICs); participating in the AI Working groups.

**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: 10

Novel reassortant of H9N2 avian influenza viruses isolated from chickens and quails in Egypt

Elsayed, M., Arafa, A., Abdelwahab, S., Hashish, A., Youssef, A.

Veterinary World, 2021, 14(8), pp. 2142-2149

Temporal dynamics of influenza A(H5N1) subtype before and after the emergence of h5n8

Amer, F., Li, R., Rabie, N., ...Shahein, M.A., Naguib, M.M.

Viruses, 2021, 13(8), 1565

Epidemiology, genetic characterization, and pathogenesis of avian influenza h5n8 viruses circulating in northern and southern parts of Egypt, 2017-2019

Tarek, M., Naguib, M.M., Arafa, A.-S., ...Talaat, S., Sultan, H.A.

Animals, 2021, 11(8), 2208

Reverse transcription recombinase polymerase amplification assay for rapid detection of avian influenza virus H9N2 HA gene

Yehia, N., Eldemery, F., Arafa, A.-S., ...Weidmann, M., Shalaby, M.

Veterinary Sciences, 2021, 8(7), 134

Evaluation of protective efficacy of influenza virus like particles prepared from h5n1 virus of clade 2.2.1.2 in chickens

El-Husseiny, M.H., Hagag, N.M., Pushko, P., ...Naguib, M.M., Arafa, A.S.

Vaccines, 2021, 9(7), 715

Molecular evolution of the hemagglutinin gene and epidemiological insight into low-pathogenic avian influenza H9N2 viruses in Egypt

Adel, A., Mosaad, Z., Shalaby, A.G., ...Hassan, W.M., Shahien, M.A.

Research in Veterinary Science, 2021, 136, pp. 540-549

Epidemiological surveillance of H9N2 avian influenza virus infection among chickens in farms and backyards in Egypt 2015-2016

El-Sayed, M.M., Arafa, A.S., Abdelmagid, M., Youssef, A.I.

Veterinary World, 2021, 14(4), pp. 949-955

Avian Influenza H5N1 Infection in Poultry and Their Handlers in Egypt: Risk Factors and Zoonotic Potential

Taha, E.A.-R., Ghoneim, N.H., Hamza, E., Arafa, A.

Advances in Animal and Veterinary Sciences, 2021, 9(10), pp. 1517-1524

INVESTIGATING the BIOSECURITY MEASURES' APPLICATIONS in POULTRY FARMS and ITS RELATIONSHIP with the OCCURENCE of AVIAN INFLUENZA

Ahmed, H.A., Mohamed, M.E.M., Erfan, A.M., Abdelkarim, L., Awadallah, M.A.I.

Slovenian Veterinary Research, 2021, 58, pp. 315-321

Selenium nanoparticles enhance the efficacy of homologous vaccine against the highly pathogenic avian influenza H5N1 virus in chickens

Yehia, N., AbdelSabour, M.A., Erfan, A.M., ...El-Saadony, M.T., Ahmed, K.A.

Saudi Journal of Biological Sciences, 2021

b) International conferences: 0

c) National conferences: 0

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	Certificate-ISO.pdf

16. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Detection of suptype-specific antibodies to Avian influenza virus by haemagglutination inhibition test	Egyptian Accreditation Council EGAC
Isolation and characterization of Avian influenza viruses using SPF embryonated chicken eggs and haemagglutination inhibition test	Egyptian Accreditation Council EGAC
Detection of AI virus (M, H5,H9) by Real Time PCR	Egyptian Accreditation Council EGAC
Sequencing of neuclotides of avian influenza virus (AIV)	Egyptian Accreditation Council EGAC

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.
RL RING TRIAL for AIV, 2020	participant	28	Animal and Plant Health Agency Weybridge (UK) (organizer)
PT for the Diagnosis of AIV & APMV-1-2020	participant		OIE Reference Laboratory for Avian Influenza disease Istituto Zooprofilattico Sperimentale delle Venezie (IZSVE)- Italy (organizer)

<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?

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?

No

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

***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:

RLQP produces reference reagents (non OIE-approved) and other diagnostic reagents and distributed locally but not to OIE Member Countries.  
Some activities in this report are lacking due to short period from the initiation of lab as OIE Ref Lab in May-2021 besides issues related to COVID-19 restrictions on travel and sample transfer.