

# WOAH Reference Laboratory Reports Activities 2023

## Activities in 2023

This report has been submitted : 28 juin 2024 06:49

### Laboratory Information

<b>Name of disease (or topic) for which you are a designated WOAHO Reference Laboratory:</b>	Avian influenza
<b>Address of laboratory:</b>	Reference Laboratory for Veterinary Quality Control on Poultry Production Animal Health Research Institute Agriculture research Centre 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 WOAHO 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 agency

### 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
<b>Indirect diagnostic tests</b>			
Haemagglutination inhibition (H5)		20733	0
Haemagglutination inhibition (H9)		1885	0
<b>Direct diagnostic tests</b>			
PCR		8015	0
Virus isolation		65	0
Sequencing of HA gene		20	0
Sequencing of NA gene		10	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 (nonWOAHO-approved) and/or other diagnostic reagents to WOAHO Members?

Yes

TYPE OF REAGENT AVAILABLE	RELATED DIAGNOSTIC TEST	PRODUCED/ PROVIDE	AMOUNT SUPPLIED NATIONALLY (ML, MG)	AMOUNT SUPPLIED INTERNATIONALLY (ML, MG)	NO. OF RECIPIENT WOAHO MEMBER COUNTRIES	COUNTRY OF RECIPIENTS

H9N2 antigen	PCR	RLQP-AHRI-Egypt	5 mL	1 mL	2	CHINA (PEOPLE'S REP. OF), SAUDI ARABIA,
H5N8 Virus	virus isolation	RLQP-AHRI-Egypt	3 mL	0	1	EGYPT,
H5N1 Virus	virus isolation	RLQP-AHRI-Egypt	3 mL	0	1	EGYPT,
H9N2 virus	virus isolation	RLQP-AHRI-Egypt	2 mL	2 mL	2	CHINA (PEOPLE'S REP. OF), KOREA (REP. OF),

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.)
Valley Vac H5Plus NDVg7 inactivated oil emulsion vaccine & inactivated bivalent H5+ND7	Azab, A. A., Yehia, N., Makhareta, M., Samir, M., Shoukry, A., Elhalem Mohamed, A. A., Alhag, S. K., Alwabl, A. S., El-Saadony, M. T., El-Tarabily, K. A., & Soliman, M. A. (2023). Evaluation of inactivated avian influenza virus and Newcastle disease virus bivalent vaccination program against newly circulated H5N8 and NDV strains. Poultry science, 102(10), 102952.

### TOR4: DIAGNOSTIC TESTING FACILITIES

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

No

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
Immunogenicity and Cross-Protective Efficacy Induced by an Inactivated Recombinant Avian Influenza A/H5N1 (Clade 2.3.4.4b) Vaccine against Co-Circulating Influenza A/H5Nx Viruses	2 years	Three H5Nx vaccines were generated rgH5N1_2.3.4.4, rgH5N8_2.3.4.4 and rgH5N1_2.2.1.2. Further, the immunogenicity and the cross-reactivity were assessed in the chicken model	Uppsala University; Texas Biomedical Research Institute, San Antonio	SWEDEN UNITED STATES OF AMERICA
Emergence of Highly Pathogenic Avian Influenza A Virus (H5N1) of Clade 2.3.4.4b in Egypt, 2021-2022	2 years	Surveillance in Wild migratory birds in response to the recent outbreaks of the highly pathogenic avian influenza (HPAI) H5N1 virus	Uppsala University	SWEDEN
Low Pathogenic Avian Influenza H9N2 Viruses in Morocco:		comprehensive phylogenetic and molecular analysis of H9N2 avian	Institut Agronomique et Vétérinaire Hassan II; Mohamed V University in Rabat; National	MOROCCO FRANCE - WALLIS

Antigenic and Molecular Evolution from 2021 to 2023.	2 years	influenza viruses circulating in Morocco from 2021 to 2023.	Institute of Agricultural Research, Rabat; Mouahid Veterinary Clinic, Temara; Toulouse University	AND FUTUNA (ISLANDS)
Differential replication characteristic of reassortant avian influenza A viruses H5N8 clade 2.3.4.4b in Madin-Darby canine kidney cell.	2 years	genetic characterization and study replication, pathogenicity, and viral load in on Madin-Darby canine kidney cell (MDCK),	University of Jeddah United Arab Emirates University	SAUDI ARABIA UNITED ARAB EMIRATES
Evaluation of inactivated avian influenza virus and Newcastle disease virus bivalent vaccination program against newly circulated H5N8 and NDV strains	2 years	To evaluate the efficacy of Valley Vac H5Plus NDVg7 vaccine and another bivalent H5+ND7 vaccine in protecting chickens against the recent H5N8 and NDV strains	King Khalid University; King Abdulaziz University United Arab Emirates University	SAUDI ARABIA UNITED ARAB EMIRATES
Molecular detection of highly pathogenic avian influenza H5N8 in commercial broiler chicken farms from 2019 to 2022	3 years	Surveillance and molecular characterization of the HPAI virus in commercial broiler chicken flocks from 2019 to 2022	King Abdulaziz University; Princess Nourah Bint Abdulrahman University United Arab Emirates University	SAUDI ARABIA UNITED ARAB EMIRATES
Common viral and bacterial avian respiratory infections: an updated review	3 years	updated summary of the circulation of important poultry respiratory pathogens, with methods for the control and prevention.	Higher Colleges of Technology; United Arab Emirates University Jouf University	SAUDI ARABIA UNITED ARAB EMIRATES

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

Yes

### Research need : 1

**Please type the Research need:** pathobiology of virus in different hosts

**Relevance for WOA?H** Disease Control,

**Relevance for the Codes or Manual** Manual,

**Field** Epidemiology and Surveillance, Diagnostics, Vaccines,

**Animal Category** Terrestrial,

**Disease:**

Avian influenza

**Kind of disease (Zoonosis, Transboundary diseases)** Zoonosis, Transboundary diseases,

**If any, please specify relevance for Codes or Manual, chapter and title**

(e.g. Terrestrial Manual Chapter 2.3.5 - Minimum requirements for aseptic production in vaccine manufacture)

**Answer:** CHAPTER 3.3.4. AVIAN INFLUENZA (INCLUDING INFECTION WITH HIGH PATHOGENICITY AVIAN INFLUENZA VIRUSES)

**Notes:**

**Answer:** Comparative study of virus pathogenicity in vaccinated birds from different hosts

## 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:

National surveillance data were collected to enhance the detection and molecular analysis of viruses circulating in the country.

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:

National surveillance program of the Egyptian Ministry of Agriculture to detect avian influenza viruses in domestic birds and commercial poultry holders.

Laboratory research with local and international research institutes/ Universities for avian influenza virus in poultry.

Epidemiological reports to the General Organization of Veterinary Services GOVS, Ministry of Agriculture, Ministry of Health and FAO.

OFFLU VCM network: for identification of animal and avian influenza viruses with zoonotic potential, to select human vaccines against zoonotic or pandemic influenza viruses from animal source. RLQP provided HA and NA sequences from AI viruses of the H5 subtypes and H9 subtype.

Meetings and seminars related to AI about 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, and the WHO.

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:

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Mosaad Z, Elhusseiny MH, Zanaty A, Fathy MM, Hagag NM, Mady WH, Said D, Elsayed MM, Erfan AM, Rabie N, Samir A, Samy M, Arafa AS, Selim A, Abdelhakim AM, Lindahl JF, Eid S, Lundkvist Å, Shahein MA, Naguib MM. Emergence of Highly Pathogenic Avian Influenza A Virus (H5N1) of Clade 2.3.4.4b in Egypt, 2021-2022. *Pathogens*. 2023 Jan 5;12(1):90.

Arbani O, Ducatez MF, Mahmoudi S, Salamat F, Khayi S, Mouahid M, Selim KM, Kichou F, Ouchhour I, El Houadfi M, Fellahi S. Low Pathogenic Avian Influenza H9N2 Viruses in Morocco: Antigenic and Molecular Evolution from 2021 to 2023. *Viruses*. 2023 Nov 30;15(12):2355.

Setta A, Yehia N, Shakak AO, Al-Quwaie DA, Al-Otaibi AM, El-Saadony MT, El-Tarabily KA, Salem H. Molecular detection of highly pathogenic avian influenza H5N8 in commercial broiler chicken farms from 2019 to 2022. *Poult Sci*. 2023 Jun;102(6):102639.

b) International conferences:

0

c) National conferences:

0

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

0

## 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	Certificate-ISO.pdf

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Detection of subtype-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 nucleotides of avian influenza virus (AIV)	Egyptian Accreditation Council EGAC

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

Yes

Biological risk analysis includes identification of biohazards, a laboratory assessment followed by management of the associated biological risks, and biological risk communication. RLQP performs risk assessments to identify the biosafety and biosecurity measures needed to safely implement work with avian influenza RLQP biological risk management system includes the Biosafety manual including policies, procedures (procedure No.22 for Biosafety), and operational components needed for identifying, determining the extent of, managing, and communicating disease and economic risks associated with a specific biological agent in the context of how that agent is handled, manipulated, and maintained in the laboratory.

## TOR9: SCIENTIFIC MEETINGS

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

No

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

Yes

Title of event	Date (mm/yy)	Location	Role (speaker, presenting poster, short communications)	Title of the work presented
Annual meeting of the WOA?H Regional Commission for Africa	2023-05-15	Paris, France	Participant	Discussion for "Regional perspective for the control of animal diseases"
Virtual Workshop: Avian Influenza in Africa – Lessons Learnt on Preparedness and Control of Avian Influenza	2023-06-21	Vienna, Virsual	Speaker	Preparedness and control of HPAI with respect to vaccination and vaccine use in Egypt
Avian influenza: Global Threat with pandemic potential	2023-08-07	OFFLU, Virsual	Speaker	Current Situation of avian influenza in Africa with special reference to Egypt

## TOR10: NETWORK WITH WOA?H REFERENCE LABORATORIES

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

Yes

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

Yes

NETWORK/DISEASE	ROLE OF YOUR LABORATORY (PARTICIPANT, ORGANISER, ETC)	NO. PARTICIPANTS	PARTICIPATING WOA?H REF. LABS
OFFLU/avian influenza	Participant	28	ALL avian influenza Ref Labs

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

No

26. Did your laboratory collaborate with other WOA?H Reference Laboratories for the same disease on scientific research projects for the diagnosis or control of the pathogen of interest?

No

## TOR11: OTHER INTERLABORATORY PROFICIENCY TESTING

27. Did your laboratory organise or participate in inter-laboratory proficiency tests with laboratories other than WOA?H 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:

Yes

*Delay in sample shipment approvals and regulatory issues during sample transfer of PT-samples hinder the sharing in the PT round this year.*