WOAH Reference Laboratory Reports Activities 2023

Activities in 2023

Laboratory Information

Name of disease (or topic) for which you are a designated WOAH Reference Laboratory:	Swine influenza
Address of laboratory:	Via Bianchi 9 25124 Brescia
Tel.:	+39 (0)52129.37.33
E-mail address:	chiara.chiapponi@izsler.it
Website:	
Name (including Title) of Head of Laboratory (Responsible Official):	Dr. Giorgio Varisco, General Director
Name (including Title and Position) of WOAH Reference Expert:	Dr. Chiara Chiapponi, senior scientist
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 WOAH Manual (Yes/No)	Total number of test performed last year	
Indirect diagnostic tests		Nationally	Internationally
Hemagglutination inhibition test		7400	2900
ELISA anti-NP		790	100
Direct diagnostic tests		Nationally	Internationally
Real-time RT-PCR		3000	17
Multiplex RT-PCR for subtyping		135	5
Cell culture isolation		180	0
Embryonated chicken eggs inoculation		100	0
NGS full genome sequencing		100	0

TOR2: REFERENCE MATERIAL

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

No

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

Yes

TYPE OF REAGENT AVAILABLE	RELATED DIAGNOSTIC TEST	PRODUCED/ PROVIDE	AMOUNT SUPPLIED NATIONALLY (ML, MG)	AMOUNT SUPPLIED INTERNATIONALLY (ML, MG)	NO. OF RECIPIENT WOAH MEMBER COUNTRIES	COUNTRY OF RECIPIENTS
Swine hyperimmune serum H1N1	HI TEST	provided	0	1.5 ML	1	NORWAY,

Swine hyperimmune serum H1N2	HI TEST	provided	0	1.5 ML	1	NORWAY,
Swine hyperimmune serum H3N2	HI TEST	provided	0	1.5 ML	1	NORWAY,
Swine hyperimmune serum H1N1 pdm	HI TEST	provided	0	1.5 ML	1	NORWAY,
Swine influenza virus H1N1 (clade 1C)	HI TEST	provided	0	3	1	SWEDEN,
Swine influenza virus H1N1 (clade 1A)	HI TEST	provided	0	3	1	SWEDEN,
Swine influenza virus (multiple subtypes)	HI characterization against the relevant ferret antisera (CVV evaluation)	provided	0	7 ML	1	UNITED KINGDOM,

4. Did your laboratory produce vaccines?

No

5. Did your laboratory supply vaccines to WOAH 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 WOAH 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 WOAH Standards for the designated pathogen or disease?

No

TOR4: DIAGNOSTIC TESTING FACILITIES

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

Yes

NAME OF WOAH 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
CYPRUS	2023-03-31	ELISA (kit ID VET)	25	0
CYPRUS	2023-11-30	ELISA (kit ID VET)	25	0
CYPRUS	2023-03-31	HI TEST	164	0
CYPRUS	2023-04-30	HI TEST	10	0
CYPRUS	2023-05-31	HI TEST	327	0
CYPRUS	2023-10-31	HI TEST	208	0
CYPRUS	2023-04-30	PCR multiplex	1	0
CYPRUS	2023-05-30	PCR multiplex	2	0
CYPRUS	2023-09-30	PCR multiplex	1	0
CYPRUS	2023-12-31	PCR multiplex	1	0
CYPRUS	2023-03-31	real-time PCR	1	0
CYPRUS	2023-04-30	real-time PCR	2	0
CYPRUS	2023-05-31	real-time PCR	8	0
CYPRUS	2023-06-30	real-time PCR	2	0
CYPRUS	2023-09-30	real-time PCR	1	0
CYPRUS	2023-12-31	real-time PCR	1	0
GREECE	2023-01-31	HI TEST	404	0
GREECE	2023-02-28	HI TEST	44	0
GREECE	2023-03-31	HI TEST	372	0

GREECE	2023-04-30	HI TEST	56	0
GREECE	2023-05-31	HI TEST	120	0
GREECE	2023-06-30	HI TEST	609	0
GREECE	2023-09-30	HI TEST	172	0
GREECE	2023-10-31	HI TEST	200	0
GREECE	2023-11-30	HI TEST	24	0
GREECE	2023-12-31	HI TEST	108	0
GREECE	2023-03-31	HI TEST	1	0

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

Yes

NAME OF THE WOAH MEMBER COUNTRY RECEIVING A TECHNICAL CONSULTANCY	PURPOSE	HOW THE ADVICE WAS PROVIDED
NORWAY	Consulting HI test	mail
SWEDEN	Consulting HI test	mail
AUSTRIA	Consulting sampling	mail
SPAIN	Consulting HI test	mail
FINLAND	SOPs for virus isolation, consulting HI test	mail
GREECE	SOP for diagnostic	COST STSM
KOSOVO	training	presentation
ROMANIA	training	Lab hosting

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

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

Yes

Title of the study	Duration	PURPOSE OF THE STUDY	PARTNERS (INSTITUTIONS)	WOAH MEMBER COUNTRIES INVOLVED OTHER THAN YOUR COUNTRY
Understanding the dynamics and evolution of swine influenza viruses in Europe: relevance for improved intervention and sustainable pig production (PIGIE)	2021-2024	ICRAD Co-Funded Project: Research Area 1: Improved understanding of epidemic and emerging infectious animal diseases	French Agency for Food, Environmental and Occupational Health & Safety (ANSES), Animal and Plant Health Agency (APHA),Friedrich-Loeffler-Institut (FLI), University of Copenhagen (UCPH),Istituto Zooprofilattico Sperimentale della Lombardia e dell'Emilia Romagna (IZSLER), Universitat Autònoma de Barcelona (UAB)	DENMARK FRANCE GERMANY SPAIN UNITED KINGDOM
Swine influenza data for OFFLU contribution to WHO vaccine composition meeting	annual	To share animal influenza data with WHO in order to assist with selection of the most appropriate viruses for human vaccines, which can include animal viruses that present a potential to emerge into pandemic threats.	OFFLU partners	
COST Action CA21132, European Swine Influenza Network (ESFLU)	2022-2026	ESFLU gathers 76 experts in an interdisciplinary One Health approach. The Action will advance scientific knowledge concerning swIAV, improve disease surveillance and management capabilities,	Medicine, AUT;Faculty of Veterinary Medicine;ANSES Ploufragan-Plouzané-Niort Laboratory;Finnish Food Authority Ruokavirasto;University of Helsinki;Animal and Plant Health Agency;Aristotle University of Thessaloniki;Croatian veterinary Institute;Istituto zooprofilattico sperimentale delle venezie;Istituto Zooprofilattico Sperimentale della Lombardia ed Emilia Romagna;Teagasc;Norwegian Veterinary Institute;The Norwegian Veterinary Institute;Utrecht University;Royal GD Animal Health;FCIENCIAS.ID - ASSOCIACAO PARA A INVESTIGACAO E DESENVOLVIMENTO DE CIENCIAS;Faculty	ALBANIA AUSTRIA BELGIUM BOSNIA AND HERZEGOVINA BULGARIA CROATIA CZECH REPUBLIC DENMARK FINLAND FRANCE GERMANY GREECE IRELAND MONTENEGRO NORWAY POLAND PORTUGAL

		benefit pork production and reduce risks to both animal and human health.	of Veterinary Medicine of the University of Lisbon;Institute for Research and development in Montanology;University Of Agricultural Sciences and Veterinary Medicine;Department of Animal Health and Antimicrobial Strategies;University of Ljubljana, Veterinary faculty;University of Sarajevo - Veterinary Faculty;Veterinary faculty, Veterinary institute;Diagnostic Veterinary Laboratory;Institute of Veterinary Medicine of Serbia;Scientific Veterinary Institute "Novi Sad";University of Ghent	ROMANIA SERBIA SLOVAKIA SPAIN SWEDEN SWITZERLAND THE NETHERLANDS UNITED KINGDOM

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

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:
Viral strains are isolated for genetic and antigenic characterization. Origin and date of sampling are collected

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:
Sequencing data, origin and date of sampling (OFFLU-VCM)

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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López-Valiñas Á, Valle M, Wang M, Darji A, Cantero G, Chiapponi C, Segalés J, Ganges L, Núñez JI. Vaccination against swine influenza in pigs causes different drift evolutionary patterns upon swine influenza virus experimental infection and reduces the likelihood of genomic reassortments. Front Cell Infect Microbiol. 2023 Mar 13;13:1111143. doi: 10.3389/fcimb.2023.1111143. PMID: 36992684; PMCID: PMC10040791.

van Diemen PM, Byrne AMP, Ramsay AM, Watson S, Nunez A, V Moreno A, Chiapponi C, Foni E, Brown IH, Brookes SM, Everett HE. Interspecies Transmission of Swine Influenza A Viruses and Human Seasonal Vaccine-Mediated Protection Investigated in Ferret Model. Emerg Infect Dis. 2023 Sep;29(9):1798-1807. doi: 10.3201/eid2909.230066. PMID: 37610158; PMCID: PMC10461666.

López-Valiñas Á, Valle M, Pérez M, Darji A, Chiapponi C, Ganges L, Segalés J, Núñez JI. Genetic diversification patterns in swine influenza A virus (H1N2) in vaccinated and nonvaccinated animals. Front Cell Infect Microbiol. 2023 Sep 15;13:1258321. doi: 10.3389/fcimb.2023.1258321. PMID: 37780850; PMCID: PMC10540852.

Maksimović Zorić J, Milićević V, Veljović L, Radosavljević V, Kureljušić B, Stevančević O, Chiapponi C. Genetic analysis of influenza A viruses of swine from commercial farms in Serbia. Vet Ital. 2023 Jul 31;59(2). doi: 10.12834/VetIt.2712.17810.2. PMID: 38376830.

b) International conferences:

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1. Á. López-Valiñas, Marta Valle, Marta Perez, A. Darji, C. Chiapponi, L. Ganges, J. Segalés and J.I. Núñez Genomic and evolutionary analysis of swine influenza A virus (H1N2) in challenged vaccinated pigs-EPIZONE 2023

2. C. Chiapponi, A. Prosperi, L. Soliani , A. De Mattia, C. Torreggiani, L. Baioni, I. Zanni, G. Guadagnini , E. Pileri, D. Ponzoni , A. Luppi UNDERSTANDING THE DYNAMICS AND EVOLUTION OF SWINE INFLUENZA VIRUSES IN EUROPE, ICRAD PIGIE: LONGITUDINAL STUDY IN ITALY- ESPHM 2024

3. G. Simon, E.M. Mateu De Antonio, H. Everett, C. Chiapponi, T. Harder, G. Dauphin, C. Fablet , P. Ryt-Hansen, G.E. Martin Valls , B. Mollet , L. Soliani , A. Graaf , S. Hervé , M. Viuf Agerlin , L. Coronado , S. Leetham , A. Luppi, K. Lillie-Jaschniski , S. Thiroux , G. Richard , C. Deblanc , M. Andraud , N. Rose , L.E. Larsen. UNDERSTANDING THE DYNAMICS AND EVOLUTION OF SWINE INFLUENZA VIRUSES IN ENDEMICALLY INFECTED PIG HERDS: COORDINATED LONGITUDINAL STUDIES IN SIX EUROPEAN

COUNTRIES. ESPHM 2024
4. Alice Prosperi, Laura Soliani , Laura Baioni, Camilla Torreggiani, Simona Perulli, Laura Fiorentini, Giovanni Pupillo, Annalisa Santi, Ana Moreno, Andrea Luppi, Chiara Chiapponi. INFLUENZA A VIRUS SURVEILLANCE IN DOMESTIC AND WILD SUIDAE IN EMILIA-ROMAGNA REGION (NORTHERN ITALY). SISVET 2023

c) National conferences:

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1. C. Chiapponi, A. Prosperi, L. Soliani, I. Zanni, A. De Mattia, L. Baioni, A. Mescoli, G. Guadagnini, D. Ponzoni, E. Pileri, C. Torreggiani, A. Luppi. APPROCCIO DIAGNOSTICO, MOLECOLARE E SIEROLOGICO, PER LO STUDIO DELLA DINAMICA DI CIRCOLAZIONE DI VIRUS INFLUENZALI SUINI IN DUE AZIENDE ENDEMICAMENTE INFETTE IN NORD ITALIA. SIDILV 2023

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

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

17. Did your laboratory provide scientific and technical training to laboratory personnel from other WOAH Members?

Yes

a) Technical visit : 3

b) Seminars : 1

c) Hands-on training courses: 0

d) Internships (>1 month) 0

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	GREECE	1
A	CYPRUS	1
A	ROMANIA	1
B	KOSOVO	3

TOR8: QUALITY ASSURANCE

18. Does your laboratory have a Quality Management System?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)	
UNI CEI EN ISO/IEC 17025:2018	certificate PDF	Accreditation-cert.pdf

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Matrix (M) gene PCR	ILAC-MRA_Accredia

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

Yes

The laboratory works according to tha Manual of Diagnostic Tests and Vaccines for Terrestrial Animals, Chapter 1.1.4 and WHO Laboratory biosafety manual.

TOR9: SCIENTIFIC MEETINGS

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

No

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

No

TOR10: NETWORK WITH WOAH REFERENCE LABORATORIES

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

Yes

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

Yes

NETWORK/DISEASE	ROLE OF YOUR LABORATORY (PARTICIPANT, ORGANISER, ETC)	NO. PARTICIPANTS	PARTICIPATING WOAH REF. LABS
ESFLU COST Action	Participant	36	WOAH reference Laboratory for swine influenza (APHA , UK)
ICRAD PIGIE	Participant	6	WOAH reference Laboratory for swine influenza (APHA , UK)
OIE Terrestrial Manual, ninth edition: Chapter on Influenza A virus of swine	participant	4	WOAH reference Laboratory for swine influenza (APHA , UK) National Veterinary Services Laboratories, DB, VS, APHIS, USDA National Institute of Animal Health-Ibaraky, Japan

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

No

26. Did your laboratory collaborate with other WOAH 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 WOAH REFERENCE LABORATORIES
Understanding the dynamics and evolution of swine influenza viruses in Europe: relevance for improved intervention and sustainable pig production-PIGIE (ICRAD)	ICRAD Research Area 1: Improved understanding of epidemic and emerging infectious animal diseases	WOAH reference Laboratory for swine influenza (APHA , UK)
COST Action CA21132, European Swine Influenza Network (ESFLU)	ESFLU gathers 76 experts in an interdisciplinary One Health approach. The Action will advance scientific knowledge concerning swIAV, improve disease surveillance and management capabilities, benefit pork production and reduce risks to both animal and human health.	WOAH reference Laboratory for swine influenza (APHA , UK)

TOR11: OTHER INTERLABORATORY PROFICIENCY TESTING

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

Yes

Purpose for inter-laboratory test comparisons1	Role of your reference laboratory (organizer/participant)	No. participating laboratories	Name of the Test	WOAH Member Countries
Detection of influenza A virus by molecular test	participant	17	Influenza A detection by PCR	ITALY,

TOR12: EXPERT CONSULTANTS

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

Yes

KIND OF CONSULTANCY	Location	SUBJECT (FACULTATIVE)
Review of the Chapter 3.9.7. of the Manual of Diagnostic Tests and Vaccines for Terrestrial Animals	online	TERRESTIAL MANUAL CHAPTER 3.9.7. INFLUENZA A VIRUSES OF SWINE

29. Additional comments regarding your report:

No