

# WOAH Reference Laboratory Reports Activities 2024

## LABORATORY INFORMATION

<b>*Name of disease (or topic) for which you are a designated WOAH Reference Laboratory:</b>	Swine influenza
<b>*Address of laboratory:</b>	Via Bianchi 9 25124 Brescia
<b>*Tel:</b>	+39 (0)52129.37.33
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<b>Website:</b>	www.izsler.it
<b>*Name (including Title) of Head of Laboratory (Responsible Official):</b>	Dr. Giorgio Varisco, General Director
<b>*Name (including Title and Position) of WOAH Reference Expert:</b>	Dr. Chiara Chiapponi, senior scientist
<b>*Which of the following defines your laboratory? Check all that apply:</b>	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
HI	Yes	5075	2621
ELISA anti-NP	Yes	541	887
Direct diagnostic tests		Nationally	Internationally
Real-time RT-PCR	Yes	2339	73
Multiplex RT-PCR for subtyping	Yes	150	

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			46
Cell culture isolation	Yes	197	31
Embryonated chicken eggs inoculation	Yes	118	11
NGS full genome sequencing	No	144	10

## TOR2: REFERENCE MATERIAL

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

No

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

Yes

Type of reagent available	Related diagnostic test	Produced/ provide	Amount supplied nationally (ml, mg)	Amount supplied internationally (ml, mg)	No. of recipient WOA Member Countries	Country of recipients
Swine influenza virus (multiple subtypes)	HI characterization against the relevant ferret antisera (CVV evaluation)	provided	0	5 ML	1	UNITED KINGDOM,
Swine influenza virus (multiple subtypes)	HI test	provided	0	180 ML	1	UKRAINE,
Swine influenza virus (multiple subtypes)	HI test	provided	0	10 ML	1	POLAND,
RNA from H1N2 IAV-S	RT-PCR	produced and provided	0,2 ML	0	1	ITALY,

4. Did your laboratory produce vaccines?

No

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

Yes

Name of the new test or diagnostic method developed	Description and References (Publication, website, etc.)
Multiplex RT-PCR for subtyping	The validation is available upon request from the IZSLER website. Ref of the method. doi: 10.3390/v14010047
ELISA anti-NP. (ID Screen® Influenza A Nucleoprotein Swine	

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Indirect)

The validation is available upon request from the IZSLER website.

8. Did your laboratory develop new vaccines for the designated pathogen or disease?

No

9. Did your laboratory validate vaccines according to WOAHP Standards for the designated pathogen or disease?

No

## TOR4: DIAGNOSTIC TESTING FACILITIES

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

Yes

Name of WOAHP 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	2024-01-01	ELISA anti-NP	90	0
CYPRUS	2024-05-31	ELISA anti-NP	10	0
CYPRUS	2024-06-30	ELISA anti-NP	50	0
CYPRUS	2024-09-30	ELISA anti-NP	40	0
CYPRUS	2024-10-31	ELISA anti-NP	19	0
CYPRUS	2024-05-31	HI test	40	0
CYPRUS	2024-06-30	HI test	172	0
CYPRUS	2024-09-30	HI test	116	0
CYPRUS	2024-10-31	HI test	40	0
CYPRUS	2024-01-01	real-time PCR	1	0
CYPRUS	2024-01-31	real-time PCR	6	0
CYPRUS	2024-06-30	real-time PCR	3	0
CYPRUS	2024-09-30	real-time PCR	1	0
CYPRUS	2024-01-01	Multiplex RT-PCR Subtyping	1	0
CYPRUS	2024-01-31	Multiplex RT-PCR Subtyping	2	0
SPAIN	2024-01-01	HI test	8	0
GREECE	2024-01-31	ELISA anti-NP	127	0
GREECE	2024-02-29	ELISA anti-NP	83	0
GREECE	2024-03-31	ELISA anti-NP	69	0
GREECE	2024-04-30	ELISA anti-NP	32	0
GREECE	2024-05-31	ELISA anti-NP	50	0
GREECE	2024-06-30	ELISA anti-NP	29	0
GREECE	2024-07-31	ELISA anti-NP	7	0
GREECE	2024-08-31	ELISA anti-NP	96	0
GREECE	2024-09-30	ELISA anti-NP	25	0
GREECE	2024-10-31	ELISA anti-NP	97	0

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GREECE	2024-11-30	ELISA anti-NP	62	0
GREECE	2024-01-31	HI test	332	0
GREECE	2024-02-29	HI test	104	0
GREECE	2024-03-31	HI test	276	0
GREECE	2024-04-30	HI test	128	0
GREECE	2024-05-31	HI test	148	0
GREECE	2024-06-30	HI test	20	0
GREECE	2024-07-31	HI test	20	0
GREECE	2024-08-31	HI test	224	0
GREECE	2024-09-30	HI test	68	0
GREECE	2024-10-31	HI test	184	0
GREECE	2024-11-30	HI test	224	0
GREECE	2024-06-30	real-time PCR	12	0
GREECE	2024-08-31	real-time PCR	4	0
GREECE	2024-09-30	real-time PCR	3	0
GREECE	2024-10-31	real-time PCR	2	0
GREECE	2024-06-30	Multiplex RT-PCR Subtyping	2	0
GREECE	2024-08-31	Multiplex RT-PCR Subtyping	1	0
GREECE	2024-09-30	Multiplex RT-PCR Subtyping	1	0
PORTUGAL	2024-06-30	HI test	0	12
PORTUGAL	2024-08-31	HI test	0	9
PORTUGAL	2024-09-30	HI test	0	42
PORTUGAL	2024-10-31	HI test	0	234
PORTUGAL	2024-11-30	HI test	0	220
PORTUGAL	2024-06-30	real-time PCR	0	2
PORTUGAL	2024-07-31	real-time PCR	0	7
PORTUGAL	2024-08-31	real-time PCR	0	8
PORTUGAL	2024-10-31	real-time PCR	0	14
PORTUGAL	2024-11-30	real-time PCR	0	10
PORTUGAL	2024-06-30	Multiplex RT-PCR Subtyping	0	2
PORTUGAL	2024-07-31	Multiplex RT-PCR Subtyping	0	5
PORTUGAL	2024-08-31	Multiplex RT-PCR Subtyping	0	7
PORTUGAL	2024-09-30	Multiplex RT-PCR Subtyping	0	5
PORTUGAL	2024-10-31	Multiplex RT-PCR Subtyping	0	14
PORTUGAL	2024-11-30	Multiplex RT-PCR Subtyping	0	6

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

Yes

Name of the WOA Member Country receiving a technical consultancy	Purpose	How the advice was provided
DENMARK	training	lab hosting
POLAND	HI test antigen selection	by mail and viral strains providing
BELGIUM	molecular protocols exchange	by mail

## TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

12. Did your laboratory participate in international scientific studies in collaboration with WOA 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	
			Medicine, AUT; Faculty of Veterinary Medicine; ANSES Ploufragan-Plouzané- Niort Laboratory; Finnish Food Authority Ruokavirasto; University of Helsinki; Animal and Plant Health Agency; Aristotle	

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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, benefit pork production and reduce risks to both animal and human health.	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 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	ALBANIA AUSTRIA BELGIUM BOSNIA AND HERZEGOVINA BULGARIA CROATIA CZECH REPUBLIC DENMARK FINLAND FRANCE GERMANY GREECE IRELAND LUXEMBOURG MONTENEGRO NORWAY POLAND PORTUGAL ROMANIA SERBIA SLOVAKIA SLOVENIA SWEDEN SWITZERLAND THE NETHERLANDS UNITED KINGDOM
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13. In exercising your activities, have you identified any regulatory research needs\* relevant for WOA?H?

No

## 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:

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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:

0

b) International conferences:

8

-AGERLIN MV, SIMON G, MATEU\_DE\_ANTONIO EM, EVERETT HE, CHIAPPONI C, HARDER T, DAUPHIN G, FABLET C, RYT-HANSEN P, MARTIN VALLS GE, MOLLET B, SOLIANI L, GRAAF-RAU A, HERVÉ S, CORONADO L, LEETHAM S, LUPPI A, LILLIE-JASCHNISKI K, THIROUX S, GORIN S, RICHARD G, DEBLANC C, ANDRAUD M, PROSPERI A, ROSE N, WEBER NR, GOECKE NB, LARSEN LE. Swine influenza A virus and its co-infections: a perspective from six European countries. International Pig Veterinary Society Congress (IPVS) : 27th European Symposium on Porcine Health Management (ESPHM) : 15th: Leipzig, Germany: June 4-7, 2024

-Ana Moreno; Anna Castelli; Laura Soliani; Tiziana Trogu; Enrica Sozzi; Davide Lelli; Chiara Chiapponi; Alice Prosperi; Silvia Faccini; Carlo Rosignoli; Cristian Salogni; Giovanni Loris Alborali. Antigenic characterization of Swine influenza H1N2 viruses in Italy. 16th EPIZONE Annual Meeting Viruses, vectors and wildlife. 25-27 September 2024. Uppsala, Sweden

-Laura Soliani, Ada Mescoli, Laura Baioni, Irene Calanchi, Camilla Torreggiani, Giovanni Alborali, Ana Moreno, Silvia Faccini, Carlo Rosignoli, Giovanni Pupillo, Laura Fiorentini, Alice Prosperi, Andrea Luppi, Chiara Chiapponi. Novel human derived swine influenza A virus H3N2 genotype circulating in pigs in Northern Italy. 16th EPIZONE Annual Meeting Viruses, vectors and wildlife. 25-27 September 2024. Uppsala, Sweden

-Mescoli A., Prosperi A., Soliani L., Baioni L., Zanni I., Calanchi I., Torreggiani C., Moreno A., Alborali L., Faccini S., Rosignoli C., Bonilauri P., Pupillo G., Fiorentini L., Tosi G., Luppi A., Chiapponi C. Surveillance and Impact of Influenza A and D Viruses in Swine and Cattle. InFACT Meeting, Pavia, 2024, Italy

-Christelle Fablet, Timm Harder, Lars E. Larsen, Chiara Chiapponi, Enric Mateu, Helen E. Everett, Séverine Hervé, Alice Prosperi, Shannon Leetham, Andrea Luppi, Gaëlle Simon, Nicolas Rose. Biosecurity: A Room for Improvement in Pig Herds Persistently Infected by Swine Influenza Virus International Society for Animal Hygiene-September 2024, Chiang Mai, Thailand.

-MESCOLI A, PROSPERI A, SOLIANI L, BAIONI L, ZANNI I, CALANCHI I, TORREGGIANI C, MORENO MARTIN AM, ALBORALI LG, FACCINI S, ROSIGNOLI C, BONILAURI P, PUPILLO G, FIORENTINI L, TOSI G, LUPPI A, CHIAPPONI C. Genetic variability of influenza A viruses in swine in Northern Italy. Congress of the European Association of Veterinary Laboratory Diagnosticians (EAVLD). Padua, Italy : 21st-23rd October 2024

-SOLIANI L, MESCOLI A, BAIONI L, ZANNI I, DE MATTIA A, PROSPERI A, TORREGGIANI C, PILERI E, GUADAGNINI G, PONZONI D, LUPPI A, CHIAPPONI C. Longitudinal study monitoring swine influenza circulation in two swine farms in Northern Italy and post-vaccination follow-up Congress of the European Association of Veterinary Laboratory Diagnosticians (EAVLD) 7th : Padua, Italy : 21st-23rd October

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2024

-Helen Everett and Chiara Chiapponi. KEYNOTE: UPDATE ON SWINE INFLUENZA DIAGNOSTICS CHALLENGES. ESFLU scientific meeting, 21-23 May 2024, Thessaloniky-Greece

c) National conferences:

1

- Chiapponi C., Prosperi A., Soliani L., Baioni L., Zanni I., Calanchi I., Torreggiani C., Moreno A., Alborali L., Faccini S., Rosignoli C., Bonilauri P., Pupillo G., Fiorentini L., Tosi G., Luppi A. VIRUS INFLUENZALI SUINI NEL NORD ITALIA. STUDIO DELLE FORME EPIZOOTICHE ED ENZOOTICHE NEGLI ALLEVAMENTI ATTI DELLA SOCIETÀ ITALIANA DI PATOLOGIA ED ALLEVAMENTO DEI SUINI-2024, BRESCIA, ITALY.

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 : 1

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	DENMARK	1
B	DENMARK	2
B	UNITED KINGDOM	1
B	ITALY	4
B	NORTH MACEDONIA (REP. OF)	1
B	SPAIN	1
B	FRANCE	1
B	PORTUGAL	1
B	BELGIUM	1
B	SWITZERLAND	1
B	THE NETHERLANDS	1

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B	SERBIA	1
B	GREECE	1
B	AUSTRIA	1

## 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 the 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 WOA?

No

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

No

## TOR10: NETWORK WITH WOA REFERENCE LABORATORIES

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

Yes

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

Yes

NETWORK/DISEASE	ROLE OF YOUR LABORATORY (PARTICIPANT, ORGANISER, ETC)	NO. PARTICIPANTS	PARTICIPATING WOA REF. LABS
ESFLU COST Action	Participant	36	WOA reference Laboratory for swine influenza (APHA, UK)
ICRAD PIGIE	Participant	6	WOA reference Laboratory for swine influenza (APHA, UK)
			WOA reference Laboratory for

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OFFLU Swine Influenza virus	Participant	20	swine influenza (APHA, UK) WOAH reference Laboratory for swine influenza (Viral Disease and Epidemiology Research Division, National Institute of Animal Health, National Agriculture and Food Research Organization- Japan) WOA reference Laboratory for swine influenza ( USDA, APHIS, USA)
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25. Did you organise or participate in inter-laboratory proficiency tests with WOA Reference Laboratories designated for the same pathogen during the past 2 years?

No

26. Did your laboratory collaborate with other WOA 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 WOA 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 WOA Reference Laboratories for the same pathogen during the past 2 years?

Yes

Purpose for inter-laboratory test comparisons <sup>1</sup>	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	18	Influenza A detection by PCR	ITALY,

## TOR12: EXPERT CONSULTANTS

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

Yes

Kind of consultancy	Location	Subject (facultative)
OFFLU Swine Influenza virus expert technical meeting	April 2024, WOA Headquarters, Paris, France	.
OFFLU Global Technical Meeting	July 2024, FAO Headquarters, Rome, Italy	.

29. Additional comments regarding your report:

No