

WOAH Reference Laboratory Reports Activities 2024

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LABORATORY INFORMATION

*Name of disease (or topic) for which you are a designated WOAH Reference Laboratory:	Trichinellosis
*Address of laboratory:	Department of Infectious Diseases, Istituto Superiore di Sanità, viale regina Elena 299. 00161 ROMA. Italy
*Tel:	+390649902310
*E-mail address:	gianluca.marucci@iss.it
Website:	https://www.iss.it/en/
*Name (including Title) of Head of Laboratory (Responsible Official):	Prof. Anna Teresa Palamara
*Name (including Title and Position) of WOAH Reference Expert:	Dr. Gianluca Marucci, PhD, Senior Scientist at the Department of Infectious Diseases
*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	
		Nationally	Internationally
Indirect diagnostic tests			
Indirect ELISA on human serum	No	7	0
Western blot on human serum	No	11	0
Indirect ELISA on swine serum	Yes	0	192
Western blot on swine serum	No	0	136

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Direct diagnostic tests		Nationally	Internationally
Artificial digestion of muscle tissue	Yes	36	0
Multiplex PCR	No	69	420

TOR2: REFERENCE MATERIAL

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

Yes

Type of reagent available	Related diagnostic testing	Produced/ imported	Quantity supplied nationwide (ml, mg)	Quantity supplied at international level (ml, mg)	Name of beneficiary WOA?H Member Countries

3. Did your laboratory supply standard reference reagents (nonWOA?H-approved) and/or other diagnostic reagents to WOA?H 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?H Member Countries	Country of recipients
Mouse carcass infected with T. spiralis	Artificial digestion	Produced	8	15	13	BULGARIA, CROATIA, ESTONIA, GERMANY, GREECE, IRELAND, ITALY, NORTH MACEDONIA (REP. OF), NORWAY, ROMANIA, SLOVENIA, SPAIN, SWEDEN,
Pools of Trichinella spp. muscle larvae in alcohol	Multiplex PCR	Produced	0	16 vials	4	CROATIA, ESTONIA, GREECE, SPAIN,

4. Did your laboratory produce vaccines?

No

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

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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?

No

TOR4: DIAGNOSTIC TESTING FACILITIES

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

Yes

Name of WOAHA 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
BULGARIA	2024-06-11	Multiplex PCR	68	0
CROATIA	2024-11-05	Multiplex PCR	3	0
ROMANIA	2024-06-30	Multiplex PCR	19	0
ROMANIA	2024-07-23	Multiplex PCR	42	0
SPAIN	2024-01-25	Multiplex PCR	1	0
SPAIN	2024-02-06	Multiplex PCR	18	0
SPAIN	2024-03-05	Multiplex PCR	6	0
SPAIN	2024-03-21	Multiplex PCR	118	0
SPAIN	2024-05-05	Multiplex PCR	1	0
SPAIN	2024-05-13	Multiplex PCR	23	0
SPAIN	2024-10-02	ELISA on swine serum	192	0

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

Yes

Name of the WOAHA Member Country receiving a technical consultancy	Purpose	How the advice was provided
BELGIUM	How to analyze frozen tissue samples to detect the presence of Trichinella larvae	by email
BELGIUM	Sample size to be tested from sows and boar for the detection of Trichinella larvae	by email
CROATIA	Set up and accreditation of the multiplex PCR method in the identification of Trichinella spp.	by email
CROATIA	Decontamination of equipment used during the artificial digestion to detect Trichinella larvae in tissue	by email
	How often regional laboratories	

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BULGARIA	must participate in proficiency testing on the magnetic stirrer method for detection of Trichinella larvae in meat	by email
ESTONIA	Sample size of brown bear meat to be tested to detect the presence of Trichinella larvae	by email
GREECE	How to store muscle tissue samples when is not possible to immediately analyze them by artificial digestion	by email
MALTA	Time and temperature to be maintained during artificial digestion to detect Trichinella larvae in muscle tissue	by email
SPAIN	Decontamination of equipment used during artificial digestion to detect Trichinella larvae in tissue	by email
SPAIN	Minimum amount of domestic pig muscle tissue to be tested to detect Trichinella larvae	by email
SWEDEN	Minimum amount of domestic pig muscle tissue to be tested to detect Trichinella larvae	by email
UNITED KINGDOM	How to assess staff competency on artificial digestion, and how long a meat sample could remain valid for Trichinella testing	by email

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

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

No

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

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:

Epizootiological data relevant to Trichinella infection are collected in a database that is available at the International Commission on Trichinellosis website: <https://trichinella.iss.it/>

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:

Our laboratory disseminate information regarding epizootological data under request

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:

5

Scarcelli S, Buono F, D'Alessio N, et al. *Trichinella* spp. in wolves (*Canis lupus*) and red foxes (*Vulpes vulpes*) of southern Italy. *Res Vet Sci.* 2024;179:105381. doi:10.1016/j.rvsc.2024.105381

Marin AM, Olariu TR, Popovici DC, et al. *Trichinella spiralis* Infecting Wild Boars in West, Southwest, and Northwest of Romania: Evidence of an Underrated Risk. *Microorganisms.* 2024;12(5):856. Published 2024 Apr 25. doi:10.3390/microorganisms12050856

Balić D, Marucci G, Krajina M, et al. Is golden jackal (*Canis aureus*) the most important indicator species of *Trichinella* infection in Croatia?. *Vet Parasitol.* 2025;333:110239. doi:10.1016/j.vetpar.2024.110239

Korhonen PK, La Rosa G, Sumanam SB, et al. Enhanced Genomic and Transcriptomic Resources for *Trichinella pseudospiralis* and *T. spiralis* to Underpin the Discovery of Molecular Differences between Stages and Species. *Int J Mol Sci.* 2024;25(13):7366. Published 2024 Jul 5. doi:10.3390/ijms25137366

Della Bella C, Medici C, D'Elios S, Benagiano M, Ludovisi A, Gomez-Morales MA, D'Elios MM, Bruschi F. Interleukin 17 producing T cell responses in human chronic trichinellosis-insight from a case study. *Cytokine.* 2024 Dec;184:156795. doi: 10.1016/j.cyto.2024.156795. Epub 2024 Nov 3. PMID: 39492146.

b) International conferences:

1

19th Workshop of the National Reference Laboratories for Parasites, held at the Istituto Superiore di Sanità, Rome, Italy, November 6-7, 2024

c) National conferences:

1

XXXIII Congresso Nazionale della Società Italiana di Parassitologia, Padova, Italy, June 18-21, 2024

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

2

Chapter 3.1.22 Trichinellosis (infection with *Trichinella* spp.) for the Manual of Diagnostic Tests and Vaccines for Terrestrial Animals, thirteenth edition 2024.

Provision of support to the European Food Safety Authority and European Centre for Disease Prevention and Control for the production of

the Chapter Trichinella, 2024. The European Union One Health 2023 Zoonoses report. EFSA Journal 2024, <https://doi.org/10.2903/j.efsa.2024.9106>.

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

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

Yes

a) Technical visit : 8

b) Seminars : 0

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	COLOMBIA	2
A	CZECH REPUBLIC	1
A	HUNGARY	1
A	IRELAND	1
A	LATVIA	1
A	MEXICO	1
A	NORWAY	1
A	POLAND	1

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	Certificato accreditamento 17025.pdf	Certificato accreditamento 17025.pdf
ISO 17043	Certificato accreditamento 17043.pdf	Certificato accreditamento 17043.pdf

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Detection of anti-Trichinella antibodies in swine serum by indirect ELISA (MI-01)	Accredia
Identification of Trichinella muscle stage larvae at the species level by Multiplex PCR (MI-02)	Accredia

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Detection of anti-Trichinella antibodies in human serum by indirect ELISA (MI-03)	Accredia
Identification of Trichinella spp. proteins recognized by specific IgG in serum of infected pigs by western blotting (MI-13)	Accredia
Identification of Trichinella spp. proteins recognized by specific IgG in serum of humans with trichinellosis by Western blotting (MI-16)	Accredia
Proficiency Testing on artificial digestion to detect Trichinella larvae in meat samples	Accredia
Proficiency Testing on identification of Trichinella larvae at the species level	Accredia

20. 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

TOR9: SCIENTIFIC MEETINGS

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

No

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

No

TOR10: NETWORK WITH WOAHP REFERENCE LABORATORIES

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

Yes

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

Yes

NETWORK/DISEASE	ROLE OF YOUR LABORATORY (PARTICIPANT, ORGANISER, ETC)	NO. PARTICIPANTS	PARTICIPATING WOAHP REF. LABS
Trichinellosis	sharing information	2	Dr. Brad Scandrett Canadian Food Inspection Agency 116 Veterinary Road Saskatoon Saskatchewan S7N 2R3 Saskatoon

25. Did you organise or participate in inter-laboratory proficiency tests with WOAHP Reference Laboratories designated for the same pathogen during the past 2 years?

No

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

Yes

Purpose for inter-laboratory test comparisons ¹	Role of your reference laboratory (organizer/participant)	No. participating laboratories	Name of the test	WOAH Member Countries
Assess the participants' abilities to detect Trichinella larvae in muscle tissue	Organizer	34	Artificial digestion of muscle tissue	ALBANIA, AUSTRIA, BELGIUM, BOSNIA AND HERZEGOVINA, BULGARIA, CROATIA, CYPRUS, CZECH REPUBLIC, DENMARK, ESTONIA, FINLAND, FRANCE, GERMANY, GREECE, HUNGARY, ICELAND, IRELAND, ITALY, LATVIA, LITHUANIA, MALTA, NORTH MACEDONIA (REP. OF), NORWAY, POLAND, PORTUGAL, ROMANIA, SERBIA, SLOVAKIA, SLOVENIA, SPAIN, SWEDEN, SWITZERLAND, THE NETHERLANDS, UNITED KINGDOM,

TOR12: EXPERT CONSULTANTS

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

No

29. Additional comments regarding your report:

No