

WOAH Reference Laboratory Reports Activities 2022

Activities in 2022

This report has been submitted : 2 février 2023 10:49

Laboratory Information

Name of disease (or topic) for which you are a designated WOA Reference Laboratory:	Echinococcosis (Echinococcus granulosus and multilocularis)
Address of laboratory:	Istituto Zooprofilattico Sperimentale (IZS) of Sardinia, National Reference Laboratories for Cystic Echinococcosis (CE) - Via Duca degli Abruzzi, 8 (Administration) - Via Vienne 2 (Laboratories) 07100 - Sassari, Italy
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Website:	https://www.izs-sardegna.it/
Name (including Title) of Head of Laboratory (Responsible Official):	Dr Giovanna Masala, DVM
Name (including Title and Position) of WOA Reference Expert:	Dr Giovanna Masala, DVM
Which of the following defines your laboratory? Check all that apply:	Ministerial and Regional Institute of Health

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 WOA Manual (Yes/No)	Total number of test performed last year	
		Nationally	Internationally
Indirect diagnostic tests			
CeNRE 08 - ELISA Anti IgG of E.g. and E.m. for Humans	no	42	0
CeNRE 07 - Immunoblotting Anti IgG of E.g. and E.M. for Humans	no	26	0
CeNRE 15 - Immunochromatographic	no	24	

anti IgG of E.g. for Human			0
Direct diagnostic tests		Nationally	Internationally
CeNRE 03 - Sequencing analysis	no	59	0
CeNRE 04 - E.g., E.m. and Tenia identification by PCR on Cestode eggs	yes	158	110
CeNRE 05 - Canine intestinal scraping or "Shanking in a vessel" techniques	yes	0	0
CeNRE 06 - Sedimentation counting techniques of canine faeces and microscopic examination	yes	3	0
CeNRE 09 - Identification of E.g. s.s. by PCR for gene CAL	no	36	0
CeNRE 10 - Tecnica della sedimentazione e flottazione per la diagnosi parassitologica di uova di cestodi in feci di canidi	yes	237	0
CeNRE 11 - Coproparasitological analysis of Cestode eggs after centrifugation	yes	0	0
CeNRE 01/12 - Identification of E.g. cysts in organs of different species	yes	105	0
CeNRE 13 - Identification of E.g. cysts in human organs	no	3	0

TOR2: REFERENCE MATERIAL

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

No

3. Did your laboratory supply standard reference reagents (nonWOAH-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
OVINE HYDATID FLUID of E. granulosus	CeNRE 03 - Sequencing analysis; CeNRE 09 - Identification of E.g. s.s. by PCR for gene CAL	produced/provided	2x150ml	0	1	MiddleEast
WILD BOAR HYDATID FLUID of E. granulosus	CeNRE 03 - Sequencing analysis; CeNRE 09 - Identification of E.g. s.s. by PCR for gene CAL	produced/provided	400ml	0	1	Europe
	CeNRE 03 -					

BOVINE HYDATID FLUID of <i>E. granulosus</i>	Sequencing analysis; CeNRE 09 - Identification of <i>E.g. s.s.</i> by PCR for gene CAL	produced/provided	1000ml	0	1	Europe
K+ DNA <i>E.g. s.s.</i> aliquots	CeNRE 03 - Sequencing analysis; CeNRE 09 - Identification of <i>E.g. s.s.</i> by PCR for gene CAL	produced/provided	3 aliquots of 10 µl	0	1	Europe
K+ DNA <i>E.g. s.s.</i> aliquots	CeNRE 03 - Sequencing analysis; CeNRE 09 - Identification of <i>E.g. s.s.</i> by PCR for gene CAL	produced/provided	3 aliquots of 10 µl	0	1	Europe
K+ DNA <i>E.g. s.s.</i> aliquots	CeNRE 03 - Sequencing analysis; CeNRE 09 - Identification of <i>E.g. s.s.</i> by PCR for gene CAL	produced/provided	3 aliquots of 10 µl	0	1	MiddleEast
K+ DNA <i>E.g. s.s.</i> aliquots	CeNRE 03 - Sequencing analysis; CeNRE 09 - Identification of <i>E.g. s.s.</i> by PCR for gene CAL	produced/provided	3 aliquots of 10 µl	0	1	MiddleEast
K+ DNA <i>E.g. s.s.</i> aliquots	CeNRE 03 - Sequencing analysis; CeNRE 09 - Identification of <i>E.g. s.s.</i> by PCR for gene CAL	produced/provided	3 aliquots of 10 µl	0	1	Europe
K+ DNA <i>E.g. s.s.</i> aliquots	CeNRE 03 - Sequencing analysis; CeNRE 09 - Identification of <i>E.g. s.s.</i> by PCR for gene CAL	produced/provided	3 aliquots of 10 µl	0	1	Europe
K+ DNA <i>E.g. s.s.</i> aliquots	CeNRE 03 - Sequencing analysis; CeNRE 09 - Identification of <i>E.g. s.s.</i> by PCR for gene CAL	produced/provided	3 aliquots of 10 µl	0	1	Europe
K+ DNA <i>E.g. s.s.</i> aliquots	CeNRE 03 - Sequencing analysis; CeNRE 09 - Identification of <i>E.g. s.s.</i> by PCR for gene CAL	produced/provided	3 aliquots of 10 µl	0	1	Europe

	for gene CAL					
K+ DNA E.g. s.s. aliquots	CeNRE 03 - Sequencing analysis; CeNRE 09 - Identification of E.g. s.s. by PCR for gene CAL	produced/provided	3 aliquots of 10 µl	0	1	Europe
K+ DNA E.g. s.s. aliquots	CeNRE 03 - Sequencing analysis; CeNRE 09 - Identification of E.g. s.s. by PCR for gene CAL	produced/provided	3 aliquots of 10 µl	0	1	Europe
K+ DNA E.g. s.s. aliquots	CeNRE 03 - Sequencing analysis; CeNRE 09 - Identification of E.g. s.s. by PCR for gene CAL	produced/provided	3 aliquots of 10 µl	0	1	MiddleEast
K+ DNA E.g. s.s. aliquots	CeNRE 03 - Sequencing analysis; CeNRE 09 - Identification of E.g. s.s. by PCR for gene CAL	produced/provided	3 aliquots of 10 µl	0	1	Europe
K+ DNA E.g. s.s. aliquots	CeNRE 03 - Sequencing analysis; CeNRE 09 - Identification of E.g. s.s. by PCR for gene CAL	produced/provided	3 aliquots of 10 µl	0	1	
K+ DNA E.g. s.s. aliquots	CeNRE 03 - Sequencing analysis; CeNRE 09 - Identification of E.g. s.s. by PCR for gene CAL	produced/provided	3 aliquots of 10 µl	0	1	Europe
K+ DNA E.g. s.s. aliquots	CeNRE 03 - Sequencing analysis; CeNRE 09 - Identification of E.g. s.s. by PCR for gene CAL	produced/provided	3 aliquots of 10 µl	0	1	Europe
K+ DNA E.g. s.s. aliquots	CeNRE 03 - Sequencing analysis; CeNRE 09 - Identification of E.g. s.s. by PCR for gene CAL	produced/provided	3 aliquots of 10 µl	0	1	Europe
K+ DNA E.g. s.s. aliquots	CeNRE 03 - Sequencing analysis; CeNRE 09 - Identification of E.g. s.s. by PCR for gene CAL	produced/provided	3 aliquots of 10 µl	0	1	Europe
K+ DNA E.g. s.s.	CeNRE 03 - Sequencing analysis; CeNRE		45 aliquots of 10			

aliquots	09 - Identification of E.g. s.s. by PCR for gene CAL	produced/provided	µl	1	1	Europe
K+ DNA E.g. s.s. aliquots	CeNRE 03 - Sequencing analysis; CeNRE 09 - Identification of E.g. s.s. by PCR for gene CAL	produced/provided	45 aliquots of 10 µl	1	1	Europe

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?

Yes

NAME OF THE NEW TEST OR DIAGNOSTIC METHOD DEVELOPED	DESCRIPTION AND REFERENCES (PUBLICATION, WEBSITE, ETC.)
Real time for E. granulosus s.l.	Validation plan in progress.

7. Did your laboratory validate diagnostic methods according to WOA H 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 WOA H Standards for the designated pathogen or disease?

No

TOR4: DIAGNOSTIC TESTING FACILITIES

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

Yes

NAME OF WOA H 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
FRANCE	2022-11-09	CeNRE 04 - E.g., E.m. and Tenia identification by PCR on Cestode eggs	0	70
TUNISIA	2022-11-09	CeNRE 04 - E.g., E.m. and Tenia identification by PCR on Cestode eggs	0	20

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

Yes

NAME OF THE WOA MEMBER COUNTRY RECEIVING A TECHNICAL CONSULTANCY	PURPOSE	HOW THE ADVICE WAS PROVIDED
PAKISTAN	research project	email, telephone, whats up, zoom
NIGERIA	improvement of diagnostic techniques	email, telephone, whats up, zoom

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
Study of Echinococcus granulosus on environment, intermediate and definitive host from various matrix	3 years	Improve knowledge on Echinococcus granulosus in Nigeria, Africa	Emmanuel Jolaoluwa Awosanya, Department of Veterinary Public Health and Preventive Medicine, University of Ibadan, Ibadan 200005, Nigeria.	NIGERIA
Genotype and haplotype identification of Echinococcus granulosus isolates from intermediate host in Islamabad, Pakistan	2 years	Identify new genotype and haplotype	Haroon Ahmad, University of Islamabad (COMSAT), Islamabad, Pakistan	PAKISTAN
Multicentre study "Contamination of vegetables for human consumption by Em/Eg" in European lettuce and barries"	2 years	Risk evaluation of E.granulosus presence in lettuce and barries for human consumption	Dr Gerald Umhang Laboratoire, Laboratoire de la rage et de la faune sauvage de Nancy, ANSES, Malzéville cedex	FRANCE
Set up diagnostic methods on copro diagnosis	2 years	Standardization of methods and evaluation and comparison of results for interlab reproducibility	Dr Jacek Karamon DVM, PhD, Department of Parasitology and Invasive Diseases, National Veterinary Research Institute, Pulawy	POLAND
			Istituto Superiore di Sanità, ISS Italy Friedrich-Loeffler-Institut, FLI Germany French Agency for Food, Environmental and Occupational Health and Safety, ANSES France National Institute for Public Health and the Environment, RIVM The Netherlands National	

MEmE: Multi-centre study on Echinococcus multilocularis and Echinococcus granulosus s.l. in Europe: development and harmonization of diagnostic methods in the food chain	5 years	Development and harmonization of diagnostic methods in the food chain	<p>Veterinary Research Institute in Pulawy, PIWET</p> <p>Poland National Veterinary Institute, SVA</p> <p>Sweden Norwegian Veterinary Institute, NVI</p> <p>Norway Statens Serum Institut, SSI Denmark National Institute for Agrarian and Veterinary Research, INIAV Portugal Instituto Nacional de Saúde Doutor Ricardo Jorge, INSA Portugal University of Tartu, UT</p> <p>Estonia Veterinary and Food Laboratory, VFL</p> <p>Estonia Institute of Food Safety, Animal Health and Environment, BIOR Latvia University of Hohenheim, UH Germany Institute of Parasitology, University of Zurich, IPZ Switzerland Leishmaniasis Research Unit- Jericho, LRJ Palestine Tel Hai College, TH Upper Galilee, Israel Istituto Zooprofilattico Sperimentale della Sardegna, IZSS Italy</p>	ITALY
Biomolecular analysis of Echinococcus granulosus from human and animal cysts	2 years	To sequence E. granulosus DNA to find genotype and new haplotypes for a phylogenetic tree	Professor Urmas Saarma, Department of Zoology, Institute of Ecology and Earth sciences, University of Tartu	ESTONIA
Active surveillance set up to estimate the real prevalence of Echinococcosis in Italian sheep	2 years	Detect the real prevalence of Echinococcosis in Italian sheep	Network of Italian Istituti Zooprofilattici Sperimentali	ITALY
Preparation of an ELISA assay for the serological diagnosis of cystic echinococcosis in sheep	2 years	Set up an in vivo test	<p>-Giovanni Garippa, Dipartimento di Medicina Veterinaria, University of Sassari,</p> <p>-Federica Loi, IZS della Sardegna - OEVR, - Daniela Pagnozzi, Porto Conte Ricerche srl, Tramariglio, Alghero</p>	ITALY

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:

Our Laboratories are designed to supervise data for monitoring, surveillance and control programmes system in the ambitus of the National Informative System of Zoonosis (SINZOO).

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:

All data related to zoonoses have been collected according to Directive 2003/99/CE and have been sent to EFSA Member State through a specific Web Site. Later, data related to animals have been managed by EFSA and Zoonoses Collaboration Center (ZCC) for preparation of a report, whereas, data related to humans have been managed by Center for Disease Prevention and Control (ECDC).

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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• *Comp Immunol Microbiol Infect Dis.*

Comparison and evaluation of analytic and diagnostic performances of four commercial kits for the detection of antibodies against Echinococcus granulosus and E. multilocularis in human sera A. Peruzzu, S. Mastrandrea, A. Fancellu, P. Bonelli, K. Muehlethaler, G. Masala, C. Santucci.

• *Vet. Sci.*

Environmental Contamination by Echinococcus spp. Eggs as a Risk for Human Health in Educational Farms of Sardinia, Italy E. Serra, G. Masu, V. Chisu, S. Cappai, G. Masala, F. Loi, T. Piseddu.

• *Acta Trop.*

Proteomic characterization of Echinococcus granulosus s. s., Taenia hydatigena and Taenia multiceps metacestode cyst fluids G. Biosa, P. Bonelli, S. Pisanu, S. Ghisaura, C. Santucci, A. Peruzzu, G. Garippa, S. Uzzau, G. Masala, D. Pagnozzi.

• *Current Urology* *Diagnosis and treatment of unusual multiorgan Echinococcus hydatid cysts*

G. Drocchi, C. Santucci, S. Mastrandrea, F. Sanguedolce, M. Madonia

b) International conferences:

5

• EAVLD, 6th Congress of the European Association of Veterinary Laboratory Diagnosticians. 23-26 ottobre 2022, Siviglia.

• (ICOPA22) THE 15TH INTERNATIONAL CONGRESSES OF PARASITOLOGY
Copenhagen, Denmark 21/08/2022 - 26/08/2022. P.,

- *Workshop of the EURL /NRL for Parasites (ISS). Roma 15-16/09/2022*
- *XXI Congresso Nazionale 2022-SIDILV, Ischia 7-9 ottobre 2022.*
- *ONE HEALTH AWARD, One Health one Earth, Teramo 14-16 ottobre 2022.*

c) National conferences:

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- *XXXII Congresso Nazionale della Società italiana di parassitologia Napoli 27/30 giugno Centro Congressi Federico II dal titolo "Transizioni Parassitologiche"*
 - Title Abstract: *Definition of endemic area for cystic Echinococcosis: the case of Sardinia*
 Authors: *T. Piseddu, G. Masu, F. Loi, V. Chisu, G. Masala.*
 - Title Abstract: *Tape-Wolf: Echinococcosis In Wolves Recolonizing The Alps*
 Authors: *Orusa R, Masala G., Guidetti C, Robetto S, Moroni B, Zoppi S, Dondo A, Mignone W, Bonelli P, Cesano M, Domenis L, Carella E, Tizzani P, Meneguz P.G., Rossi L.*

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 WOAHA Members?

Yes

- a) Technical visit : 1
- b) Seminars : 0
- c) Hands-on training courses: 1
- d) Internships (>1 month) 1

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, c, d.	Tunisia, Africa	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 17025:2005	Quality System Certification.pdf	

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
CeNRE 08 - ELISA Anti IgG of E.g. and E.m. for Humans	ACCREDIA

CeNRE 09 - Identification of E.g. s.s. by PCR for gene CAL	ACCREDIA
CeNRE 01 - Identification of E.g. cysts in organs of ovines	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 2022, Chapter 1.1.4)

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?

Yes

Title of event	Date (mm/yy)	Location	Role (speaker, presenting poster, short communications)	Title of the work presented
• EAVLD, 6th Congress of the European Association of Veterinary Laboratory Diagnosticians.	2022-10-23	Siviglia	Attendent	
• (ICOPA22) THE 15TH INTERNATIONAL CONGRESSES OF PARASITOLOGY	2022-08-21	Denmark, Denmark	presenting poster	Comparison and evaluation of analytic and diagnostic performances of four commercial kits for the detection of antibodies against Echinococcus granulosus and E. multilocularis in human sera.
• Workshop of the EURL /NRL for Parasites (ISS).	2022-09-15	Rome, Italy	Attendent	
• ONE HEALTH AWARD, One Health one Earth	2022-10-14	Teramo , Italy	Attendent	

TOR10: NETWORK WITH WOA REFERENCE LABORATORIES

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

Not applicable (only WOA Reference Laboratory designated for the disease)

24. Are you a member of a network of WOA Reference Laboratories designated for the same pathogen?

Not applicable (Only WOA Reference Laboratory designated for the disease)

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

Not applicable (Only WOA Reference Laboratory designated for the disease)

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?

Not applicable (Only WOA Reference Laboratory designated for the disease)

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?

Yes

Purpose for inter-laboratory test comparisons ¹	Role of your reference laboratory (organizer/participant)	No. participating laboratories	Region(s) of participating WOA Member Countries
National Proficiency Test: "Identification of E.g. s.s. by PCR for gene CAL" - CeNRE 09	ORGANIZER	6	Europe
National Proficiency test on "Molecular identification of Echinococcus at the species level"	PARTICIPANT	24	Europe
National Proficiency test on "Detection of Echinococcus spp. worms in the intestinal mucosa of definitive host"	PARTICIPANT	24	Europe

TOR12: EXPERT CONSULTANTS

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

No

29. Additional comments regarding your report:

No