

# OIE Reference Laboratory Reports Activities

## *Activities in 2019*

**This report has been submitted : 2020-01-14 11:38:42**

<b>Name of disease (or topic) for which you are a designated OIE Reference Laboratory:</b>	Echinococcosis
<b>Address of laboratory:</b>	Istituto Zooprofilattico Sperimentale (IZS) of Sardinia National Reference Laboratory for Cistic Echinococcosis (CE) Via Duca degli Abruzzi, 8 07100 Sassari, ITALY
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<b>Name (including Title) of Head of Laboratory (Responsible Official):</b>	Dr Giovanna Masala, DVM
<b>Name (including Title and Position) of OIE Reference Expert:</b>	Giovanna Masala
<b>Which of the following defines your laboratory? Check all that apply:</b>	Other: Ministerial and Regional Institute of Health

**ToR 1: To use, promote and disseminate diagnostic methods validated according to OIE Standards**

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 OIE Manual (Yes/No)	Total number of test performed last year	
		Nationally	Internationally
Indirect diagnostic tests		Nationally	Internationally
ELISA Anti E.g. and E.m. for Human	No	61	0
Immunoblottig Anti E.g. for Human	No	36	0
immunochromatographic anti IgG of E.g. for Human	No	13	0
Direct diagnostic tests		Nationally	Internationally
E.g., E.m. and Tenia identification by PCR on Cestode eggs	Yes	11	0
Coproparasitological analysis of Cestode eggs after centrifugation	Yes	0	0
CoproPCR for E.g. identification	Yes	11	0
Canine intestinal scraping or "Shanking in a vessel" techniques	Yes	0	0
Sedimentation counting techniques of canine faeces and microscopic examination	Yes	3	0
Identification of E.g. cysts in organs of human	No	4	0
Identification of E.g. cysts in organs of different species	Yes	222	0
Identification of E.g. s.s. by PCR for gene CAL	No	74	0
Identification of E.g. by PCR for COX1 gene	Yes	78	0
Biomolecular characterization of E.g.	No	87	0

**ToR 2: To develop reference material in accordance with OIE requirements, and implement and promote the application of OIE Standards.  
To store and distribute to national laboratories biological reference products and any other reagents used in the diagnosis and control of the designated pathogens or disease.**

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

No

3. Did your laboratory supply standard reference reagents (non OIE-approved) and/or other diagnostic reagents to OIE Member Countries?

Yes

Type of reagent available	Related diagnostic test	Produced/ provide	Amount supplied nationally (ml, mg)	Amount supplied internationally (ml, mg)	No. of recipient OIE Member Countries	Region of recipients
DNA	PCR Sequencing	Produced	28x10ul	2x100ul	9	<input checked="" type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East
Ovine Sera	ELISA, Immunoblotting	Produced	60x1ml	0	1	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East
Protoscoleces	PCR Sequencing	Produced	15x100mg	4x20ml	1	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East
Hydatid fluids of ovine	PCR, ELISA, Immunoblotting	Produced	120x50ml	0	1	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East

4. Did your laboratory produce vaccines?

No

5. Did your laboratory supply vaccines to OIE Member Countries?

No

***ToR 3: To develop, standardise and validate, according to OIE Standards, new procedures for diagnosis and control of the designated pathogens or diseases***

6. Did your laboratory develop new diagnostic methods validated according to OIE Standards for the designated pathogen or disease?

No

7. Did your laboratory develop new vaccines according to OIE Standards for the designated pathogen or disease?

No

***ToR 4: To provide diagnostic testing facilities, and, where appropriate, scientific and technical advice on disease control measures to OIE Member Countries***

8. Did your laboratory carry out diagnostic testing for other OIE Member Countries?

Yes

Name of OIE Member Country seeking assistance	Date (month)	No. samples received for provision of diagnostic support	No. samples received for provision of confirmatory diagnoses
ITALY	february	0	19
ITALY	march	0	1
ITALY	may	0	6
ITALY	june	0	36
ITALY	july	0	1
ITALY	august	0	6
ITALY	september	0	6
ITALY	october	0	23
ITALY	november	0	27

9. Did your laboratory provide expert advice in technical consultancies on the request of an OIE Member Country?

Yes

Name of the OIE Member Country receiving a technical consultancy	Purpose	How the advice was provided
UNITED KINGDOM	The Lab intend to became an OIE reference Lab.	Meeting, e-mail and telephone

***ToR 5: To carry out and/or coordinate scientific and technical studies in collaboration with other laboratories, centres or organisations***

10. Did your laboratory participate in international scientific studies in collaboration with OIE Member Countries other than the own?

Yes

Title of the study	Duration	Purpose of the study	Partners (Institutions)	OIE Member Countries involved other than your country
Biomolecular analysis of Echinococcus granulosus from human and animal cysts	2 year	To find genotype and new haplotypes related to E.g.	Parasitology and NRL Lead National Reference Laboratory (NRL) for Trichinella & Echinococcus National Wildlife Management Centre (NWMC), Animal and Plant Health Agency	UNITED KINGDOM
Set up diagnostic methods on copro diagnosis	2 years	Standardization of methods and evaluation and comparison of results for inter-lab reproducibility	University of Health and Allied Sciences, Department of Biomedical Sciences	GHANA

***ToR 6: To collect, process, analyse, publish and disseminate epizootiological data relevant to the designated pathogens or diseases***

11. Did your Laboratory collect epizootiological data relevant to international disease control?

Yes

If the answer is yes, please provide details of the data collected:

Our Lab has assignment to supervise data for Monitoring, Surveillance and Control Programmes System in the ambitus of the National Informative System of Zoonosis (SINZOO).

12. Did your laboratory disseminate epizootiological data that had been processed and analysed?

Yes

If the answer is yes, please provide details of the data collected:

All data related to zoonosis has been collected according to Directive 2003/99/CE and has 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) to prepare a Report, whereas, data related to humans have been managed by Centre for Disease Prevention and Control (ECDC).

**13. What method of dissemination of information is most often used by your laboratory? (Indicate in the appropriate box the number by category)**

a) Articles published in peer-reviewed journals: 4

• Santucci C, Masu G, Mura A, Peruzzu A, Piseddu T, Bonelli P, Masala G. Validation of a one-step PCR assay for the molecular identification of Echinococcus granulosus sensu stricto G1-G3 genotype. Mol Biol Rep. 2019 Apr;46(2):1747-1755. doi: 10.1007/s11033-019-04625-w. Epub 2019 Feb 7.

• Loi F, Laddomada A, Coccollone A, Marrocu E, Piseddu T, Masala G, Bandino E, Cappai S, Rolesu S. Socio-economic factors as indicators for various animal diseases in Sardinia. PLoS One. 2019 Aug 5;14(8):e0220945. doi: 10.1371/journal.pone.0220945. eCollection 2019.

• Loi F, Berchiolla P, Masu G, Masala G, Scaramozzino P, Carvelli A, Caligiuri V, Santi A, Bona MC, Maresca C, Zanoni MG, Capelli G, Iannetti S, Coccollone A, Cappai S, Rolesu S, Piseddu T. PLoS One. Prevalence estimation of Italian ovine cystic echinococcosis in slaughterhouses: A retrospective Bayesian data analysis, 2010-2015. 2019 Apr 1;14(4):e0214224. doi: 10.1371/journal.pone.0214224. eCollection 2019.

• Coccollone A, Loi F, Piseddu T, Masala G, Masu G., Bandino E, Laddomada A, Cappai S, Rolesu S. One Health approach in animal disease management, based on demographic features and socio-economic indicators. 13th Epizone Annual meeting, 26-28 August 2019, Berlin, Germany.

b) International conferences: 5

• Santucci C, Peruzzi A, Ledda S, Mastrandrea S, Bonelli P, Masu G, Piseddu T, Masala G. Comparison of four commercial kits for the detection of antibodies against Echinococcus granulosus in human sera. 28th WORLD ECHINOCOCCOSIS CONGRESS (Tuesday, October 29 - Thursday, October 31, 2019) Lima-Perù.

• Santucci C, Bonelli P, Mastrandrea S, Peruzzi A, Profili S, Porcu A, Fancellu A, Carta A, Bagella G, Fiamma M, Piseddu T, Masu G, Masala G. Biomolecular analysis of Echinococcus granulosus cysts from Sardinian human patient. 28th WORLD ECHINOCOCCOSIS CONGRESS (Tuesday, October 29 - Thursday, October 31, 2019) Lima-Perù.

• Coccollone A, Loi F, Piseddu T, Masala G, Masu G., Bandino E, Laddomada A, Cappai S, Rolesu S. One Health approach in animal disease management, based on demographic features and socio-economic indicators. 13th Epizone Annual meeting, Berlin, Germany, 26-28 August 2019.

• Santucci C, Mastrandrea S, Peruzzi A, Profili S, Porcu A, Fancellu A, Carta A, Bagella G, Fiamma M, Bonelli P, Piseddu T, Masu G, Masala G. Results of the Project "Biomolecular Characterization of Echinococcus granulosus Larval Form in Sardinian Patient Affected by Cystic Echinococcosis" Fourteenth Workshop of National Reference Laboratories for Parasites, Istituto Superiore di Sanità, 23-24 May 2019.

• Peruzzi A, Ledda S, Mastrandrea S, Bonelli P, Masu G, Piseddu T, Masala G, Santucci C. Evaluation of a novel commercial kit for the detection of Echinococcus granulosus antibodies in human sera; Fourteenth Workshop of National Reference Laboratories for Parasites, Istituto Superiore di Sanità 23-24 May 2019.

c) National conferences: 1

P. Bonelli, S. Dei Giudici, A. Peruzzi, T. Piseddu, C. Santucci, G. Masu., S. Mastrandrea, G. Masala. Variabilità genetica di Echinococcus granulosus in Sardegna. XIX Congresso Nazionale S.I.Di.L.V., Matera 23-25 Ottobre 2019.

d) Other:

(Provide website address or link to appropriate information) 1  
[https://www.izs-sardegna.it/quaderni/echinococcosi\\_cistica\\_uomo.pdf](https://www.izs-sardegna.it/quaderni/echinococcosi_cistica_uomo.pdf)

### **ToR 7: To provide scientific and technical training for personnel from OIE Member Countries**

#### **To recommend the prescribed and alternative tests or vaccines as OIE Standards**

14. Did your laboratory provide scientific and technical training to laboratory personnel from other OIE Member Countries?

No

**ToR 8: To maintain a system of quality assurance, biosafety and biosecurity relevant for the pathogen and the disease concerned**

15. 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	Quality System Certification .pdf

16. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Identification of E.g. s.s. by PCR for gene CAL	ACCREDIA
ELISA anti E.g. and E.m.	ACCREDIA
Identification of E.g. cysts in organs of ovines	ACCREDIA

17. 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*)

**ToR 9: To organise and participate in scientific meetings on behalf of the OIE**

18. Did your laboratory organise scientific meetings on behalf of the OIE?

Yes

National/ International	Title of event	Co-organiser	Date (mm/yy)	Location	No. Participants
International	One Health for the Mediterranean Region in the Age of Big Data	IZS of Sardinia	from 30.09.2019 to 02.10.2019	Cagliari	100

19. Did your laboratory participate in scientific meetings on behalf of the OIE?

Yes



Title of event	Date (mm/yy)	Location	Role (speaker, presenting poster, short communications)	Title of the work presented
87 ème Session Générale Assemble Mondiale OIE	25-31.05.2019	Paris, France	auditor	/
XXVIII World Congress on Echinococcosis	29-31.10.2019	Lima, Perù	3 posters	<ul style="list-style-type: none"> <li>• Biomolecular analysis of Echinococcus granulosus cysts from Sardinian human patient”</li> <li>• “Comparison of four commercial kits for the detection of antibodies against Echinococcus granulosus in human sera”</li> <li>• “Diagnostic performance of macroscopic examination for detection of hydatid cysts in slaughtered sheep”</li> </ul>

***ToR 10: To establish and maintain a network with other OIE Reference Laboratories designated for the same pathogen or disease and organise regular inter-laboratory proficiency testing to ensure comparability of results***

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

Not applicable (Only OIE Reference Lab. designated for disease)

21. Was your laboratory involved in maintaining a network with OIE Reference Laboratories designated for the same pathogen or disease by organising or participating in proficiency tests?

Not applicable (Only OIE Reference Lab. designated for disease)

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

Not applicable (Only OIE Reference Lab. designated for disease)

***ToR 11: To organise inter-laboratory proficiency testing with laboratories other than OIE Reference Laboratories for the same pathogens and diseases to ensure equivalence of results***

23. Did your laboratory organise or participate in inter-laboratory proficiency tests with laboratories other than OIE Reference Laboratories for the same disease?

Yes

Note: See Interlaboratory test comparisons in: Laboratory Proficiency Testing at:  
<http://www.oie.int/en/our-scientific-expertise/reference-laboratories/proficiency-testing> see point 1.3

Purpose for inter-laboratory test comparisons <sup>1</sup>	No. participating laboratories	Region(s) of participating OIE Member Countries
Partecipation to Proficiency test on "Detection of Echinococcus spp. worms in the intestinal mucosa of definitive host"	24	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East
Partecipation to Proficiency test on "Molecular identification of Echinococcus at the species level"	24	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East
Organization of Proficiency Test for the test "Amplification of gene cal for the identification of Echinococcus granulosus sensu stricto"	8	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East

**ToR 12: To place expert consultants at the disposal of the OIE**

24. Did your laboratory place expert consultants at the disposal of the OIE?

No

25. Additional comments regarding your report: