

# OIE Reference Laboratory Reports Activities

## *Activities in 2020*

**This report has been submitted : 2021-01-13 09:41:33**

<b>Name of disease (or topic) for which you are a designated OIE Reference Laboratory:</b>	Echinococcosis (Echinococcus granulosus and E. multilocularis)
<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>	Dr Giovanna Masala, DVM
<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
CeNRE 08 - ELISA Anti IgG of E.g. and E.m. for Humans	no	33	0
CeNRE 07 - Immunoblottig Anti IgG of E.g. and E.M. for Humans	no	15	0
CeNRE 15 - Immunochromatographic anti IgG of E.g. for Human	no	9	0
Direct diagnostic tests		Nationally	Internationally
CeNRE 04 - E.g., E.m. and Tenia identification by PCR on Cestode eggs	yes	72	70
CeNRE 11 - Coproparasitological analysis of Cestode eggs after centrifugation	yes	0	0
CeNRE 14 - CoproPCR for E.g. identification	yes	13	0
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	0	0
CeNRE 13 - Identification of E.g. cysts in organs of humans	no	3	0
CeNRE 01/12 - Identification of E.g. cysts in organs of different species	yes	83	0
CeNRE 09 - Identification of E.g. s.s. by PCR for gene CAL	no	32	0
CeNRE 02 - Identification of E.g. by PCR for COX1 gene	yes	43	0
CeNRE 03 - Sequencing analysis	no	40	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	Produced	10 ul x 80 aliquots	10ul x 40 aliquots	6	<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	Produced	0	100mg x 5 aliquots	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
NIGERIA	April	none	40
NIGERIA	May	none	30
ITALY	July	none	2
ITALY	November	none	18

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.	E-mails, video call, telephone.
ITALY	Diagnostic consultancy for molecular methods.	E-mails, 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
Molecular characterisation of Echinococcus granulosus from human and animal hydatid cysts	2 years	To find the genotypes 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 Sand Hutton, York, United Kindmon	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 Ibadan, Nigeria (University of Health and Allied Sciences, Ghana	GHANA
Multi-centre study on Echinococcus multilocularis and Echinococcus granulosus s.l. in Europe: development and harmonisation of diagnostic methods in the food chain (MeMe)	5 years	Development and harmonisation of diagnostic methods	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 Veterinary Research Institute in Pulawy, PIWET Poland National Veterinary Institute, SVA Sweden Norwegian Veterinary Institute, NVI 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 Estonia Veterinary and Food Laboratory, VFL Estoniau	ITALY

**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 Laboratories are designed 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: 3

1. Cystic Echinococcosis: Clinical, Immunological, and Biomolecular Evaluation of Patients from Sardinia (Italy). Santucci C, Bonelli P, Peruzzu A, Fancellu A, Marras V, Carta A, Mastrandrea S, Bagella G, Piseddu T, Profili S, Porcu A, Masala G. Pathogens. 2020 Oct 30;9(11):907. doi: 10.3390/pathogens9110907.

2. Genetic diversity of *Echinococcus granulosus sensu stricto* in Sardinia (Italy). Bonelli P, Dei Giudici S, Peruzzu A, Piseddu T, Santucci C, Masu G, Mastrandrea S, Delogu ML, Masala G. Parasitol Int. 2020 Aug;77:102120. doi: 10.1016/j.parint.2020.102120. Epub 2020 Apr 4.

3. Bayesian Analysis of Three Methods for Diagnosis of Cystic Echinococcosis in Sheep. Bonelli P, Loi F, Cancedda MG, Peruzzu A, Antuofermo E, Pintore E, Piseddu T, Garippa G, Masala G. Pathogens. 2020 Sep 27;9(10):796. doi: 10.3390/pathogens9100796.

b) International conferences: 5

1. Proteomic and immunoreactivity characterization of *E. granulosus* larval form. Bonelli P., Biosa G., Ghisaura S., Pisanu S., Peruzzu A., Pintore E., Santucci C., Piseddu T., Masu G., Mastrandrea S., Uzzau S., Garippa G., Pagnozzi D., Masala G. Proceedings of 15th Workshop of the NRLs for Parasites; 21-22 May 2020, ISS, Rome, Italy

2. Evaluation of a commercial immunogratographic method for the diagnosis of *Echinococcus granulosus* and *Echinococcus multilocularis* in human sera. Santucci C., Peruzzu A., Mastrandrea S., Bonelli P., Fiamma M., Masu G., Piseddu T., Masala G. Proceedings of 15th Workshop of the NRLs for Parasites; 21-22 May 2020, ISS, Rome, Italy

3. Validation study of CHORUS *Echinococcus* IgG a novel method for the diagnosis of *Echinococcus granulosus* and *Echinococcus multilocularis* in human sera. Peruzzu A., Mastrandrea S., Bonelli P., Ledda S., Piseddu T., Masu G., Masala G., Santucci C. Proceedings of 15th Workshop of the NRLs for Parasites; 21-22 May 2020, ISS, Rome, Italy

4. Proteomic and antigenic characterization of *Echinococcus granulosus* metacestode Biosa G., Ghisaura S., Pisanu S., Masu G., Uzzau S., Garippa G., Masala G., Bonelli P., Pagnozzi D. Proceedings of 6th EAVLD Congress, Siviglia, Spain, 19-21 October 2020.

5. Multi-centre study on *Echinococcus multilocularis* and *Echinococcus granulosus* s.l. in Europe: development and harmonization of diagnostic methods in the food chain (MEME project). Gerald Umhang, Franck Boue, Pavlo Maksimov, Franz J. Conraths, Joke Van Der Giessen, Jacek Karamon, Mats Isaksson, Rebecca Davidson, Øivind Øines, Pikka Jokelainen, Jacinto Gomes, Helga Waap, Maria João Gargate, Urmas Saarma, Epp Moks, Age Kärssin, William Byrne, Giovanna Masala, Gunita Deksnė, Laura Rinaldi, Marion Wassermann, Peter Deplazes, Eran Dvir, Francesca Tamarozzi,

Adriano Casulli.

Proceedings of One Health EJP Annual Scientific Meeting 2020 One Health EJP Annual Scientific Meeting 2020 (OHEJP ASM 2020) 27-29 May 2020, Praga Online Event.

c) National conferences: 1

1. Characterization of the proteome of Echinococcus granulosus, Taenia hydatigena and Taenia multiceps metacestodes.

Pagnozzi D., Bonelli P., Biossa G., Ghisaura S., Pisanu S., Pintore E., Peruzzu A., Santucci C., Piseddu T., Uzzau S., Masala G., Garippa G.

Proceedings of XXXI congresso SOIPA Teramo - Silvi Marina, 24 - 27 giugno 2020.

d) Other:

(Provide website address or link to appropriate information) 0

**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. IgG	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?

No

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

No

**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
Organisation of National Proficiency Test: "Amplification of gene cal for the identification of Echinococcus granulosus sensu stricto" Cenre/09	6	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East
Organisation of International Proficiency Test: "Identification Of E. Granulosus S.S. By Amplification Of A Calreticulin Gene Fragment" Cenre/09	6	<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

**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: