

# OIE Reference Laboratory Reports Activities

## *Activities in 2021*

**This report has been submitted : 2022-01-19 10:16:31**

<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 (Administration) Via Vienna, 2 (Laboratories) 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	76	0
CeNRE 07 - Immunoblottig Anti IgG of E.g. and E.M. for Humans	no	56	0
CeNRE 15 - Immunochromatographic anti IgG of E.g. for Human	no	56	0
Direct diagnostic tests		Nationally	Internationally
CeNRE 04 - E.g., E.m. and Tenia identification by PCR on Cestode eggs	yes	334	0
CeNRE 11 - Coproparasitological analysis of Cestode eggs after centrifugation	yes	0	0
CeNRE 14 - CoproPCR for E.g. identification	yes	0	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	3	0
CeNRE 13 - Identification of E.g. cysts in human organs	no	5	0
CeNRE 01/12 - Identification of E.g. cysts in organs of different species	yes	703	0
CeNRE 09 - Identification of E.g. s.s. by PCR for gene CAL	no	31	0
CeNRE 10 - Tecnica della sedimentazione e flottazione per la diagnosi parassitologica di uova di cestodi in feci di canidi	yes	203	0
CeNRE 03 - Sequencing analysis	no	126	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
Protoscoleces	PCR	Produced	0	150mgx29aliquots	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	January - December	43	43
ITALY	January - December	167	167

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

No

***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 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
multicentre study "Contamination of vegetables for human consumption by Em/Eg" in European lettuce"	2 years	Risk evaluation of E.granulosus presence in lettuce for human consumption	Dr Gerald Umhang 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 inter-lab reproducibility	Dr Jacek Karamon DVM, PhD, ScD, Department of Parasitology and Invasive Diseases, National Veterinary Research Institute, Pulawy	POLAND
Multi-centre study on Echinococcus multilocularis and Echinococcus granulosus s.l. in Europe: development and harmonization of diagnostic methods in the food chain (MeMe)	5 years	Development and harmonization of diagnostic methods in the food chain	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 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, LRUJ Palestine Tel Hai College, TH Upper Galilee, Israel Istituto Zooprofilattico Sperimentale della Sardegna, IZSS Italy	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 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).

**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

- Bonelli P, Dei Giudici S, Peruzzu A, Mura L, Santucci C, Maestrale C, Masala G. Identification of *Echinococcus granulosus* Genotypes G1 and G3 by SNPs Genotyping Assays. *Pathogens*. 2021 Jan 26;10(2):125. doi: 10.3390/pathogens10020125. PMID: 33530642; PMCID: PMC7910869.

- Biosa G, Bonelli P, Pisanu S, Ghisaura S, Santucci C, Peruzzu A, Garippa G, Uzzau S, Masala G, Pagnozzi D. Proteomic characterization of *Echinococcus granulosus sensu stricto*, *Taenia hydatigena* and *Taenia multiceps* metacystode cyst fluids. *Acta Trop*. 2021 Nov 22;226:106253. doi: 10.1016/j.actatropica. 2021. 106253. Epub ahead of print. PMID: 34822852.

- Awosanya EJ, Ligali Z, Duedu KO, Peruzzu A, Masala G, Bonelli P. Prevalence of *Echinococcus granulosus sensu lato* in Owned Dogs in Lagos State, Nigeria. *Vet Sci*. 2021 Jun 5;8(6):101. doi: 10.3390/vetsci8060101. PMID: 34198886; PMCID: PMC8227389.

b) International conferences: 2

- 28th International Conference of the World Association for the Advancement of Veterinary Parasitology, 19th-22nd July 2021, Dublin, Ireland. Event online.

Titolo: Cystic Echinococcosis: Clinical, Immunological, and Biomolecular Evaluation of Patients from Sardinia (Italy). Cinzia Santucci, Piero Bonelli, Angela Peruzzu, Alessandro Fancellu, Toni Piseddu, Vincenzo Marras, Gabriella Masu, Valentina Chisu, Stefano Profili, Alberto Porcu, Giovanna Masala.

- 9th Conference of the Scandinavian-Baltic Society for Parasitology, 21st-23rd April. Event online.

Titolo: Molecular Characterization of *E. granulosus* s.s. isolates from hydatid cysts from Sardinian (Italy) Patients Clinically and Immunologically Evaluated. Cinzia Santucci, Piero Bonelli, Angela Peruzzu, Alessandro Fancellu, Vincenzo Marras, Scilla Mastrandrea, Toni Piseddu, Gabriella Masu, Valentina Chisu, Stefano Profili, Alberto Porcu, Giovanna Masala.

c) National conferences: 2

- 12° Convegno Sulla Ricerca dell'Istituto Zooprofilattico Sperimentale Della Sardegna 6 Luglio 2021.

Results of the researches:

- IZS, SA 05/16 RC "Studio della contaminazione da uova di E. granulosus nel suolo, nell'acqua e nelle colture orticole delle Fttorie Didattiche della Sardegna" by Masu Gabriella
  - IZS SA 07/20 "Allestimento di un saggio ELISA per la diagnosi sierologica di echinococcosi cistica negli ovini"
- Titolo della presentazione: Analisi proteomica della forma larvale di Echinococcus granulosus in ospiti intermedi. by Cinzia Santucci.

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?

Yes

- a) Technical visits: 1
- b) Seminars: 0
- c) Hands-on training courses: 1
- 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, c	Tunisia	1

**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 17025:2005	Quality System Certification .pdf

16. 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

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?

Yes

Title of event	Date (mm/yy)	Location	Role (speaker, presenting poster, short communications)	Title of the work presented
88ème Session Générale Assemblée Mondiale OIE	24-28/05/2021	Paris, France (Online)	Auditor	/
9th Conference of the Scandinavian-Baltic Society for Parasitology	21-23/04/2021	Vilnius, Lithuania (Online)	Poster	Molecular Characterization of E. granulosus s.s. isolates from hydatid cysts from Sardinian (Italy) Patients Clinically and Immunologically Evaluated
28th International Conference of the World Association for the Advancement of Veterinary Parasitology	19-22/07/2021	Dublin, Ireland (Online)	Poster	Cystic Echinococcosis: Clinical, Immunological, and Biomolecular Evaluation of Patients from Sardinia (Italy)

**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
Organization of National Proficiency Test: "Identification of E.g. s.s. by PCR for gene CAL" - 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
Participation to National 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
Participation to National 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

**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: