WHO Collaborating Centre: Epidemiology, Detection and Control of Cystic and Alveolar Echinococcosis (*One Health*)

ISTITUTO SUPERIORE DI SANITÀ
DEPARTMENT
INFECTIOUS DISEASES



EURL
PUBLIC HEALTH
FOOD-, WATER- AND VECTOR-BORNE HELMINTHS AND PROTOZOA
Funded by the European Union

European Union Reference Laboratory for Parasites (EURL-P; food safety)

Funded by the European Union

Unit:

Foodborne and Neglected Parasitic Diseases

Reparto:

Parassitosi Alimentari e Neglette (PAN)

Reference Laboratory for Trichinellosis

World Organisation for Animal Health
Founded as OIE

National Reference Laboratory for Trichinella

(>) Twenty years of the EURL-PARASITES in numbers…

Funded by the European Union



…and updates from its "younger sibling" EURL-PH-HP



Adriano Casulli
Unit of Foodborne and Neglected Parasitic Diseases

EURL PUBLIC HEALTH FOOD-, WATER- AND VECTOR-BORNE HELMINTHS AND PROTOZOA

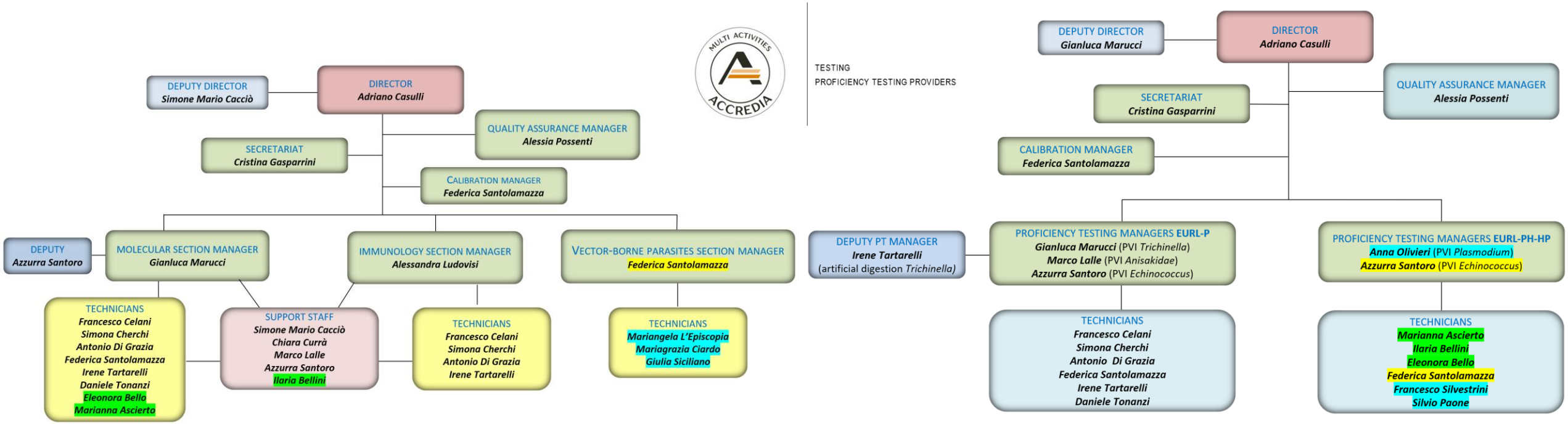
ISTITUTO SUPERIORE DI SANITÀ — DEPARTMENT INFECTIOUS DISEASES

European Union Reference Laboratory for Parasites (EURL-P; food safety)

The **Unit of Food-bone and Neglected Parasitic Diseases** has been **accredited**:

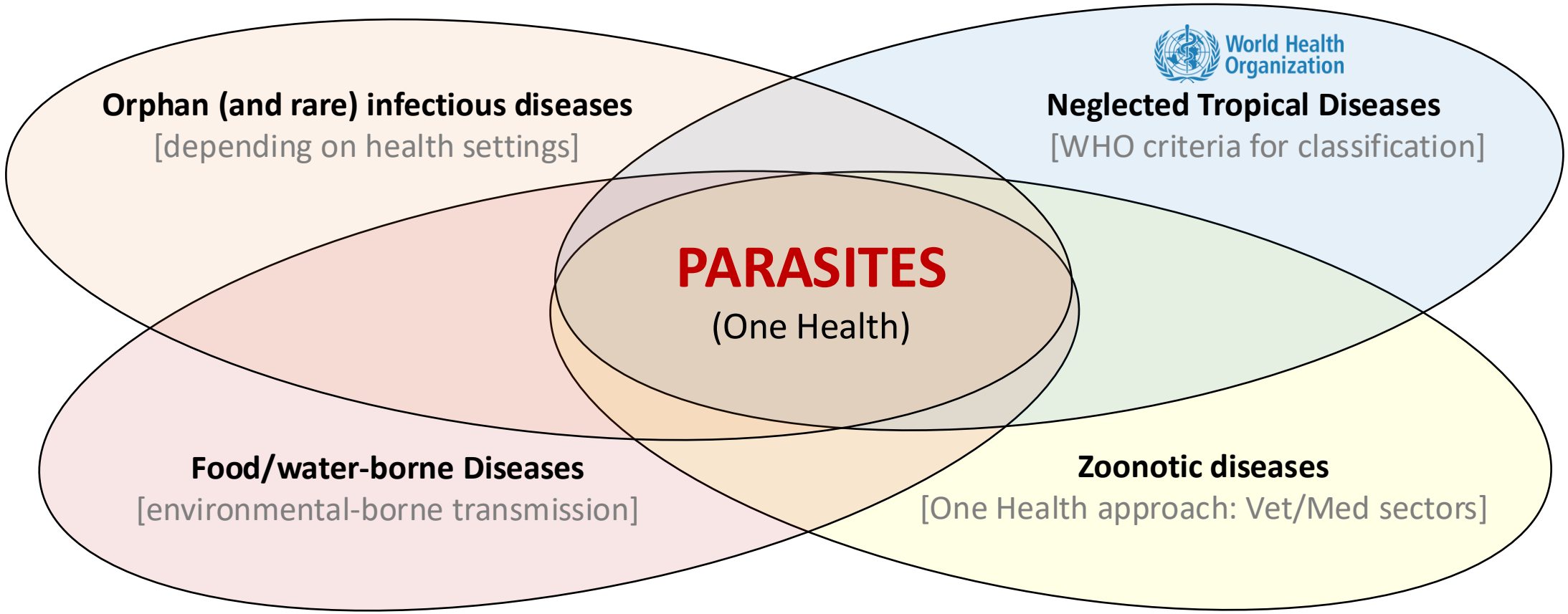
ISO/IEC 17025
Laboratory testing
2006 - ongoing

ISO/IEC 17043
Proficiency Testing provider
2013 - ongoing



- NEW **roles**,
- NEW **collaborations** with other units,
- above all, **NEW hires of colleagues in the Unit!**

EUROPEAN PUBLIC HEALTH LANDSCAPE on PARASITES



GLOBAL HEALTH | INFECTIOUS DISEASES | MICROBIOLOGY | FOOD SAFETY | TRAVEL MEDICINE | TROPICAL MEDICINE

Single Market Programme (SMP Food)

EUROPEAN LEGAL FRAMEWORK on PARASITES

(animal----------human)

EU4Health Programme (EU4H)

REGULATION (EU) 2017/625 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 15 March 2017

Article 94

Responsibilities and tasks of European Union reference laboratories

Article 100

Designation of national reference laboratories

European Commission
Directorate-General for Health and Food Safety (DG SANTE)

Funded by the European Union

REGULATION (EU) 2022/2371 on **Serious Cross-Border Threats to Health**
(Art. 15): Legal mandate for EC to set up **EURL for Public Health**

EURL PUBLIC HEALTH

ecdc

European Union Reference Laboratory for Parasites (EURL-P; food safety)

- Reference methods
- Diagnostics
- Proficiency Testing, PT
- Refernce Materials
- Training
- Annual meeting
- Scientific support to EU/NRL
- Validation of kit/reagents
- Collaborative research

EURL PUBLIC HEALTH
FOOD-, WATER- AND VECTOR-BORNE HELMINTHS AND PROTOZOA

ISTITUTO SUPERIORE DI SANITÀ
DEPARTMENT INFECTIOUS DISEASES

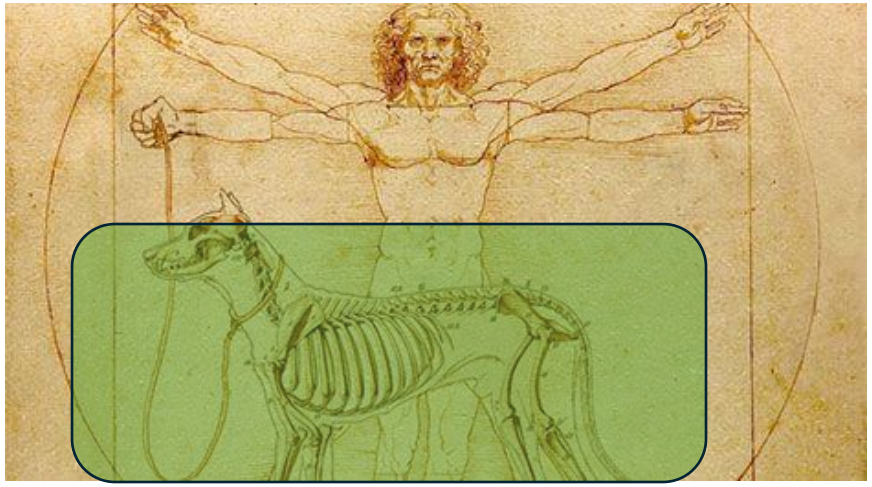
ISTITUTO SUPERIORE DI SANITÀ
DEPARTMENT INFECTIOUS DISEASES

Folkhälsomyndigheten
PUBLIC HEALTH AGENCY OF SWEDEN

(>) 20 years of the EURL-PARASITES in numbers……

European Union Reference Laboratory for Parasites (EURL-P; food safety)

Funded by the European Union



COMMISSION REGULATION (EC) No 776/2006

of 23 May 2006

amending Annex VII to Regulation (EC) No 882/2004 of the European Parliament and of the Council as regards Community reference laboratories

9. Community reference laboratory for parasites (in particular *Trichinella, Echinococcus* and *Anisakis*)

Istituto Superiore di Sanità (ISS)
I-00161 Roma
Italy

DEPARTMENT
INFECTIOUS DISEASES

European Union Reference Laboratory for Parasites (EURL-P; food safety)

Since then >

Single Market Programme (SMP Food)

European Union Reference Laboratory for Parasites (EURL-P; food safety)

Targeted pathogens



HELMINTS

- ***Trichinella***
- ***Echinococcus***
- ***Anisakis***
- *Opisthorchis*
- *Taenia*
- *Ascaris*
- *Toxocara*

PROTOZOA

- *Cryptosporidium*
- *Giardia*
- *Toxoplasma*
- *Entamoeba*

European Commission
Directorate-General for Health and Food Safety (DG SANTE)

EURL-P

27 MS + 3 EEA + OS

NRLs

National Reference Laboratories

Local **Laboratories** involved in controls of food and feed or animal diseases

NRLs Network



European Union Reference Laboratory for Parasites (EURL-P; food safety)

DIAGNOSTICS

ISO 17025

- 13 methods (morphological, immunological or molecular)
- 7 PARASITES
- 10 Standard Operating Procedures (SOPs)

EU Reference Laboratory for Parasites (EURL-P) | Reparto di Parassitosi Alimentari e Neglette Dipartimento di Malattie Infettive | EU Reference Laboratory for Public Health on Helminths and Protozoa (EURL-PH-HP)

TEST REQUEST FORM

Name of contact person

Affiliation

Address

Tel. *Company e-mail*

Requested test (tests accredited by Accredia), revision index and issued year available on Accredia website laboratory ID 00629

METHODS

- Detection of anti-Trichinella antibodies in swine serum by indirect ELISA (MI-01)
- Identification of Trichinella muscle stage larvae at the species level by Multiplex PCR (MI-02)
- Detection of anti-Trichinella antibodies in human serum by indirect ELISA (MI-03)
- Identification of Anisakidae Larvae at the species level by PCR/RFLP (MI-04)
- Identification at the species level of oocysts of Cryptosporidium spp by PCR/RFLP (MI-06)
- Detection of anti-Opisthorchis antibodies in human serum by indirect ELISA (MI-07)
- Identification of Opisthorchis sp. DNA BY PCR (MI-08)
- Identification of Giardia duodenalis cysts at the Assemblage level by PCR/RFLP (MI-09)
- Identification of Anisakidae larvae at the species level by multiplex PCR (MI-10)
- Identification of the assemblages A and B of Giardia duodenalis by multiplex PCR (MI-11)
- Identification of Trichinella spp. proteins recognized by specific IgG in serum of infected pigs by western blotting (MI-13)
- Identification of Echinococcus granulosus sensu lato complex at species/genotypes level by PCR/RFLP and multiplex PCR (MI-15)
- Identification of Trichinella spp. proteins recognized by specific IgG in serum of humans with trichinellosis by Western blotting (MI-

SOPs

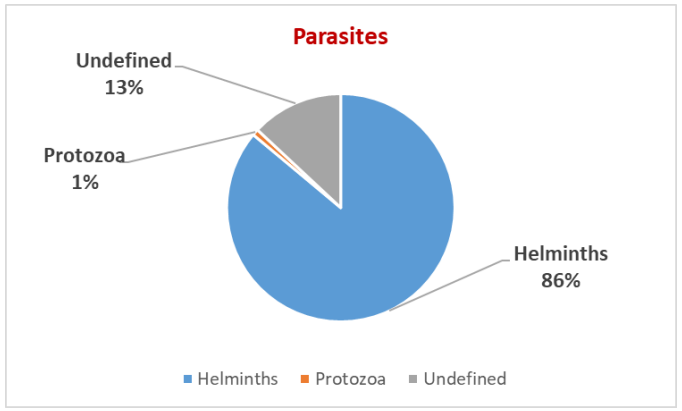
- Experimental infection of mice by Trichinella spp. muscle stage larvae
- Detection of parasites in fish fillet by artificial digestion
- Laboratory surfaces and equipment decontamination from Trichinella spp. larvae
- Mouse Bioassay for the detection of Toxoplasma gondii in meat
- Molecular identification of Sarcocystis species
- Identification of Echinococcus granulosus complex at genotype/species level from hydatid cysts by PCR and sequencing
- Molecular identification of nematode larvae different from those of Trichinella genus detected by artificial digestion method of mu tissue
- High resolution typing of Trichinella spiralis and T. britovi by multi locus analysis of polymorphic microsatellites
- Identification of DNA of Toxoplasma gondii in food matrices (meat and meat products) by LAMP
- Identification of toxoplasma gondii DNA in leafy green vegetable by LAMP

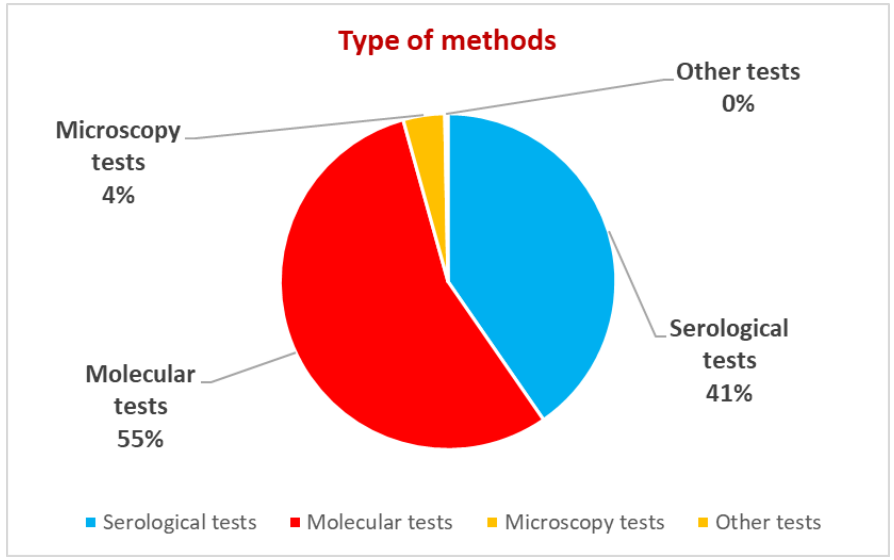
European Union Reference Laboratory for Parasites (EURL-P; food safety)

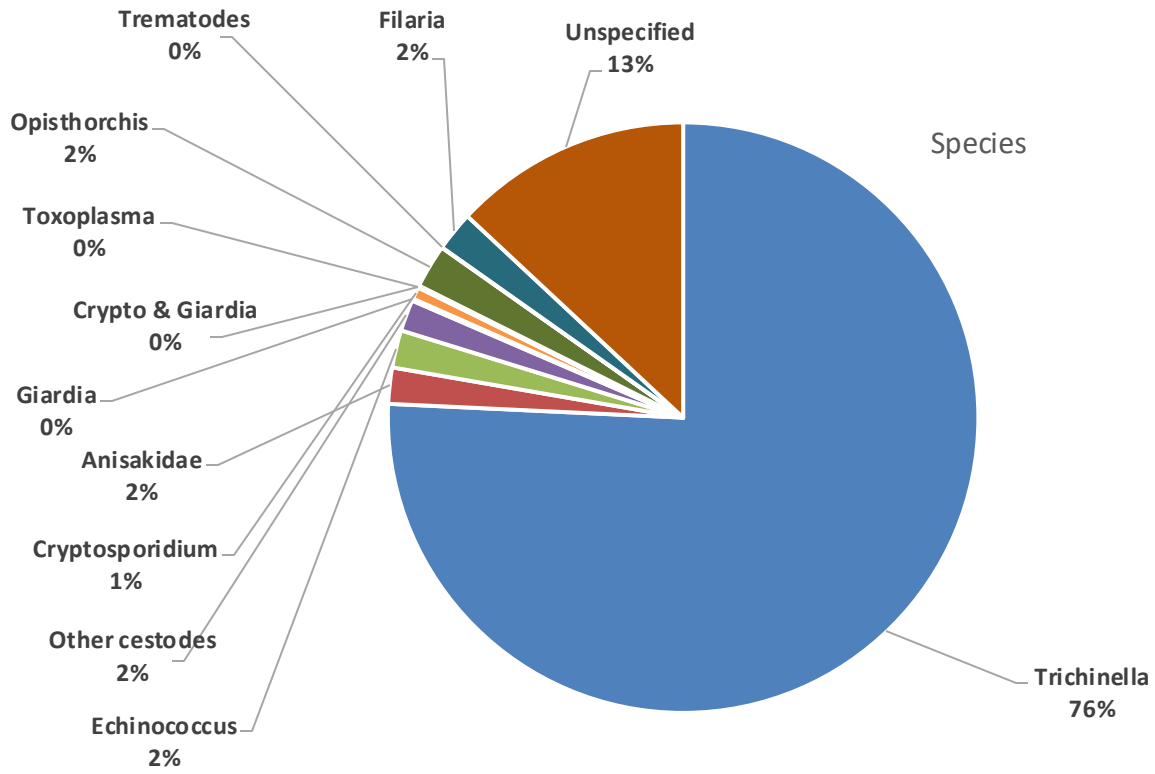
DIAGNOSTICS [2006-2026]



- **26,686 samples tested** from the NRLs and other public Institutions
- *Trichinella* (76%) is the most commonly requested parasite
- as of now, for 2026, we have analyzed 1,044 samples







Proficiency testing (PT)

ISO 17043

European Union Reference Laboratory for Parasites (EURL-P; food safety)

- 8 PTs (morphological, immunological or molecular)
- 4 PARASITES

PT-01: "Artificial digestion to detect Trichinella larvae in meat samples according to the Regulation EU 2020/1478 and Annex III Reg UE 2015/1375"
3 allegati

PT-03: Identification of Trichinella larvae at the species level by a molecular method
2 allegati

PT-04: Detection of Anisakidae L3 larvae in fish fillets
2 allegati

PT-05: Detection of Echinococcus sp. worms in the intestinal mucosa of the definitive host
2 allegati

PT-06: Detection of anti-Toxoplasma IgG in animal serum samples
2 allegati

PT-07: Molecular identification of Anisakid nematodes at the species level
2 allegati

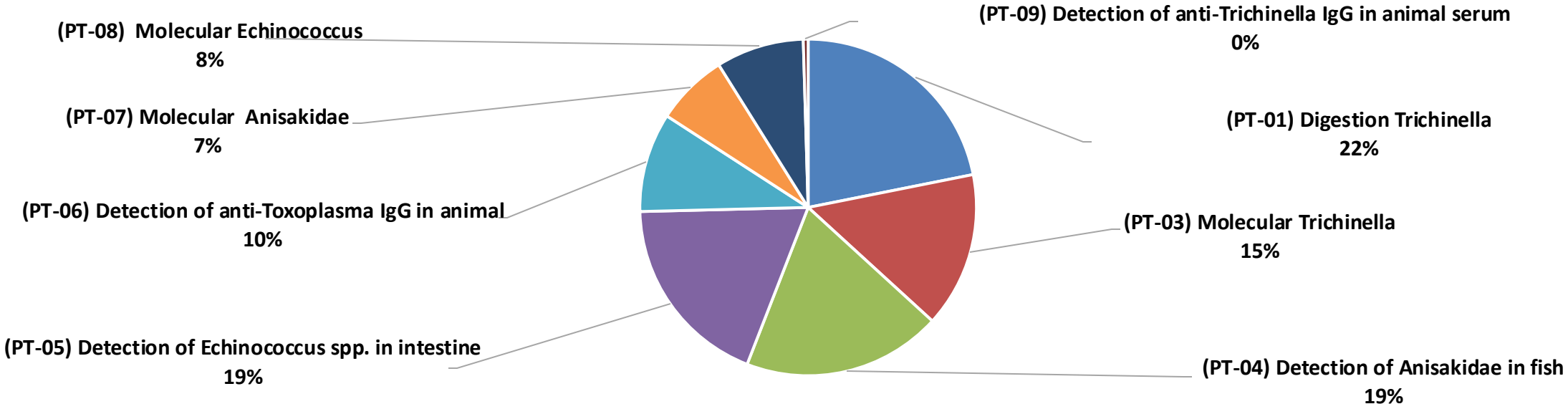
PT-08: Molecular identification of Echinococcus granulosus, Echinococcus multilocularis and Taenia spp.
2 allegati

PT-09: Detection of anti-Trichinella IgG in swine serum samples
2 allegati

PROFICIENCY TESTING (PT) [2014-26; 13Y]

European Union Reference Laboratory for Parasites (EURL-P; food safety)

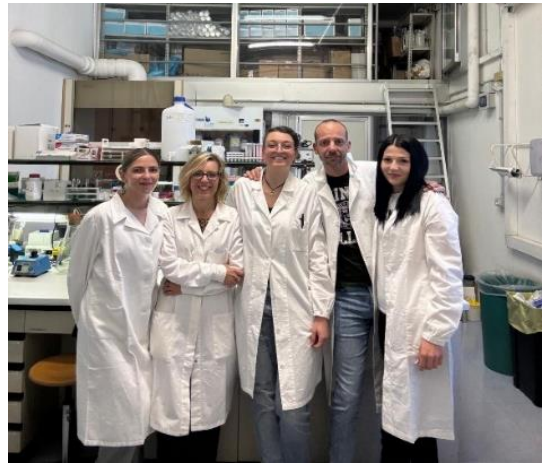
- Overall, **1,930** PT panels (3 or 4 samples each: total of **>6,000** samples)
- *Trichinella, Echinococcus, Anisakis, Toxoplasma*

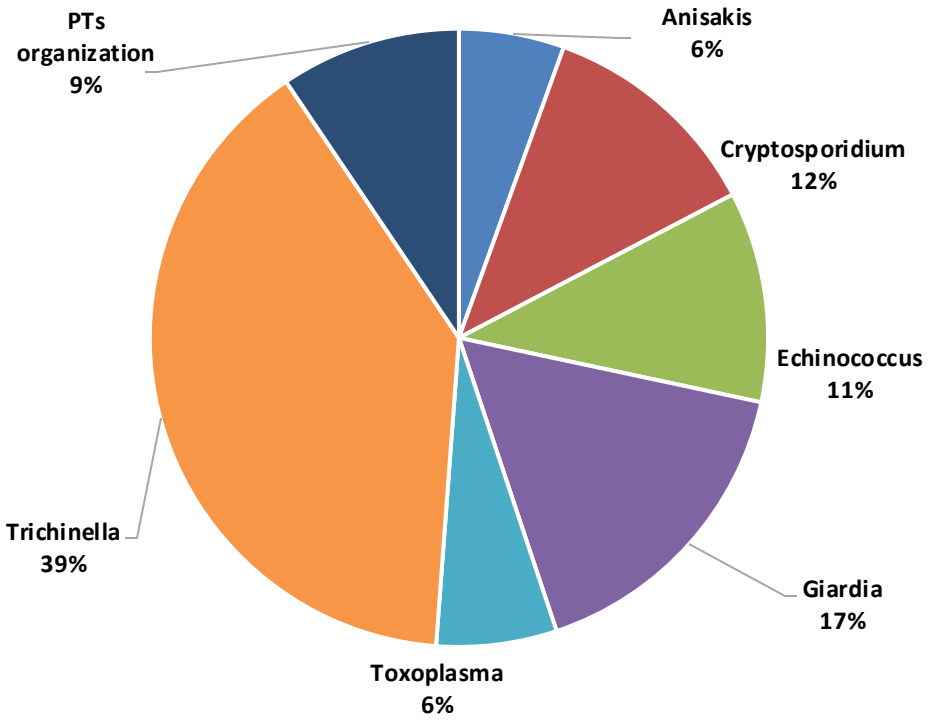


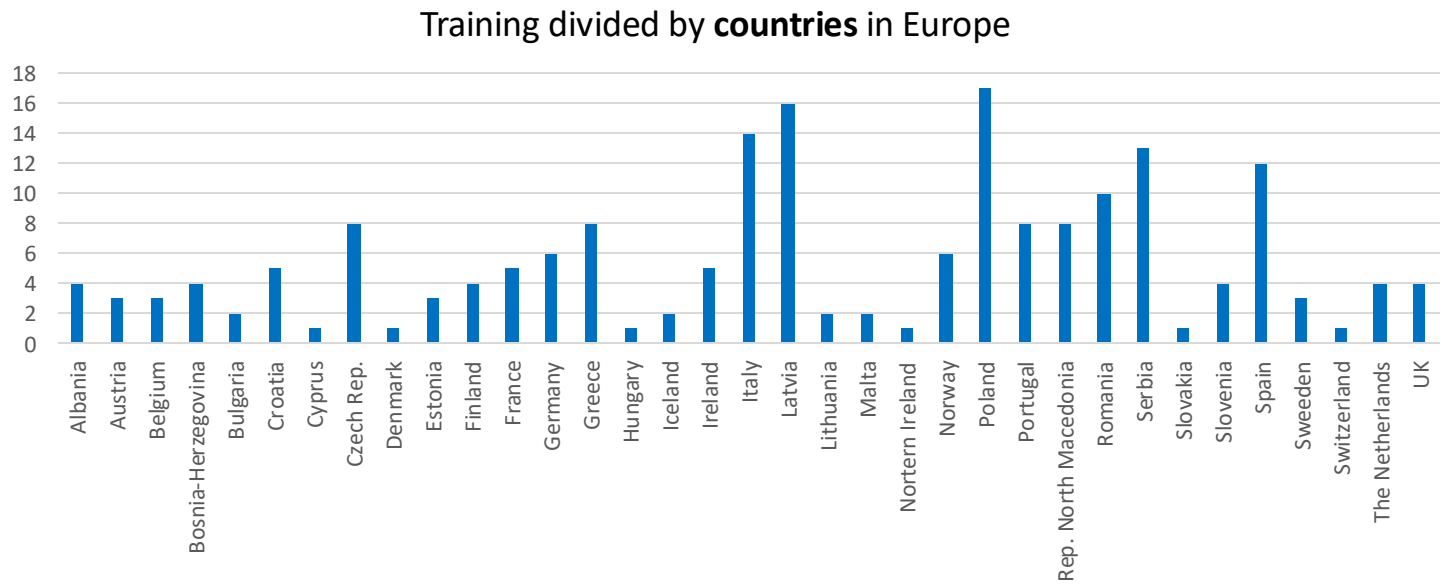
TRAINING activities [2006-2025]

European Union Reference Laboratory for Parasites (EURL-P; food safety)

- Trainings on diagnostics and epidemiological investigations on foodborne parasites
- Training based on official methods or SOPs, PTs
- **~254** trainees from 35 countries







European Union Reference Laboratory for Parasites (EURL-P; food safety)

Production of reference material

- Given that **international standard materials** for diagnosing foodborne parasitic zoonoses are currently not available, one of the main activities of the EURL-P is to produce reference materials, including:
    - Human and animal reference sera
    - Crude and excretory/secretory parasite antigens
    - Parasite reference strains
    - DNA from reference strains

- This material is then distributed to NRLs upon request





ANNUAL MEETINGS

Every year at ISS (1.5 days)

- **21** meetings organized from 2006
- NRLs is invited to present its annual activity
- The results of the last PTs are discussed with the NRLs
- An update on eventual changes in regulation is provided
- Novel analytical methods can be suggested

Community Reference Laboratory for Parasites

Istituto Superiore di Sanità

First Workshop of National Reference Laboratories for Parasites

24 November, 2006

Istituto Superiore di Sanità
Room Zampieri, Via Giano della Bella 34
00161 Rome, Italy

PARTICIPANTS

European Commission:
R. Dwinger - DG SANCO, Brussels, Belgium

National Reference Laboratories for Parasites:
P. Boireau – AFSSA, Maison Alfort, France
S. Boutsini – Center of Athens Veterinary Institutions, Athens, Greece
R. Bubuliene - National Veterinary Laboratory, Vilnius, Lithuania
D. Christensson – The national Veterinary Institute, Uppsala, Sweden
J. De Borchgrave – Prince Leopold Institute for Tropical Medicine, Antwerp, Belgium
W. Glawischnig – Institute for Medical and Veterinary Investigations, Innsbruck, Austria
J. J. C. Gomes- International Laboratory of Veterinary Investigation, Lisbon, Portugal
B. Koudela – University of Veterinary and Pharmaceutical Sciences Brno, Brno, Czech Republic
C. Maddox-Hyttel - Danish Food and Veterinary Institute, Copenhagen, Denmark
K. Nockler - Federal Institute for Risk Assessment, Berlin, Germany
A. Oksanen – Finnish Food Safety Authority Evira, Oulu, Finland
L. B. Pitarch Mampel - Central Animal Health Laboratory of Santa Fe, Granada, Spain
J. Posedi - University of Ljubljana, Ljubljana, Slovenia
J. van der Giessen – National Institute of Public Health and the Environment, Bilthoven, The Netherlands

GUESTS:
F. Caroline - University of Berne, Berne, Switzerland
H. Waap - International Laboratory of Veterinary Investigation, Lisbon, Portugal

CRLP, ISS, Rome, Italy
M. Amati
S. Cacciò
A. Casulli
F. Galati
M.A. Gomez Morales
M. Lalle
A. Ludovisi
G. La Rosa
M. Marucci
E. Pozio
P. Rossi
F. Spano
D. Tonanti
F. Tosini



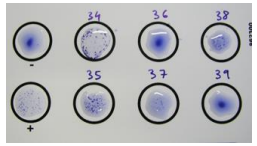
Validation of new kits and reagents

(for the detection of *Trichinella* larvae in meat)

- The EURL-P organises the test by involving several NRLs with high expertise
- Ring trials are organized, and the EURL-P collect and evaluate the results
- Finally, the EURL-P produces a technical report that is shared with the EC

The EURL-P has been involved in the validation of:

- Latex agglutination test (2010-11)



- Trichineasy (2011-12) validation failed
- PrioCHECK® Trichinella AAD kit (2013-14)

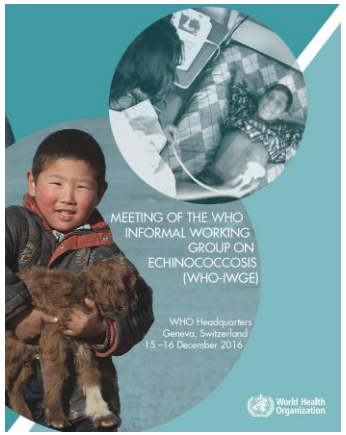


- Fermentation derived pepsin formulation (2021) validation failed
- Lumi-VAST Trichinella kit (2018-24)



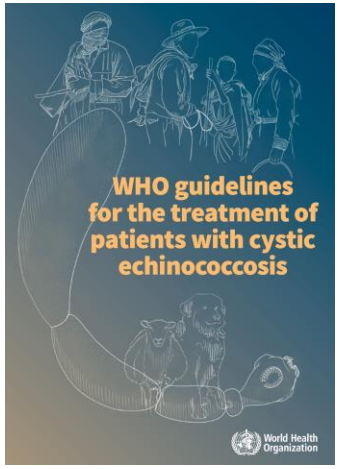
Support to EU and other organisations

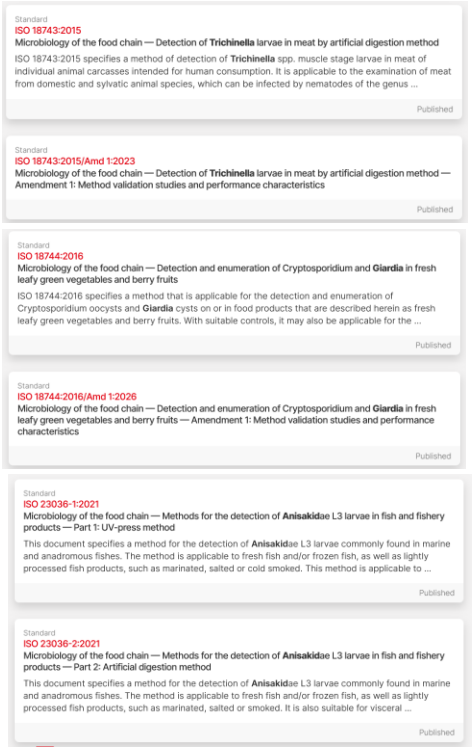
- Outbreak investigations, epidemiological information, document revision
- Confirmatory diagnosis and taxonomic characterization of pathogens in foodborne outbreaks
- Operates in close collaboration with WHO, WOAH, FAO, EFSA, ISO and ECDC

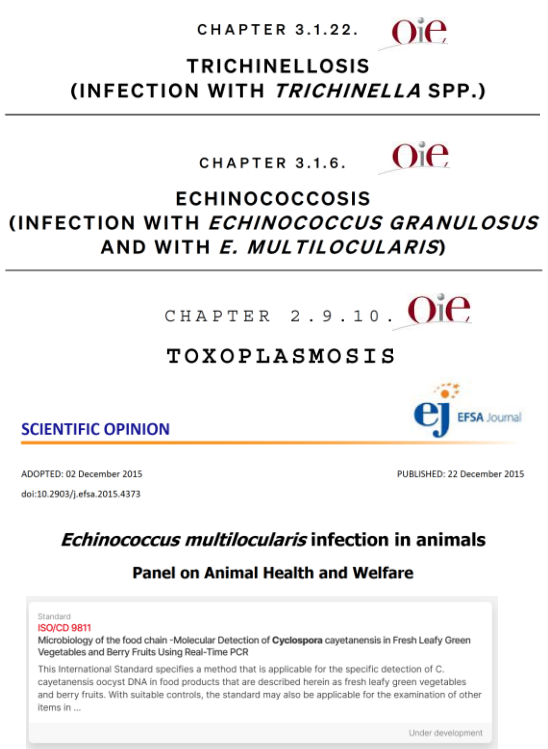


World Organisation for Animal Health
Founded as OIE

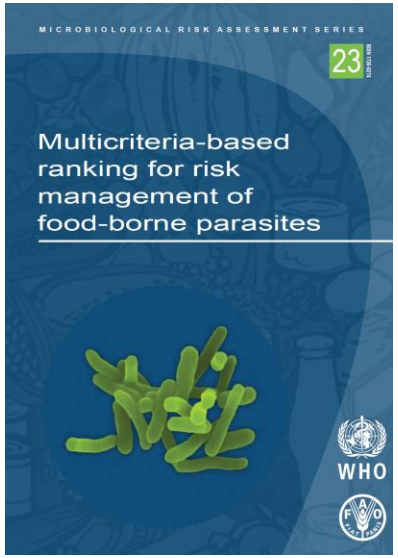
World Health Organization











Collaborative research on Foodborne Parasites

- Activities in close collaboration with NRLs: **outbreaks investigation**, **detection methods** and **molecular epidemiology**

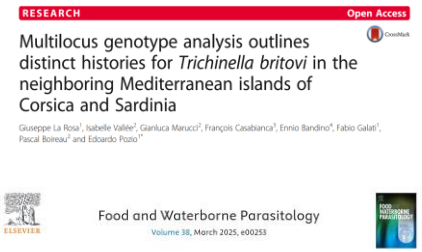
A few among many:



Microorganisms. 2022 Feb 27;10(3):517. doi: 10.3390/microorganisms10030517

Contamination of Soil, Water, Fresh Produce, and Bivalve Mollusks with *Toxoplasma gondii* Oocysts: A Systematic Review

Nadia María López Ureña [1], Umer Chaudhry [2], Rafael Calero Bernal [1], Santiago Cano Alsua [3], Davide Messina [2,4], Francisco Evangelista [2], Martha Betson [2], Marco Lalle [5], Pikka Jokelainen [6], Luis Miguel Ortega Mora [1], Gema Álvarez García [1,*]



RESEARCH Open Access

Multilocus genotype analysis outlines distinct histories for *Trichinella britovi* in the neighboring Mediterranean islands of Corsica and Sardina

Giuseppe La Rosa[1], Isabelle Vallée[2], Gianluca Marucci[3], François Casabianca[3], Ennio Bandino[4], Fabio Galati[1], Pascal Boireau[2] and Edoardo Pozio[1*]

Food and Waterborne Parasitology
Volume 38, March 2025, e00253

First report of *T. spiralis* in a wolf in Italy: An increasing health concern?

G. Marucci [a b], C. Raso [c], E. Borgogni [c], F. Celani [a b], I. Tartarelli [a b], S. Cherchi [a b], A. Di Giambattista [d], P. Calderini [c], A. Casulli [a b]



Accred Qual Assur (2015) 20:311–317
DOI 10.1007/s00769-015-1142-3

PRACTITIONER'S REPORT

Proficiency testing carried out by the European Union Reference Laboratory for Parasites

Patrizia Rossi[1] · Gianluca Marucci[1] · Marco Lalle[1] · Adriano Casulli[1] · Alessia Possenti[1] · Edoardo Pozio[1]



Infection, Genetics and Evolution 85 (2020) 104575

Contents lists available at ScienceDirect

Infection, Genetics and Evolution

journal homepage: www.elsevier.com/locate/meegid

Research Paper

A validated method to identify *Echinococcus granulosus sensu lato* at species level

F. Santolamazza[a,1], A. Santoro[a,c,1], A. Possenti[a], S.M. Cacciò[b], A. Casulli[a,b]

[a] European Union Reference Laboratory for Parasites, Department of Infectious Diseases, Istituto Superiore di Sanità, Rome, Italy
[b] WHO Collaborating Centre for the Epidemiology, Detection and Control of Cystic and Alveolar Echinococcosis, Istituto Superiore di Sanità, Rome, Italy



pathogens

Case Report

An Unexpected Case of *Opisthorchis felineus* Infection Revealed during Liver Transplantation

Valentina D Mangano [1], Daniela Campani [2,3], Andrea Cacciato Insilla [2,3], Barbara Coco [4], Maria Angeles Gomez Morales [3], Maurizia Brunetto [4], Giuseppe La Rosa [5], Alessandra Ludovisi [5], Paolo De Simone [6] and Fabrizio Bruschi [1,7,*]



Food Microbiology 70 (2018) 137–142

Contents lists available at ScienceDirect

Food Microbiology

journal homepage: www.elsevier.com/locate/fm

Loop-Mediated Isothermal Amplification-Lateral-Flow Dipstick (LAMP-LFD) to detect *Toxoplasma gondii* oocyst in ready-to-eat salad

Marco Lalle [a,*], Alessia Possenti [a], Jitender P. Dubey [b], Edoardo Pozio [a]

[a] Department of Infectious Diseases, Istituto Superiore di Sanità, viale Regina Elena 299, 00161 Rome, Italy
[b] United States Department of Agriculture, Animal Parasitic Diseases Laboratory, Agricultural Research Service, Beltsville Agricultural Research Center, Building 1001, Beltsville, MD, 20705, USA



International Journal of Molecular Sciences

Article

Enhanced Genomic and Transcriptomic Resources for *Trichinella pseudospiralis* and *T. spiralis* to Underpin the Discovery of Molecular Differences between Stages and Species

Pasi K. Korhonen [1], Giuseppe La Rosa [2], Sunita B. Sumanam [1], Maria Angeles Gomez Morales [2], Alessandra Ludovisi [2], Edoardo Pozio [2], Daniele Tonanzi [2], Bill C. H. Chang [1], Neil D. Young [1] and Robin B. Gasser [1,*]



Veterinary Parasitology: Regional Studies and Reports
Volume 61, June 2025, 101276

Short Communication

Seroprevalence of *Trichinella* spp. in hunting dogs from southern Italy

Alessia Ricci [a], Marcos Antônio Bezerra-Santos [a], Alessandra Ludovisi [b], Irene Tartarelli [b], Gianluca Marucci [b], Adriano Casulli [b], Giovanni Sgroi [c], Vincenzo Veneziano [d], Riccardo Paolo Lia [a], Jairo Alfonso Mendoza-Roldan [a], Domenico Otranto [a e]



International Journal for Parasitology 54 (2024) 233–245

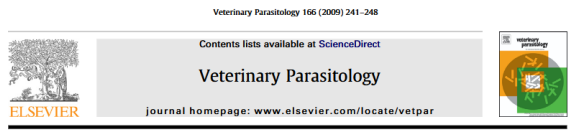
Contents lists available at ScienceDirect

International Journal for Parasitology

journal homepage: www.elsevier.com/locate/ijpara

Mitochondrial genetic diversity and phylogenetic relationships of *Echinococcus multilocularis* in Europe

Azzurra Santoro [a,b,*], Federica Santolamazza [a,b], Simone M. Cacciò [a], Giuseppe La Rosa [a], Daniela Antolová [c], Herbert Auer [d], Guna Bagrade [e], Petra Bandelj [f], Walter Basso [g], Relja Beck [h], Carlo V. Citterio [i], Rebecca K. Davidson [j], Gunita Deksne [k,l], Caroline F. Frey [g], Eva Fuglei [m], Walter Glawischnig [n], Bruno Gottstein [g,o], Jiří Harna [p], Heidi Huus Petersen [q], Jacek Karamon [r], Famke Jansen [s], Júlia Jarošová [c], Pikka Jokelainen [t], Britta Lundström-Stadelmann [g,u], Pavlo Maksimov [v], Milan Miljević [w], Martina Miterpáková [c], Epp Moks [x], Francesco Origgi [y], Zanda Ozolina [k], Marie-Pierre Ryser [y,1], Thomas Romig [z], Mindaugas Šarkūnas [aa], Nathalie Scorrano [g], Urmas Saarma [ab], Viliam Šnábel [c], Tamás Sréter [ac], Gèrald Umhang [ad], Gorazd Vengušt [f], Diana Žele Vengušt [f], Adriano Casulli [a,b]



Veterinary Parasitology 166 (2009) 241–248

Contents lists available at ScienceDirect

Veterinary Parasitology

journal homepage: www.elsevier.com/locate/vetpar

International ring trial to detect anti-*Trichinella* IgG by ELISA on pig sera

Maria Angeles Gómez-Morales [a,*], Alessandra Ludovisi [a], Patrizio Pezzotti [b], Marco Amati [a], Simona Cherchi [a], Marco Lalle [a], Federico Pecoraro [c], Edoardo Pozio [a] the Ring Trial Participants[1]

[a] Department of Infectious, Parasitic and Immunomediated Diseases, Istituto Superiore di Sanità, viale Regina Elena 299, 00161 Rome, Italy
[b] Agenzia di Sanità Pubblica of Latium Region, Rome, Italy
[c] Centro Universitario Grandi Apparecchiature Scientifiche, University of Padua, Padua, Italy



Contents lists available at ScienceDirect

Cytokine

journal homepage: www.elsevier.com/locate/cytokine

Interleukin 17 producing T cell responses in human chronic trichinellosis-insight from a case study

Chiara Della Bella [a,b], Chiara Medici [d,1], Sofia D'Elios [c], Marisa Benagiano [b], Alessandra Ludovisi [c], Maria Angeles Gomez-Morales [c], Mario M. D'Elios [a,b], Fabrizio Bruschi [d,*]

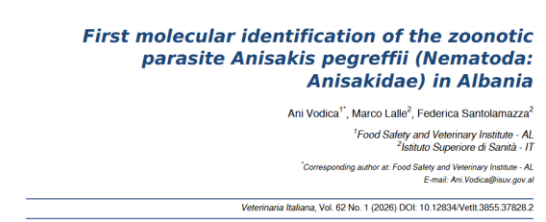


Infection (2025) 53:175–181
https://doi.org/10.1007/s15010-024-02340-8

RESEARCH

A new human opisthorchiasis outbreak in central Italy: a never-ending story

Chiara Papalini[1] · Maria Angeles Gómez-Morales[2] · Alessandra Mercuri[1] · Elisa Stolaj[1] · Maria Grazia Brancaleoni[3] · Igino Fusco Moffa[3] · Giovanni Lo Vaglio[4] · Alessandra Ludovisi[2] · Gianluca Marucci[2] · Daniela Francisci[1]



First molecular identification of the zoonotic parasite Anisakis pegreffii (Nematoda: Anisakidae) in Albania

Ani Vodica[1*], Marco Lalle[2], Federica Santolamazza[2]

[1]Food Safety and Veterinary Institute - AL
[2]Istituto Superiore di Sanità - IT

*Corresponding author at: Food Safety and Veterinary Institute - AL
E-mail: Ani.Vodica@isuv.gov.al

Veterinaria Italiana, Vol. 62 No. 1 (2026) DOI: 10.12834/VetIt.3855.37828.2



Eurosurveillance
Europe's journal on infectious disease epidemiology, prevention and control since 1996

Euro Surveill. 2025 Jun 5;30(22):2400594. doi: 10.2807/1560-7917.ES.2025.30.22.2400594

Molecular detection of *Toxoplasma gondii* in ready-to-eat salad mixes: multi-country survey using a validated and harmonised standard operating procedure, Europe, 2021 to 2022

Rafael Calero-Bernal [1,*], Martha Betson [2,*], Iva Slana [3], Barbara Bartosova [3], Gianluca Marucci [4], Alessia Possenti [4], Gema Álvarez-García [1], Nadja Bier [5], Anne Mayer-Scholl [5], Rebecca P Berg [6,7], Umer Chaudhry [2], Nadia M López-Ureña [1,8], Weronika Piotrowska [9], Jacek Sroka [9], Gro S Johannessen [10], Rebecca Davidson [11], Filip Dámek [12], Radu Blaga [12,13], Sandra Thoumire [12], Barbora Zalewská [3], Helga C Waap [14], Pikka Jokelainen [15], Marco Lalle [4,*]



animals

Article

First Detection of *Trichinella pseudospiralis* in the Genus *Martes* Within a Croatian Mustelid Survey

Davor Balić [1,*], Marija Krajina [1], Gianluca Marucci [2], Irene Tartarelli [2], Hrvoje Krajina [3] and Lucija Stupar [4]

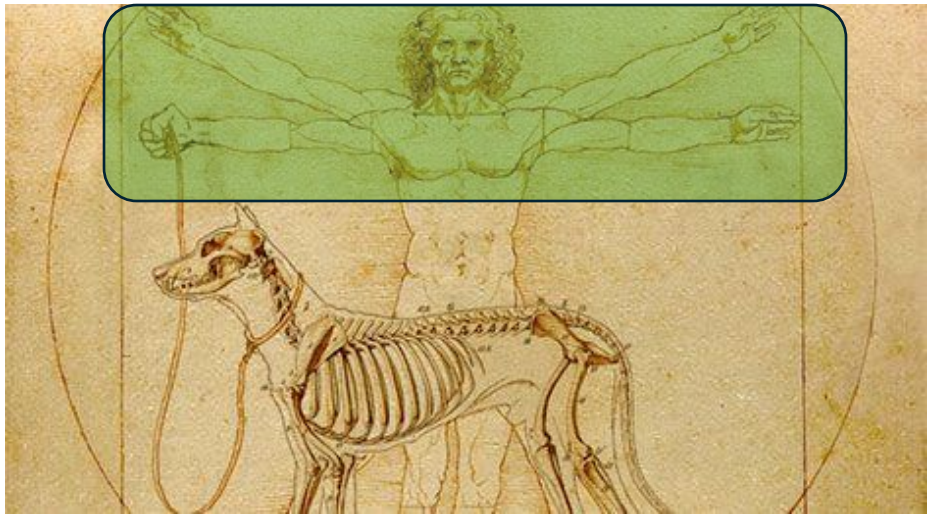
EURL
PUBLIC HEALTH
FOOD-, WATER- AND VECTOR-BORNE HELMINTHS AND PROTOZOA

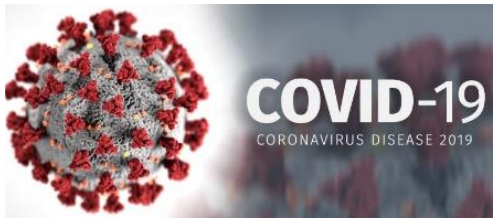


...and updates from the "younger sibling"

EURL-PH-HP

Funded by the European Union





EURL PUBLIC HEALTH

- Regulation (EU) 2022/2371 on **Serious Cross-Border Threats to Health** (Art. 15):

Legal mandate for EC to set up European Union Reference Laboratories for Public Health (EURL-PH)

- The network of EURLs is operated and coordinated by the ecdc
- EURLs-PH responsible for coordinating national laboratories in the following areas:

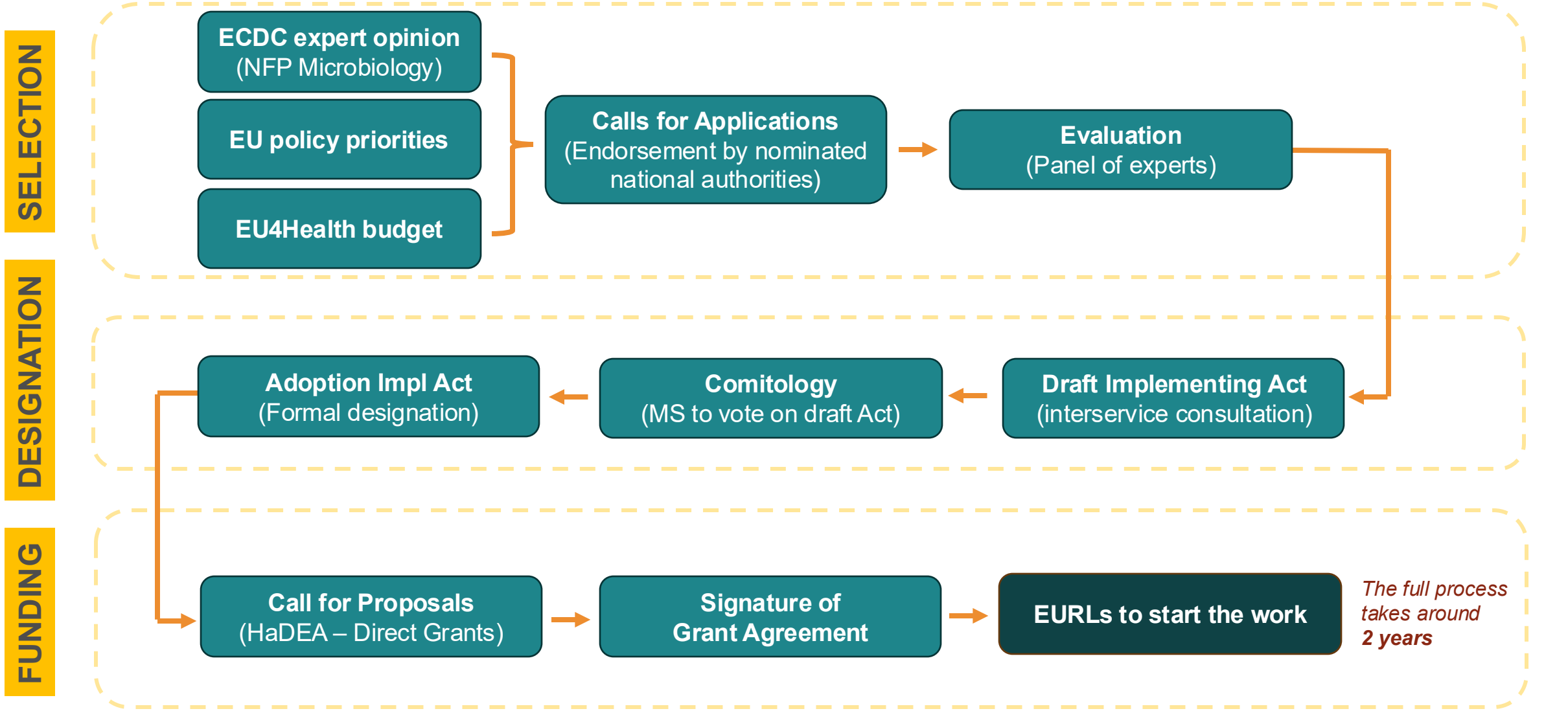
1. Reference diagnostics
2. Reference material resources
3. External quality assessments
4. Collaboration and research
5. Scientific advice and technical assistance
6. Monitoring, alert notifications and support in outbreak response
7. Training

EU4Health Programme (EU4H)

From idea to operational EURL

Network of EURLs for Public Health

EU4Health Programme (EU4H)



Funded by the European Union

EURL for Public Health on Food-, Water-, and Vector-borne HELMINTHS and PROTOZOA (EURL-PH-HP)



DESIGNATION:

Commission Implementing Regulation (EU) 2024/2959

EURL PUBLIC HEALTH
FOOD-, WATER- AND VECTOR-BORNE HELMINTHS AND PROTOZOA

ecdc EUROPEAN CENTRE FOR DISEASE PREVENTION AND CONTROL

ISTITUTO SUPERIORE DI SANITÀ
DEPARTMENT INFECTIOUS DISEASES

Folkhälsomyndigheten
PUBLIC HEALTH AGENCY OF SWEDEN

ANNEX II

The EU reference laboratory for public health on food-, water- and vector-borne helminths and protozoa, its responsibilities and tasks

1. The consortium designated as the EU reference laboratory for public health on food-, water- and vector-borne helminths and protozoa (hereinafter 'EURL'):

   Consortium led by:

   Istituto Superiore di Sanità, Viale Regina Elena 299, 00161, Roma RM, ITALY;

   Also composed of:

   Folkhälsomyndigheten, Nobels väg 18, SE-171 82 Solna, SWEDEN.

MANDATE (2026-2032):

Sustain **ECDC** laboratory members of the disease networks:

European Food- and Waterborne Diseases and Zoonoses Network (FWD-Net)

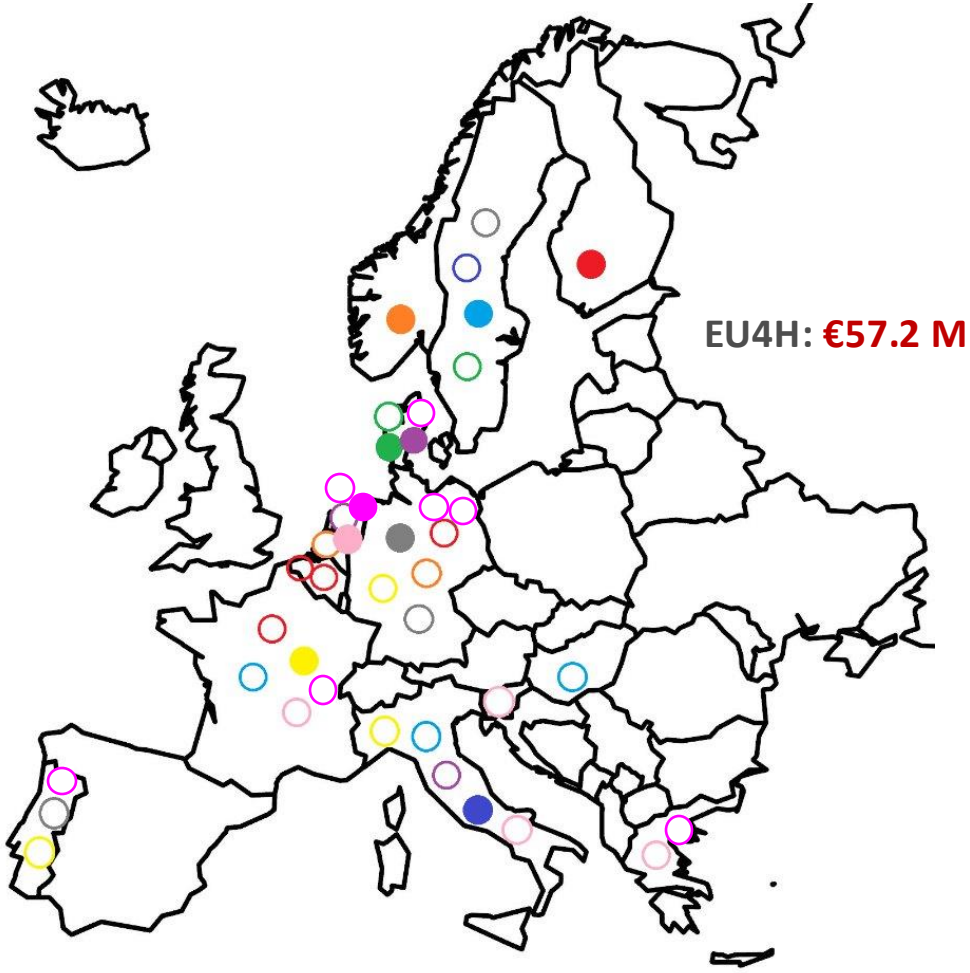
European Emerging and Vector-borne Diseases Network (EVD-Net)



State of play: **EURL designation**

10 EURL-PH have been designated to date:

- Antimicrobial resistance (AMR) in bacteria
- Diphtheria and pertussis
- Emerging, rodent-borne and zoonotic viral pathogens
- Food- and water-borne bacteria
- Food- and water-borne viruses
- Food-, water- and vector-borne helminths and protozoa
- High-risk, emerging and zoonotic bacterial pathogens
- *Legionella*
- Vector-borne viral pathogens
- Respiratory viruses



EU4H: €57.2 M

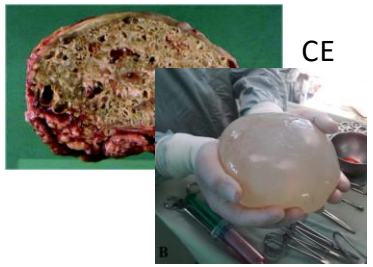
- **NEW CALLS:**
- EURL for Public Health on ***Clostridioides difficile***
- ~~EURL for Public Health on **Sexually Transmitted Bacteria**~~
- EURL for Public Health on **Mycobacteria**
- EURL for Public Health on **Invasive Bacteria**

EURL for Public Health on Food-, Water-, and Vector-borne
HELMINTHS and PROTOZOA (EURL-PH-HP)

(2026-2032)

Funded by the European Union

AE

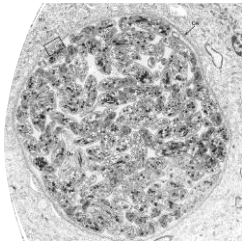


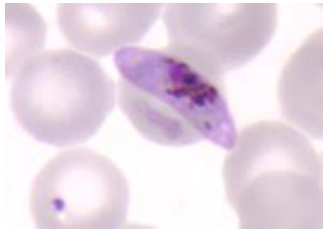
CE

- *Echinococcus*
  (cestodes)



- *Trichinella*
  (nematodes)





- *Toxoplasma*
  (protozoa)

- *Plasmodium*
  (protozoa)



If needed **other helminths and protozoa** of EU public health relevance:
Cryptosporidium spp., *Giardia lamblia*, *Leishmania* spp., *Strongyloides stercoralis*, *Taenia solium*

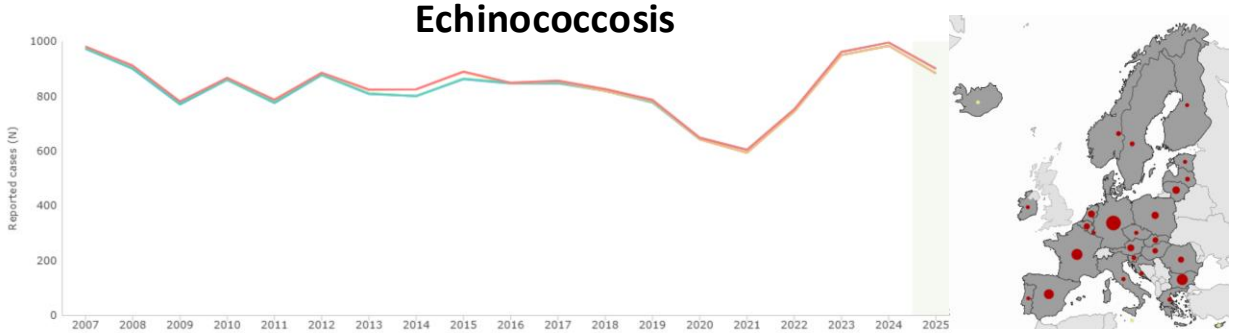
Why these 4 parasites?



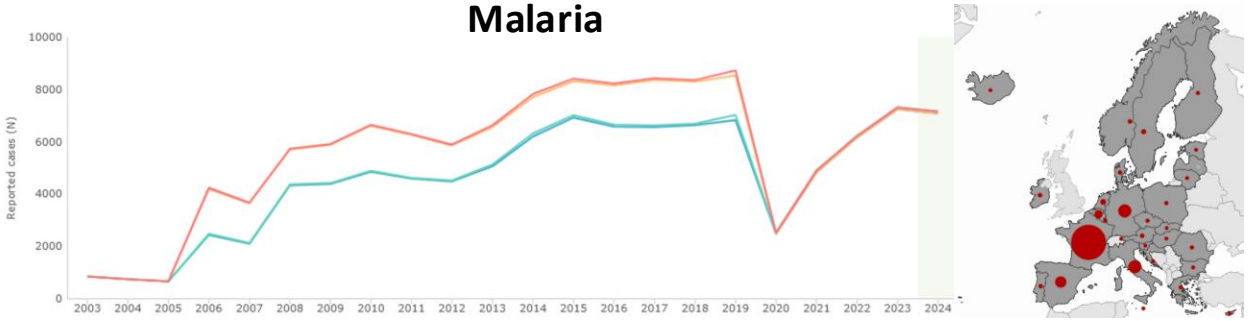
Why these 4 parasites?

Surveillance Atlas of Infectious Diseases

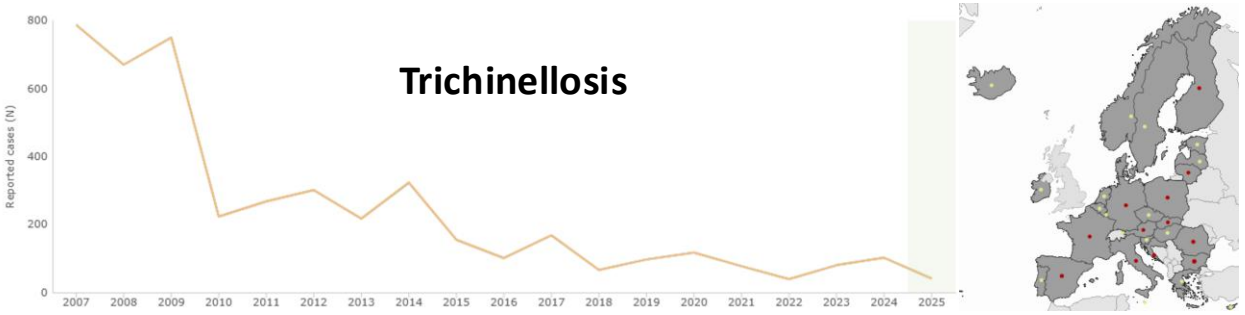
Echinococcosis



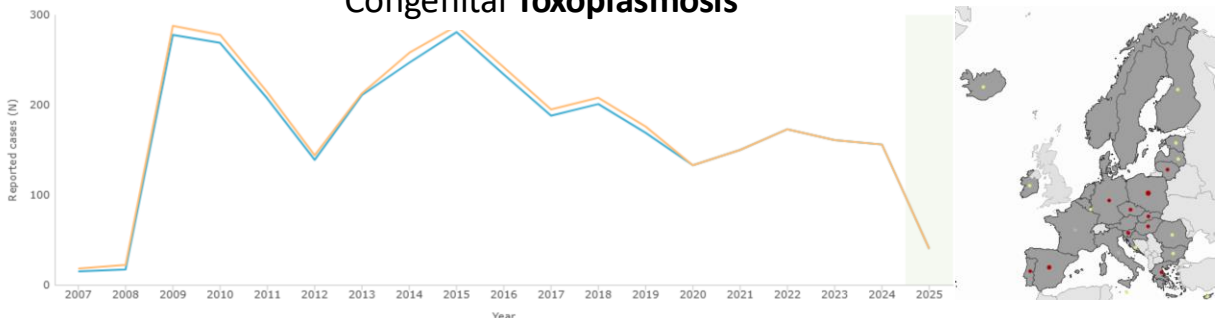
Malaria



Trichinellosis



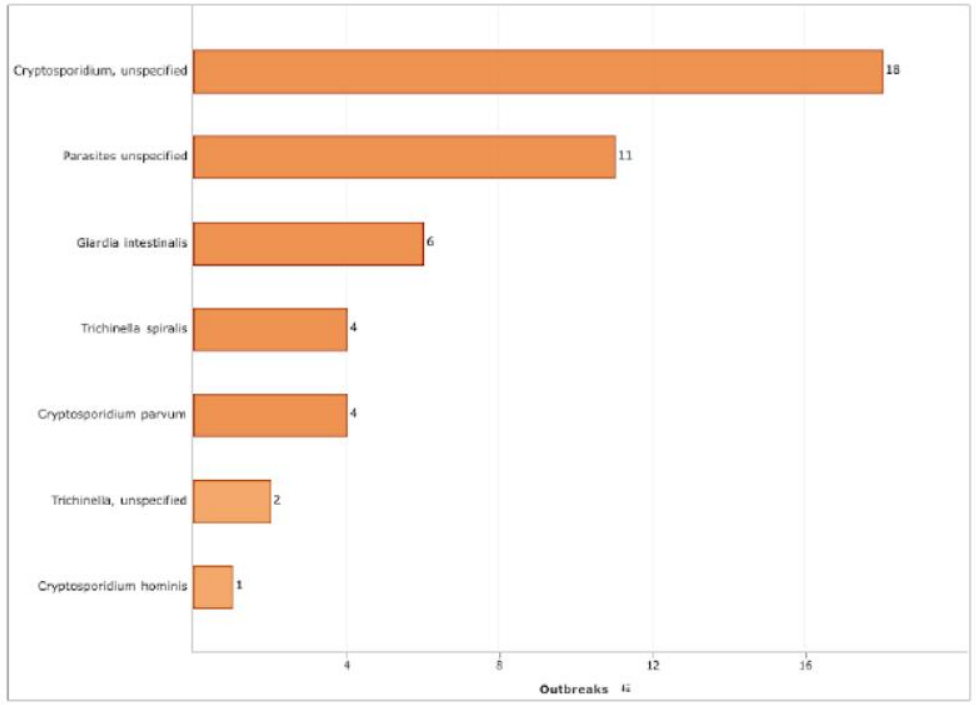
Congenital **Toxoplasmosis**



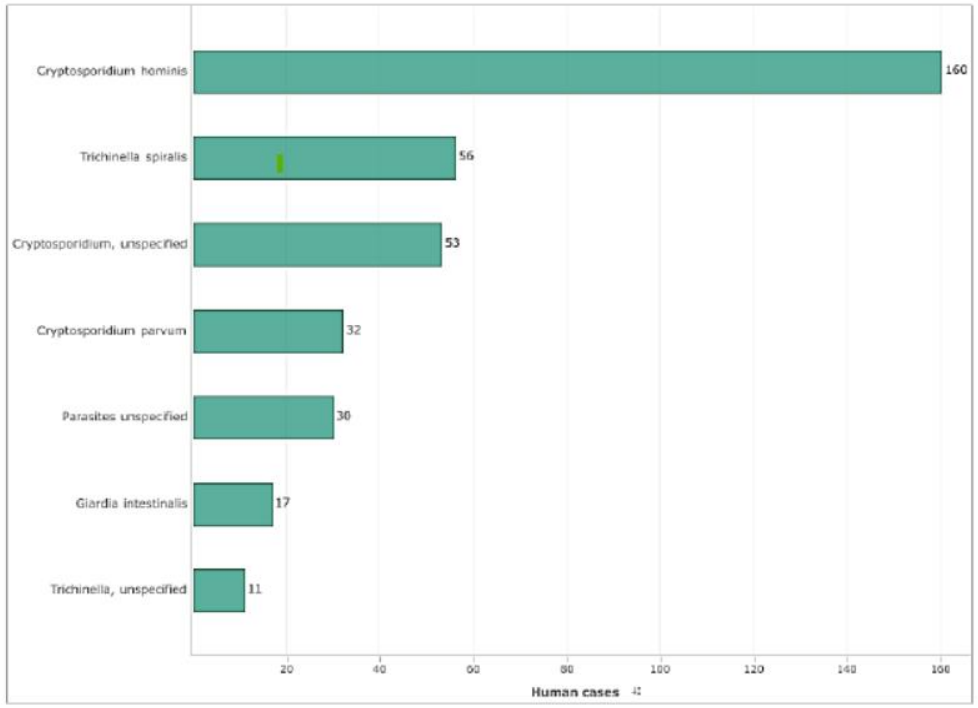
EU (without UK) EU (with UK until 2019)

Foodborne outbreaks caused by parasites in 2024, as reported to EFSA

Number of outbreaks by agent



Number of cases by agent



https://www.efsa.europa.eu/en/microstrategy/FBO-dashboard

What is happening from January 2026 onwards?

ANNUAL WORKPLAN – Y1

EQA/PT

Published 20/03/2026 - Edited 08/06/2026

One of the tasks EURL-PH-HP is to organize **External Quality Assessment schemes (EQA)** by means of **Proficiency Testing (PT)** for the FWD and EVD networks. For these laboratories, participation to the PT schemes is free of charge. The PT scheme is announced at the beginning of each year by e-mail. Any change in the PT schedule and/or in their planning/management, will be promptly communicated by e-mail.

In 2026, the following **EQA/PT** will be implemented:

- Molecular identification of ***Echinococcus granulosus sensu lato*** and ***Echinococcus multilocularis***
- Molecular identification of ***Plasmodium*** species



Website: https://www.iss.it/phhp-about-us

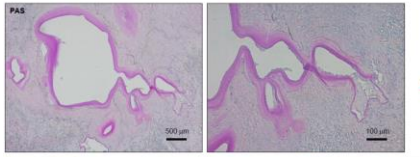


Diagnostics and Protocols

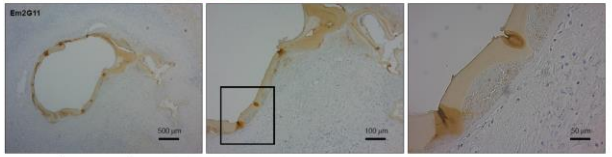
EU Reference Laboratory for Parasites (EURL-P) | Reparto di Parassitosi Alimentari e Neglette Dipartimento di Malattie Infettive | EU Reference Laboratory for Public Health on Helminths and Protozoa (EURL-PH-HP)

TEST REQUEST FORM

- ❑ * Identification of the five species, transmissible to humans, of *Plasmodium* by using PCR
- ❑ * Identification of genotype I, II and III belonging to *Toxoplasma gondii* by using PCR
- ❑ * Identification of *Echinococcus multilocularis* and species/genotypes belonging to *Echinococcus granulosus s.l.* by using Real Time PCR
- ❑ * Identification of *Echinococcus multilocularis* and *Echinococcus granulosus* parasites on histological specimens by using immunohistochemistry

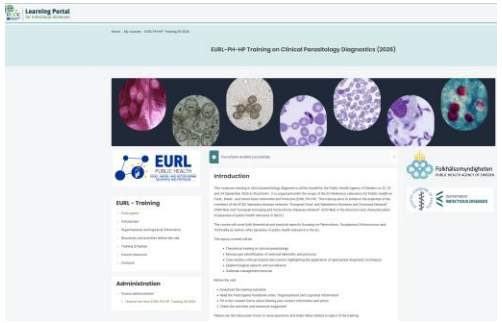


Periodic acid-Schiff (PAS)



Em2G11

Images by courtesy of Dr. Antio Di Grazia, ISS



Trainings

Published 20/03/2026 - Edited 20/05/2026

The training sessions are intended only for the **OCPs for Helminthiases and Protozoal diseases and NFPs for the FWD and EVD networks.** The **EURL-PH-HP 2026 training courses** will be held in **Solna** at the **Public Health Agency of Sweden (PHAS)** from 22 to 24 September 2026. Find attached the invitation with detailed information and form.

Annual Meeting EURL-PH-HP

Published 20/03/2026 - Edited 18/05/2026

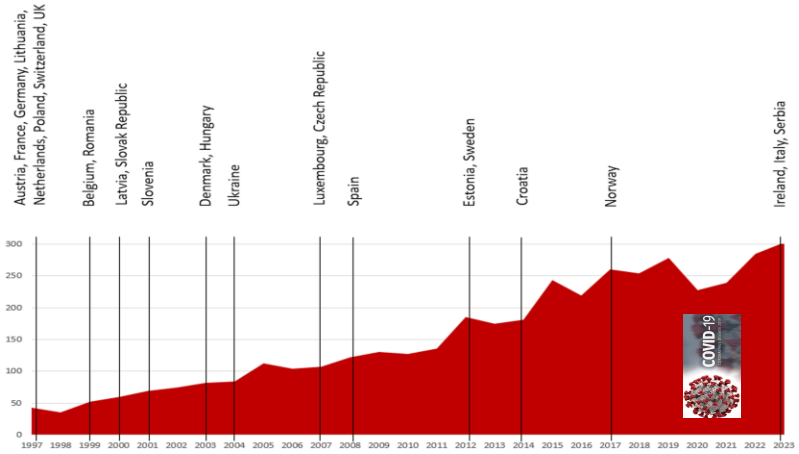
The first **ANNUAL MEETING** of the EURL-PH-HP will be held in **Rome** at ISS on **NOVEMBER 10-11, 2026**

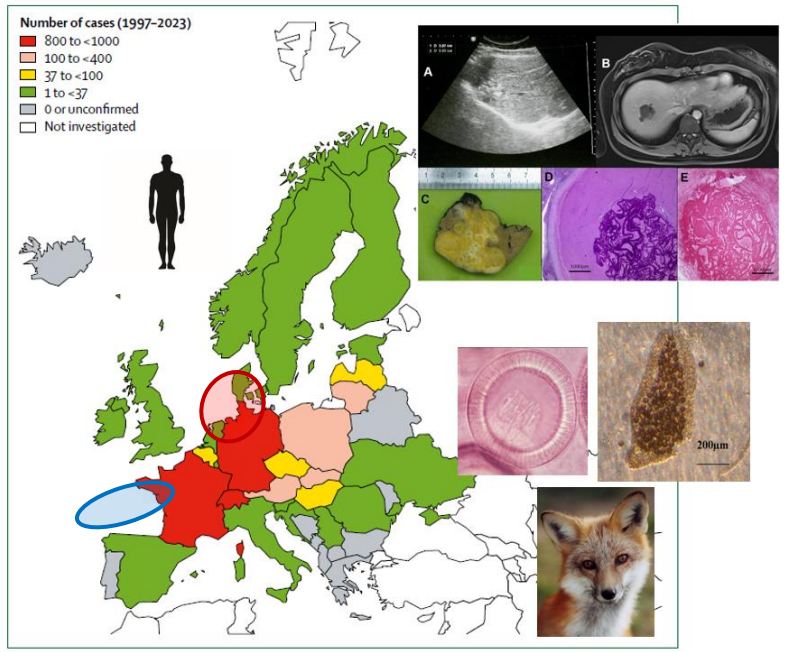


Meanwhile, in 2026....

LAY THE FOUNDATIONS of the EURL PUBLIC HEALTH FOOD-, WATER- AND VECTOR-BORNE HELMINTHS AND PROTOZOA

First paper published as **EURL-PH-HP** (in kind)





THE LANCET
Infectious Diseases

Unveiling the incidences and trends of alveolar echinococcosis in Europe: a systematic review from the KNOW-PATH project

Adriano Casulli, Bernadette Abela, Daniele Petrone, Barbara Šoba, Balázs Dezsényi, Jacek Karamon, Laurence Millon, Urmas Saarma, Daniela Antolová, François Chappuis, Severin Gloor, Marcel Stoeckle, Beat Müllhaupt, Relja Beck, Heimo Lagler, Felix Lötsch, Herbert Auer, Marie-Pierre Hayette, Libuše Kolářová, Sniedze Laivacuma, Mindaugas Šarkūnas, Vitalijus Sokolovas, Audronė Marcinkutė, Karin Troell, Ansgar Deibel, Pikka Jokelainen, Małgorzata Sulima, Dagny Krankowska, Stillhard Roman, Gaëtan-Romain Joliat, Nermin Halkic, Solange Bresson-Hadni, Joanna Halina Bednarek, Andrzej Załęski, Małgorzata Paul, Sheraz Yaqub, Mogens Jensenius, Joke van der Giessen, Laura Nabarro, Peter Chiodini, Florent Demonmerot, Jenny Knapp, Beate Grüner, Peter Kern, Lynn Peters, Federica Santolamazza, Azzurra Santoro**

Human alveolar echinococcosis is a notifiable parasitic infectious disease in most European countries; however, in practice, it is under-reported by national health systems. To fill this knowledge gap, data on the number, incidence, and trend of cases in Europe were extracted through a systematic review approach from both the scientific and grey literature, covering 1997–2023. This systematic review identified 4207 human alveolar echinococcosis cases from 28 of the 40 European countries investigated. Historically endemic Austria, France, Germany, and Switzerland accounted for 2864 (68·08%) of 4207 cases documented in Europe, and Lithuania, Poland, and Slovakia represented an additional 887 (21·08%) cases. Based on incidence rates and trends detected in this study, two main epicentres were seen in countries in the Alpine and the Baltic areas. The mean annual incidence from 1997 to 2023 throughout Europe was 0·063 cases per 100 000 people and in EU member states was 0·060 cases per 100 000 people. Data collected during this period suggest that alveolar echinococcosis is emerging in almost every country where this neglected parasitic infectious disease has been detected.

WP2: T2.6 Scientific advice to ECDC/EU

Meanwhile, in 2026….

- MS entered in consultation with EC and ECDC on the CASE DEFINITION of **ECHINOCOCCOSIS**
- EURL-PH-HP was consulted…

DECISIONS

COMMISSION IMPLEMENTING DECISION (EU) 2018/945

of 22 June 2018

on the communicable diseases and related special health issues to be covered by epidemiological surveillance as well as relevant case definitions

(Text with EEA relevance)



3.12. ECHINOCOCCOSIS

Clinical Criteria

Not relevant for surveillance purposes

Diagnostic Criteria

At least one of the following five:

— Histopathology or parasitology compatible with *Echinococcus multilocularis* or *granulosus* (for example, direct visualization of the protoscolex in cyst fluid)

— Detection of ~~*Echinococcus*~~*Echinococcus granulosus* pathognomonic macroscopic morphology of cyst(s) in surgical specimens OR pathognomonic morphology features on ultrasound

— Typical organ lesions detected by imaging techniques (~~for example, computerized tomography, sonography,~~ ultrasound, MRI, CT) AND ~~confirmed by a serological test~~ seropositivity on two assays based on different antigens (or a single high sensitive and specific WB)

~~— *Echinococcus* spp. specific serum antibodies by high sensitivity serological test AND confirmed by a high specificity serological test~~

— Detection of *Echinococcus multilocularis* or *granulosus* nucleic acid in a clinical specimen

Epidemiological Criteria

NA

Case Classification

A. Possible case

NA

B. Probable case

NA

C. Confirmed case

Any person meeting the diagnostic criteria

Casulli Adriano
The spelling in (EU) 2018/945 is incorrect.....
Rispondi

Casulli Adriano
As evidenced in the recently published WHO Guidelines:
https://www.who.int/publications/i/item/9789240110472
Rispondi

Casulli Adriano
We have listed them in order of importance and inserted "ultrasound", which is the most important imaging technique for the diagnosis of CE.
Rispondi

Casulli Adriano
As evidenced in this publication:
https://pubmed.ncbi.nlm.nih.gov/33503986/

COMMISSION IMPLEMENTING REGULATION (EU) 2026/2097

of 18 September 2026

on the communicable diseases and related special health issues subject to epidemiological surveillance and the corresponding case definitions, and repealing Implementing Decision (EU) 2018/945

(Text with EEA relevance)

3.13. ECHINOCOCCOSIS

Clinical criteria

Not relevant for surveillance purposes.

Diagnostic criteria

At least one of the following four:

— Typical organ lesions detected by imaging techniques (ultrasound, MRI, CT scan) AND seropositivity by two assays based on different antigens (or a single highly sensitive and specific Western blot);

— Histopathology or parasitology compatible with *Echinococcus multilocularis* or *granulosus* (for example, direct visualisation of the protoscolex in cyst fluid);

— Detection of *Echinoccocus granulosus* pathognomonic macroscopic morphology of cyst(s) in surgical specimens OR pathognomonic morphology features on ultrasound;

— Detection of *Echinococcus multilocularis* or *granulosus* nucleic acid in a clinical specimen.

Epidemiological criteria NA

Case classification

A. Possible case NA

B. Probable case NA

C. Confirmed case
Any person meeting the diagnostic criteria.

"Thanks for Listening"

Thanks to all colleagues for making this real!

"Thanks for Listening"



EURL PUBLIC HEALTH
FOOD-, WATER- AND VECTOR-BORNE HELMINTHS AND PROTOZOA

Euro

Contacts

Published 20/03/2026 - Edited 28/09/2026

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Contact point of the EURL-PH-HP at PHAS

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Francesco Silvestrini (ISS), Silvio Paone (ISS

y

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EURL PUBLIC HEALTH
FOOD-, WATER- AND VECTOR-BORNE HELMINTHS AND PROTOZOA

ISTITUTO SUPERIORE DI SANITÀ
DEPARTMENT INFECTIOUS DISEASES

European Union Reference Laboratory for Parasites (EURL-P; food safety)