

## Final Report PT-08: EcMol 1/2021

### PT-08: “Molecular identification of *Echinococcus* at the species level”

#### Design

Purpose	Evaluation of laboratories competence in molecular identification of <i>Echinococcus granulosus sensu lato</i> and <i>Echinococcus multilocularis</i>	
Scheme type	Single, simultaneous	
Participants	National reference laboratories for parasites Public and private laboratories	
N. of participants	Depending on request	
Method	Not regulated	
Test method	chosen by the participant	
PT items	Matrix	Elution buffer
	Item	DNA
	N. of samples	3 vials for each participant
	Distribution	Preparation and packaging can be performed before shipment
Subcontracted activities	NA	
Results evaluation	Qualitative	

#### Implementation

N. of participants	18	PT items	Volume of DNA (for each sample)	10 µl
Public laboratories	0		PT panel composition	3 samples: 1 negative, 1 containing DNA of <i>E. granulosus</i> and 1 containing
Private laboratories	0			

PT Provider  
 Unit of Foodborne and Neglected Parasitic Diseases  
 Istituto Superiore di Sanità, Rome, Italy  
 Viale Regina Elena, 299 – 00161 Rome, Italy

PT person in charge: Dr. Adriano Casulli  
 e-mail: [adriano.casulli@iss.it](mailto:adriano.casulli@iss.it); tel: +39 06 4990 2896

			DNA of <i>E. multilocularis</i>
NRL	18	Shipping	DHL
Shipping dates	15/03/2021		

## Results

The final evaluation is only based on qualitative evaluation and is expressed as “positive” if the results of all samples are correct or “negative” if at least one result is incorrect.

Laboratory code	N° of samples correctly identified	N° of samples NOT correctly identified	Final evaluation
Ed1	3	0	Positive
Ed2	3	0	Positive
Ed3	3	0	Positive
Ed4	3	0	Positive
Ed5	3	0	Positive
Ed6	3	0	Positive
Ed7	2	1	Negative
Ed8	3	0	Positive
Ed9	3	0	Positive
Ed10	3	0	Positive
Ed11	3	0	Positive
Ed12	3	0	Positive
Ed13	3	0	Positive
Ed14	3	0	Positive
Ed15	3	0	Positive
Ed16	1	2	Negative
Ed17	2	1	Negative
Ed18*	NA	NA	NA

Legend:

\* due to Internal reorganisation the laboratory could not test the samples.

NA: not applicable

### Summary of results:

Number of participant laboratories	18 (1 laboratory withdrawn)
Number of participants that passed the PT	14
Number of participants that failed the PT	3

PT Provider  
 Unit of Foodborne and Neglected Parasitic Diseases  
 Istituto Superiore di Sanità, Rome, Italy

Viale Regina Elena, 299 – 00161 Rome, Italy

PT person in charge: Dr. Adriano Casulli  
 e-mail: [adriano.casulli@iss.it](mailto:adriano.casulli@iss.it); tel: +39 06 4990 2896

### Comments:

The experience derived from the third PT carried out in 2021 on the molecular detection of *Echinococcus* spp. showed that the personnel of NRLs are skill to detect this parasite in a qualitative test. In particular 88.23% (15 out of 17 labs) of participants correctly identified the sample with DNA of *Echinococcus granulosus sensu lato*, 94.12% (16 out of 17 labs) succeeded in the identification of the sample with DNA of *Echinococcus multilocularis*, while 94.12% (16 out of 17 labs) detected the negative sample.

**Recommendations:** We suggest the participant laboratories to check the reagents in advance before analysing PT items by PCR reactions and to realize whether the DNA-volume for their specific needs is not sufficient before testing the PT items. We also recommend laboratories to pay attention to cross-contaminations between samples.

PTP person in charge

Dr. A. Casulli



The Director

Dr. S.M. Cacciò



Date 24/09/2021

### Notes:

1. To guarantee confidentiality, participant laboratories are identified by alphanumeric codes. PT participant identity is kept confidential and bound by professional secrecy. The PTP reserves itself the right to provide the laboratory PT result to the competent authority on request.
2. The organizer designates a qualified company for the transport and delivery of PT items.
3. Each participating laboratory receives a PT panel according to the PT scheme. Each PT item consists of a tube, containing DNA extracted from *Echinococcus granulosus sensu lato* (s.l.) or *Echinococcus multilocularis*. A third tube contains molecular grade deionized water and serve as a negative control. The stability of the samples in the package was evaluated by ad hoc experiments carried out by EURLP. Larvae preserved in 96% ethanol, and stored between -20 and +30°C maintain their stability up to 5 years after the date of preparation. DNA material stored below 15°C is stable for many years.
4. At the beginning of each year, the organizer draws up a PT program and makes it known by publishing it on the EURLP website (for national, international, public and private laboratories) or by email (NRLs).
5. The final report issue of each PT round shows the PT program implementation.

End of the report

PT Provider  
Unit of Foodborne and Neglected Parasitic Diseases  
Istituto Superiore di Sanità, Rome, Italy

Viale Regina Elena, 299 – 00161 Rome, Italy

PT person in charge: Dr. Adriano Casulli  
e-mail: [adriano.casulli@iss.it](mailto:adriano.casulli@iss.it); tel: +39 06 4990 2896