

Unit of Foodborne and Neglected Parasitic Diseases European Union Laboratory for Parasites



Final Report PT-05: Ec 1/2025

PT-05: <u>"Detection of *Echinococcus* sp. worms in the intestinal</u> <u>mucosa of the definitive host"</u>

Design

Purpose	Correctly identify the presence of worms of <i>Echinococcus</i> sp. in a matrix made by intestinal mucosa.		
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	Sedimentation and counting technique (SCT)		
	Matrix	intestinal mucosa	
DT itomo	ltem	worms of Echinococcus spp.	
FTILEINS	N. of samples	3 for each participant	
	Distribution	Immediate shipment after preparation	
Subcontracted activities	NA		
Results evaluation	Qualitative		

Implementation

N. of participants	31		intestinal mucosa (ml)	1100	
Public laboratories	31	PT items	Ethanol 70% (ml)	550	
Private laboratories	0		PT panel composition	3 samples (25,15,0)	
NLR	31		Shipping	DHL	
Shipping dates	17/03/20	25			

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PT Provider

Unit of Foodborne and Neglected Parasitic Diseases Istituto Superiore di Sanità

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MO/MAQ/12.4 rev. 11

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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	N° of samples NOT	Final evaluation	
	correctly identified	correctly identified		
EM1	3	0	Positive	
EM2	3	0	Positive	
EM3	3	0	Positive	
EM4	3	0	Positive	
EM5	3	0	Positive	
EM6	3	0	Positive	
EM7	3	0	Positive	
EM8	3	0	Positive	
EM9	3	0	Positive	
EM10	3	0	Positive	
EM11	2	1	Negative	
EM12	2	1	Negative	
EM13	3	0	Positive	
EM14	3	0	Positive	
EM15	3	0	Positive	
EM16	3	0	Positive	
EM17	3	0	Positive	
EM18	3	0	Positive	
EM19	1	2	Negative	
EM20	3	0	Positive	
EM21	3	0	Positive	
EM22	3	0	Positive	
EM23	3	0	Positive	
EM24	3	0	Positive	
EM25	3	0	Positive	
EM26	3	0	Positive	
EM27	3	0	Positive	
EM28	3	0	Positive	
EM29	3	0	Positive	
EM30	2	1	Negative	
EM31	2	1	Negative	

Summary of results:

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Number of participant laboratories	31
Number of participants that passed the PT	26
Number of participants that failed the PT	5
Number of participants that repeated the PT	0
Number of participants that successfully repeated the PT	0

Overtime comparison of results

2025 code	Former codes	2020	2021	2022	2023	2024	2025
EM8	1, 12, 18	Р	Р	Р	Р	Р	Р
EM26	2, 19, 20, 50	Р	Р	N	Р	Р	Р
EM2	27, 29, 3	Р	Р	Р	Р	Р	Р
EM25	4, 28, 30, 48	Р	Р	Р	Р	Р	Р
EM3	5, 14, 7	Р	Р	Р	Р	Р	Р
EM4	6, 11, 8	Р	Р	Р	Р	Р	Р
EM17	7, 9, 36	Р	Р	Р	Р	Р	Р
EM6	8, 23, 24, 13	Р	Р	N	Р	Р	Р
EM5	9, 10, 12	Р	Р	Р	Р	Р	Р
EM13	10, 3, 20	Р	Р	Р	Р	Р	Р
EM14	11, 25, 26, 32	Р	Р	N	Р	Р	Р
EM22	12, 22, 23, 42	Р	Р	Р	Р	Р	Р
EM23	13, 8, 43	Р	Р	Р	Р	Р	Р
EM20	14, 2, 40	Р	Р	Р	N	Р	Р
EM10	15, 5, 23	Р	Р	Р	Р	Р	Р
EM19	16, 18, 19, 39	Р	Р	Р	Р	Р	N
EM24	17, 24, 25, 44	Р	Р	N	Р	Р	Р
-	18	Р	Р				
EM11	19, 17, 26	Р	Р	N	Р	Р	N
EM28	20, 15	NR	Р	N	Р		Р
EM18	21, 26, 27, 38	Р	Р	N	Р	Р	Р
EM21	22, 13, 41	Р	Р	N	Р	Р	Р
EM12	23, 1, 27	N	Р	N	Р	Р	N
EM7	24, 7, 16	NR	Р	Р	Р	Р	Р
EM16	25, 21, 22, 34	Р	N	N	Р	Р	Р
-	26, 4	N	Р	N	Р		
EM30	27, 18		Р		Р		N
EM15	28, 16, 33		Р	N	Р	Р	Р
EM27	29, 20, 21, 54		Р	N	Р	Р	Р
EM1	30, 6,1		Р	N	Р	Р	Р
EM9	28, 21				Р	Р	Р
EM31	53					Р	N
EM29	-						Р

Note: P, positive; N, negative; NR, no result received; grey box, no participation

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Comments:

In 2025, 26/31 (83,87%) laboratories successfully accomplished the aim of the PT-05, showing that most of the personnel of NRLs is skilled to detect *Echinococcus* spp. parasites in a qualitative test. In detail, over five (5/31, 16,12%) participants who failed the PT, 3/31 (9,6%) mis-identified the negative item as positive and 3/31 (9,6%) mis-identified the positive item as negative. False negative results might be attributed to incorrect sedimentation procedures and eye focus softening. False positive results might be attributed to the natural presence, in the matrix of intestinal mucosa, of cestodes similar but different from *Echinococcus* spp. (*Amoebotaenia*-like), like it was observed eventually in past PTs. It must be pointed out that when a similar situation occurred in 2022 (presence of *Amoebotaenia*-like worms in the matrix of intestinal mucosa), the 50% of the participating laboratories failed the PT because of the false positive results, thus, the lower rate of false positive results registered in 2025 may be considered a significant improvement derived from the experience gained over the years.

For as concerns the recovery rate, the participants detected an arithmetic mean of 12 worms (range 0-25) in the samples spiked with 25 worms, and an arithmetic mean of 7,5 worms (range 0-21) in the samples spiked with 15 worms.

Written and elaborated by PTP person in charge

Dr. A. Santoro

sutor of

Date 19/05/2025

Notes:

- 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 intestinal mucosa, fixed in 70% ethanol, spiked or not with *Echinococcus* spp. adult worms. The homogeneity of PT items is ensured by an accurate control of the number of worms spiked into each sample (item), made by two operators using a stereo microscope. PT items are stable for 21 days from the date of preparation (corresponding to the shipping date), provided that they are maintained in suitable conditions.
- 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

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Verified and issued by The Director

Dr. A. Casulli