

WOAH Reference Laboratory Reports Activities 2024

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LABORATORY INFORMATION

*Name of disease (or topic) for which you are a designated WOAH Reference Laboratory:	Mammalian tuberculosis
*Address of laboratory:	Avenida Puerta de Hierro s/n 28040 Madrid
*Tel:	+34913944033
*E-mail address:	bromerom@ucm.es
Website:	www.visavet.es; www.bovinetuberculosis.eu
*Name (including Title) of Head of Laboratory (Responsible Official):	Beatriz Romero Martínez (Director of the VISAVET Health Surveillance Centre)
*Name (including Title and Position) of WOAH Reference Expert:	Beatriz Romero Martínez (Doctor and Assistant Professor)
*Which of the following defines your laboratory? Check all that apply:	Academic institution

TOR1: DIAGNOSTIC METHODS

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 WOAH Manual (Yes/No)	Total number of test performed last year	
		Nationally	Internationally
Indirect diagnostic tests			
Serología (suidos, caprino, cévidos)	Yes	1537	0
Interferón gamma (bovino, caprino)	Yes	3902	18
Histología	Yes	65	4

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Direct diagnostic tests		Nationally	Internationally
Cultivo bacteriológico	Yes	470	6
Identificación	Yes	450	13
Espoligotipado	Yes	835	0
VNTRs	Yes	31	0
Inmunohistoquímica	Yes	65	4

TOR2: REFERENCE MATERIAL

2. Did your laboratory produce or supply imported standard reference reagents officially recognised by WOA?H?

No

3. Did your laboratory supply standard reference reagents (nonWOAH-approved) and/or other diagnostic reagents to WOA?H Members?

Yes

Type of reagent available	Related diagnostic test	Produced/ provide	Amount supplied nationally (ml, mg)	Amount supplied internationally (ml, mg)	No. of recipient WOA?H Member Countries	Country of recipients
Macerado de tejidos	Cultivo, PCR directa	EU-RL for bovine tuberculosis	5 mL	0	1	SPAIN,
Membrana para espoligotipado	Tipado de micobacterias del MTBC	EU-RL for bovine tuberculosis	2 unidades	0	1	SPAIN,
Suero bovino	Detección de anticuerpos mediante ELISA	EU-RL for bovine tuberculosis	32	16mL	2	NORWAY, SPAIN,
DNA	PCR	EU-RL for bovine tuberculosis	3	1mL	2	BULGARIA, SPAIN,
Bacterias	Cultivo	EU-RL for bovine tuberculosis	3	3mL	2	BULGARIA, POLAND,

4. Did your laboratory produce vaccines?

No

5. Did your laboratory supply vaccines to WOA?H Members?

No

TOR3: NEW PROCEDURES

6. Did your laboratory develop new diagnostic methods for the designated pathogen or disease?

No

7. Did your laboratory validate diagnostic methods according to WOA?H Standards for the designated pathogen or disease?

No

8. Did your laboratory develop new vaccines for the designated pathogen or disease?

No

9. Did your laboratory validate vaccines according to WOAHP Standards for the designated pathogen or disease?

No

TOR4: DIAGNOSTIC TESTING FACILITIES

10. Did your laboratory carry out diagnostic testing for other WOAHP Members?

Yes

Name of WOAHP Member Country seeking assistance	Date	Which diagnostic test used	No. samples received for provision of diagnostic support	No. samples received for provision of confirmatory diagnoses
MALTA	2024-05-21	Cultivo, PCR directa e histopatología	2	2

11. Did your laboratory provide expert advice in technical consultancies on the request of an WOAHP Member?

Yes

Name of the WOAHP Member Country receiving a technical consultancy	Purpose	How the advice was provided
IRELAND	Automatización del ELISA	email
NORWAY	Serología en bovino y camélidos	email
FRANCE	Diagnóstico en cerdos, extracción para WGS	email
PERU URUGUAY	Sistemas de inyección de PPDs	email
ITALY	Ensayo IFN-interpretación	email
PORTUGAL	Validación/verificación de la PCR directa	email
BULGARIA	Conservación de aislados	email

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

12. Did your laboratory participate in international scientific studies in collaboration with WOAHP Members other than the own?

No

13. In exercising your activities, have you identified any regulatory research needs* relevant for WOAHP?

No

TOR6: EPIZOOLOGICAL DATA

14. Did your Laboratory collect epidemiological data relevant to international disease control?

Yes

If the answer is yes, please provide details of the data collected:

Datos sobre los genotipos más frecuentemente aislados en España, aislados NTM en explotaciones libres de tuberculosis, etc)

15. Did your laboratory disseminate epidemiological data that had been processed and analysed?

Yes

If the answer is yes, please provide details of the data collected:

Efecto de la vacunación PTB en la IDTB
Micobacterias no tuberculosis en granjas libres de tuberculosis
Datos del programa de erradicación español, etc

16. What method of dissemination of information is most often used by your laboratory? (Indicate in the appropriate box the number by category and list the details in the box)

a) Articles published in peer-reviewed journals:

11

1. Lorente-Leal V*, Gómez-Buendía A, Gutierrez A, de Juan L, Bezos J and Romero B. Shaken, not stirred: magnetic bead DNA extraction as a rapid and effective method for the scaling up of bovine tuberculosis diagnosis. *BMC Veterinary Research*, 20(1):568. 2024. (A). ISSN: 1746-6148. Impact factor 2023: 2.300. Category: Veterinary Sciences, Quartile: 1, Position: 28 of 167. DOI: 10.1186/s12917-024-04427-8
2. Franzoni G*, Signorelli F, Mazzone P, Donniacuo A, De Matteis G, Grandoni F, Schiavo L, Zinellu S, Dei Giudici S, Bezos J, De Carlo E, Galiero G, Napolitano F and Martucciello A. Cytokines as potential biomarkers for the diagnosis of *Mycobacterium bovis* infection in Mediterranean buffaloes (*Bubalus bubalis*). *Frontiers in veterinary science*, 11:1512571. 2024. (A). ISSN: 2297-1769. Impact factor 2023: 2.600. Category: Veterinary Sciences, Quartile: 1, Position: 22 of 167. DOI: 10.3389/fvets.2024.1512571
3. Ortega J, Agullo-Ros I, Roy A, Moreno I, Gómez-Buendía A, Romero B, Ferreras-Colina E, de Juan L, Dominguez M, Dominguez L, Riscalde MA and Bezos J. A high titer antibody response against P22 protein immunocomplex is not correlated with protection in naturally tuberculosis-infected goats. *The Veterinary quarterly*, 44(1):16-30. 2024. (A). ISSN: 0165-2176. Impact factor 2023: 7.900. Category: Veterinary Sciences, Quartile: 1, Position: 2 of 167. DOI: 10.1080/01652176.2024.2429851
4. Plamenova-Stefanova E, Sierra E*, Fernandez A, Quesada-Canales O, Paz-Sanchez Y, Colom-Rivero A, Espinosa de los Monteros A, Herraiz-Thomas P, Dominguez L, Bezos J, Perez-Sancho M, Moreno I, Riscalde MA and Andrada M. Detection of caprine paratuberculosis (Johne's disease) detection in pre-and post-vaccinated herds: morphological diagnosis with lesion grading and bacterial identification. *Frontiers in veterinary science*, 11:1395928. 2024. (A). ISSN: 2297-1769. Impact factor 2023: 2.600. Category: Veterinary Sciences, Quartile: 1, Position: 22 of 167. DOI: 10.3389/fvets.2024.1395928
5. Ruiz-Gil AK, Alvarez-Fuentes G, Fonseca-Rodriguez O, Gómez-Buendía A, Pozo P, Hernandez-Arteaga LES, Ballesteros-Rodea G, Perez-Portilla L and Alvarez J. Bovine tuberculosis in San Luis Potosi, Mexico: spatial analysis and risk factors. *Veterinaria Italiana*, 60:4. 2024. (P). ISSN: 1828-1427. Impact factor 2023: 0.500. Category: Veterinary Sciences, Quartile: 4, Position: 133 of 167. DOI: 10.12834/VetIt.3405.23070.2.
6. Boschioli ML, Salguero FJ, Jones G and Bezos J*. Editorial: Tuberculosis in domestic ruminants: towards eradication of zoonotic tuberculosis. *Frontiers in veterinary science*, 11:1453876. 2024. (E). ISSN: 2297-1769. Impact factor 2023: 2.600. Category: Veterinary Sciences, Quartile: 1, Position: 22 of 167. DOI: 10.3389/fvets.2024.1453876
7. Gómez-Buendía A, Ortega J, Diez-Guerrier A, Rendahl A, Saez-Llorente JL, Bezos J, Romero B and Alvarez J*. Evaluating the ability of non-tuberculous mycobacteria to induce non-specific reactions in bovine tuberculosis diagnostic tests in guinea pigs and cattle. *Veterinary Microbiology*, 298:110250. 2024. (A). ISSN: 0378-1135. Impact factor 2023: 2.400. Category: Veterinary Sciences, Quartile: 1, Position: 24 of 167. DOI: 10.1016/j.vetmic.2024.110250
8. Jimenez-Martin D, Garcia-Bocanegra I*, Riscalde MA, Napp S, Dominguez M, Romero B, Moreno I, Martinez R and Cano-Terriza D. *Mycobacterium tuberculosis* complex in domestic goats in Southern Spain. *Preventive Veterinary Medicine*, 227:106204. 2024. (A). ISSN: 0167-5877. Impact factor 2023: 2.200. Category: Veterinary Sciences, Quartile: 1, Position: 32 of 167. DOI: 10.1016/j.prevetmed.2024.106204
9. Velasco-Reinaldos C, Ortega J, Gómez-Buendía A, Grau A, Lopez M, Alvarez J, Romero B, de Juan L and Bezos J*. Evaluation of the

Effect of a Recent Comparative Intradermal Tuberculin Test on the Humoral Diagnosis of Paratuberculosis Using Serum and Milk Samples from Goats. Veterinary sciences, 11(3):105. 2024. (A). ISSN: 2306-7381. Impact factor 2023: 2.000. Category: Veterinary Sciences, Quartile: 2, Position: 43 of 167. DOI: 10.3390/vetsci11030105

10. Velasco-Reinaldos C, Ortega J, Rincón-Fernández de la Puente J, Romero B*, de Juan L, Dominguez L, Dominguez M, Moreno I, Alvarez J and Bezos J. Effect of a recent intradermal test on the specificity of P22 ELISA for the diagnosis of caprine tuberculosis. *Frontiers in veterinary science, 11:1-7. 2024. (A). ISSN: 2297-1769. Impact factor 2023: 2.600. Category: Veterinary Sciences, Quartile: 1, Position: 22 of 167. DOI: 10.3389/fvets.2024.1358413*

11. Gómez-Buendía A, Alvarez J, Bezos J, Mourelo J, Amado J, Saez-Llorente JL, de Juan L and Romero B*. Non-tuberculous mycobacteria: occurrence in skin test cattle reactors from official tuberculosis-free herds. *Frontiers in veterinary science, 11:1361788. 2024. (A). ISSN: 2297-1769. Impact factor 2023: 2.600. Category: Veterinary Sciences, Quartile: 1, Position: 22 of 167. DOI: 10.3389/fvets.2024.1361788*

b) International conferences:

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1. Bezos J., Romero B., de Juan L., Velasco-Reinaldos C., Ortega J., Ortiz P., Alonso-Moreno P. and Izquierdo-García JL. *Metabólica basada en Resonancia Magnética Nuclear, ¿puede contribuir al diagnóstico de la tuberculosis animal?. III Congreso Internacional de Sanidad y Bienestar Animal, Colegio Oficial de Veterinarios de Madrid, Organización Colegial Veterinaria Española, Spain, San Lorenzo del Escorial. 16/11/2024 - Oral communication*

2. Gómez-Buendía A., Denwood M., Saxmose-Nielsen S., Grau A., Nacar J., Minguez O., Romero B. and Alvarez J. Does size really matter? How heterogeneous data can complicate interpretation of sensitivity and specificity estimates obtained through Bayesian latent class modelling. *17th International Symposium of Veterinary Epidemiology and Economics (ISVEE 17), International Society for Veterinary Epidemiology and Economics, Spain, Sydney. 14/11/2024 - Oral communication*

3. Gómez-Buendía A., Diez-Guerrier A., Munoz M., Saez JL., Romero B. and Alvarez J. When Is really Specific Enough? Evaluating The Specificity Of Single And Comparative Skin Tests In Tuberculosis-free Herds Using Field And Experimental Data. *17th International Symposium of Veterinary Epidemiology and Economics (ISVEE 17), International Society for Veterinary Epidemiology and Economics, Spain, Sydney. 11/11/2024 - Oral communication*

4. Romero B. Diagnostic limitations in controlling the recurrence of bovine tuberculosis in European countries. *7th Congress of the European Association of Veterinary Laboratory Diagnosticians, European Association of Veterinary Laboratory Diagnosticians, Italy, Padova. 23/10/2024 - Oral communication*

5. Velasco-Reinaldos C., Roy A., Gómez-Buendía A., Alvarez J., Boniotti MB., Dominguez M., Gormley E., Jones G., Martucciello A., Mazzone P., Moreno I., de Juan L., Dominguez L., Romero B. and Bezos J. Improving the ante-mortem diagnosis of caprine tuberculosis through the use of specific antigens for in vitro diagnostic platforms. *7th Congress of the European Association of Veterinary Laboratory Diagnosticians, European Association of Veterinary Laboratory Diagnosticians, Italy, Padova. 21/10/2024 - Oral communication*

c) National conferences:

12

1. Bezos J., Romero B., de Juan L., Velasco-Reinaldos C., Ortega J., Ortiz P., Alonso-Moreno P. and Izquierdo-García JL. *Metabólica basada en Resonancia Magnética Nuclear, ¿puede contribuir al diagnóstico de la tuberculosis animal?. III Congreso Internacional de Sanidad y Bienestar Animal, Colegio Oficial de Veterinarios de Madrid, Organización Colegial Veterinaria Española, Spain, San Lorenzo del Escorial. 16/11/2024 - Oral communication*

2. Velasco-Reinaldos C., Roy A., Alvarez J., Dominguez M., Moreno I., Martin AB., Ciordia S., de Juan L., Dominguez L., Romero B. and Bezos J. Análisis proteómico de las tuberculinas y evaluación de antígenos alternativos. *XXVII Simposio Nacional AVEDILA, Asociación de Veterinarios Especialistas en Diagnóstico de Laboratorio, Spain, Bilbao. 13/11/2024 - Oral communication*

3. Lorente-Leal V., Pozo P., Lozano F., Bezos J., Nacar J., Cisneros P., Collado S., Alvarez J. and Romero B. El estudio genómico de *Mycobacterium bovis* revela la circulación extendida de genotipos muy similares y la presencia de puntos calientes de la infección en una

región de alta prevalencia de Castilla y León. XXVII Simposio Nacional AVEDILA, Asociación de Veterinarios Especialistas en Diagnóstico de Laboratorio, Spain, Bilbao. 13/11/2024 - Oral communication

4. Romero B. Tuberculosis animal: diagnóstico y control y su implicación en salud humana. XIII Congreso de la Sociedad Española de Medicina Tropical y Salud Internacional (SEMTSI), Sociedad española de Medicina tropical y Salud Internacional, Spain, Santiago de Compostela. 02/10/2024 - Oral communication

5. Lorente-Leal V., Bezos J. and Romero B. Tuberculosis bovina: de enemigo público a enemigo olvidado. XIII Concurso de Divulgación Científica, Unidad de Cultura Científica. Oficina de Transferencia de Resultados de Investigación. Universidad Complutense, Spain, Madrid. 30/07/2024 - Poster communication

6. Romero B. and Traversa MJ. Tuberculosis animal. Dos continentes. Tuberculosis Animal. Dos continentes ¿mismo problema?, VISAVET Centro de Vigilancia Sanitaria Veterinaria, Asociación de Veterinarios Especialistas en Diagnóstico de Laboratorio, Centro de Vigilancia Sanitaria Veterinaria. Universidad Complutense, Asociación Argentina de Veterinarios de Laboratorios de Diagnóstico, Spain, Madrid. 27/06/2024 - Online communication

7. Bezos J. Principales actividades de centro Visavet como laboratorio de referencia de tuberculosis en animales. Tuberculosis, una zoonosis en crecimiento. ¿Hay más casos, sospechamos más o detectamos más?, Facultad de Ciencias Veterinarias. Universidad de Buenos Aires, Argentina, Buenos Aires. 18/09/2024 - Oral communication (invited)

8. Bezos J. Principales reservorios y epidemiología de la tuberculosis en España. Tuberculosis, una zoonosis en crecimiento. ¿Hay más casos, sospechamos más o detectamos más?, Facultad de Ciencias Veterinarias. Universidad de Buenos Aires, Argentina, Buenos Aires. 18/09/2024 - Oral communication (invited)

9. Bezos J. Diagnóstico innovador en tuberculosis. Congreso de la AAVLD XXIV Reunión Científico Técnica, Asociación Argentina de Veterinarios de Laboratorios de Diagnóstico, Argentina, Mar del Plata. 13/09/2024 - Oral communication

10. Lorente-Leal V., Bezos J. and Romero B. Tuberculosis bovina: de enemigo público a enemigo olvidado. XIII Concurso de Divulgación Científica, Unidad de Cultura Científica. Oficina de Transferencia de Resultados de Investigación. Universidad Complutense, Spain, Madrid. 30/07/2024 - Poster communication

11. Bezos J. Tuberculosis en pequeños rumiantes en España. Tuberculosis Animal. Dos continentes ¿mismo problema?, VISAVET Centro de Vigilancia Sanitaria Veterinaria, Asociación de Veterinarios Especialistas en Diagnóstico de Laboratorio, Centro de Vigilancia Sanitaria Veterinaria. Universidad Complutense, Asociación Argentina de Veterinarios de Laboratorios de Diagnóstico, Spain, Madrid. 27/06/2024 - Online communication

12. Izquierdo-García JL., Alonso-Moreno P., Lopez-Suarez A., Comella del Barrio P., Ortiz P., Apaolaza N., Ferruelo A., Ortega J., Gotera-Rivera C., Murillo R., Velasco-Reinaldos C., Ruiz-Cabello J., Peces-Barba G., Santiago B., Bezos J. and Lorente JA. Benchtop NMR spectroscopy: a game-changer in clinical metabolomics. II SESMET Conference, Center for Metabolomics and Bioanalysis. Facultad de Farmacia. Universidad San Pablo CEU, Spain, Seville. 04/06/2024 - Oral communication

d) Other (Provide website address or link to appropriate information):

10

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TOR7: SCIENTIFIC AND TECHNICAL TRAINING

17. Did your laboratory provide scientific and technical training to laboratory personnel from other WOA Members?

Yes

a) Technical visit : 0

b) Seminars : 1

c) Hands-on training courses: 3

d) Internships (>1 month) 1

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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
B	ALBANIA	1
B	ISRAEL	1
B	MOROCCO	1
B	NORWAY	1
B	TUNISIA	1
C	SWEDEN	3
C	PORTUGAL	1
C	BELGIUM	1
C	POLAND	2
C	ROMANIA	1
D	CUBA	1

TOR8: QUALITY ASSURANCE

18. Does your laboratory have a Quality Management System?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)	
ISO-IEC 17025:2017	Certificado de acreditación	Certificate 817-LE1410 VISAVET.pdf

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
1. Detección de micobacterias mediante técnicas de cultivo 2. Caracterización molecular de micobacterias pertenecientes al complejo Mycobacterium tuberculosis mediante Direct Variable Repeat Spacer Oligonucleotidotyping (DVR-spoligotyping) 3. Detección de microorganismos pertenecientes al complejo Mycobacterium tuberculosis por PCR a tiempo real 4. Detección del gamma-Interferón para el diagnóstico de tuberculosis por ELISA 5. Estudio histoquímico e inmunohistoquímico de Tuberculosis bovina 6. Prueba de intradermotuberculinización (sencilla y por comparación)	ENAC (Entidad Nacional de Acreditación)

20. Does your laboratory maintain a "biorisk management system" for the pathogen and the disease concerned?

Yes

Nuestro centro cuenta con un servicio de bioseguridad y riesgo biológico, siguiendo las pautas del responsable técnico y del administrador local (INSST). Éste se basa en las directrices de bioseguridad de laboratorio de la OMS y en el Real Decreto 664/1997, de 12

de mayo, sobre la protección de los trabajadores contra los riesgos relacionados con la exposición a agentes biológicos durante el trabajo.

TOR9: SCIENTIFIC MEETINGS

21. Did your laboratory organise scientific meetings related to the pathogen in question on behalf of WOA?H?

No

22. Did your laboratory participate in scientific meetings related to the pathogen in question on behalf of WOA?H?

Yes

Title of event	Date	location	Role (speaker, presenting poster, short communications)	Title of the work presented
WOAH Ad-hoc committee on replacement of ISBT and ISAT tuberculin standards	2024-09-03	online	participante	

TOR10: NETWORK WITH WOA?H REFERENCE LABORATORIES

23. Did your laboratory exchange information with other WOA?H Reference Laboratories designated for the same pathogen or disease?

Yes

24. Do you network (collaborate or share information) with other WOA?H Reference Laboratories designated for the same pathogen?

Yes

NETWORK/DISEASE	ROLE OF YOUR LABORATORY (PARTICIPANT, ORGANISER, ETC)	NO. PARTICIPANTS	PARTICIPATING WOA?H REF. LABS
EU-RL for bovine tuberculosis	Organizador	27	ANSES, Francia

25. Did you organise or participate in inter-laboratory proficiency tests with WOA?H Reference Laboratories designated for the same pathogen during the past 2 years?

Yes

Purpose of the proficiency test:	Role of your Reference Laboratory (organiser/ participant)	No. participating Laboratories	Participating WOA?H Ref. Labs/ organising WOA?H Ref Lab
Cultivo y PCR directa de tejidos	Organizador	28	2
IFN-gamma ELISA	Organizador	14	2
Caracterización molecular de MTBC	Organizador	13	2

26. Did your laboratory collaborate with other WOA?H Reference Laboratories for the same disease on scientific research projects for the diagnosis or control of the pathogen of interest?

No

TOR11: OTHER INTERLABORATORY PROFICIENCY TESTING

27. Did your laboratory organise or participate in inter-laboratory proficiency tests with laboratories other than WOAHA Reference Laboratories for the same pathogen during the past 2 years?

Yes

Purpose for inter-laboratory test comparisons ¹	Role of your reference laboratory (organizer/participant)	No. participating laboratories	Name of the test	WOAH Member Countries
Detección de IFN-gamma mediante ELISA	Organizador	14	PROFICIENCY TESTING FOR THE INTERFERON GAMMA RELEASE ASSAY (2024)	AUSTRIA, BELGIUM, COSTA RICA, FRANCE, GERMANY, GREECE, IRELAND, ISRAEL, ITALY, NORWAY, PORTUGAL, SPAIN, SWITZERLAND,
Aislamiento y detección mediante PCR de MTBC en tejidos animales	Organizador	28	PROFICIENCY TESTING FOR THE BACTERIOLOGICAL CULTURE AND DIRECT DETECTION OF MEMBERS OF THE Mycobacterium tuberculosis COMPLEX IN BOVINE TISSUES (2024)	AUSTRIA, BELGIUM, BULGARIA, COSTA RICA, CROATIA, CYPRUS, CZECH REPUBLIC, DENMARK, FINLAND, FRANCE, GERMANY, GREECE, HUNGARY, IRELAND, ISRAEL, ITALY, LATVIA, NORWAY, POLAND, PORTUGAL, ROMANIA, SLOVAKIA, SLOVENIA, SPAIN, SWEDEN, SWITZERLAND, THE NETHERLANDS,
Estudio histoquímico e inmunohistoquímico de Tuberculosis animal	Organizador	18	PROFICIENCY TESTING FOR PATHOLOGICAL DIAGNOSIS OF MEMBERS OF THE Mycobacterium tuberculosis COMPLEX (2024)	ALGERIA, AUSTRIA, CROATIA, CZECH REPUBLIC, FINLAND, GERMANY, GREECE, ITALY, LATVIA, PORTUGAL, ROMANIA, SLOVAKIA, SLOVENIA, SPAIN, SWEDEN, SWITZERLAND, THE NETHERLANDS,
Caracterización molecular de MTBC	Organizador	13	PROFICIENCY TESTING FOR THE MOLECULAR CHARACTERIZATION OF MEMBERS OF THE	AUSTRIA, CROATIA, DENMARK, FRANCE, GERMANY, IRELAND, ITALY, LATVIA, PORTUGAL,

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Aislamiento y detección mediante PCR de MTBC en tejidos animales	Participante	13	Mycobacterium tuberculosis COMPLEX (2023)	SPAIN, SWITZERLAND, THE NETHERLANDS,
			Ensayo de intercomparación para la Detección de micobacterias del complejo CMT en muestras clínicas: PCR directa y cultivo microbiológico	SPAIN,
Detección de IFN- gamma mediante ELISA	Participante	1	Ensayo de intercomparación para las técnicas de serodiagnóstico de tuberculosis bovina: gamma interferón	SPAIN,

TOR12: EXPERT CONSULTANTS

28. Did your laboratory place expert consultants at the disposal of WOA?

Yes

Kind of consultancy	Location	Subject (facultative)
grupo ad hoc Replacement International Standard Bovine and AvianTuberculin	Online	Evaluación de la actividad biológica de distintas tuberculinas candidatas a sustituir a los estándares internacionales

29. Additional comments regarding your report:

Yes

Tenemos disponibles en la página web del Laboratorio Europeo de Referencia para la Tuberculosis Bovina varios protocolos e información relevante para su consulta en abierto, que se pueden visualizar en las secciones de tuberculosis animal o en bases de datos (<https://www.visavet.es/bovinetuberculosis/>).