OIE Reference Laboratory Reports Activities

Activities in 2021

This report has been submitted : 2022-01-04 17:49:56

Name of disease (or topic) for which you are a designated OIE Reference Laboratory:	Bovine tuberculosis
Address of laboratory:	Laboratoire National de Référence Tuberculose, Unité Zoonoses Bactériennes, Laboratoire de Santé Animale de Maisons-Alfort, ANSES 14, rue Pierre et Marie Curie, 94701 Maisons-Alfort Cedex France
Tel.:	+33 (0)1 49 77 13 00
Fax:	+33 (0)1 49 77 13 44
E-mail address:	Maria-laura.boschiroli@anses.fr
Website:	https://www.anses.fr/fr
Name (including Title) of Head of Laboratory (Responsible Official):	Dr. Pascal BOIREAU, Head of the Animal Health Laboratory, Anses, Maisons-Alfort
Name (including Title and Position) of OIE Reference Expert:	Dr. María Laura Boschiroli-Cara, Research Director, Head of the Tuberculosis National Reference Laboratory
Which of the following defines your laboratory? Check all that apply:	Governmental Research

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	
Indirect diagnostic tests		Nationally	Internationally
Tuberculine batch control	yes	12	0
Serology (Suidae)	no	2249	0
IFNg test	yes	24	0
Direct diagnostic tests		Nationally	Internationally
Culture	yes	7	0
Strain identification	yes	482	0
Spoligotying	yes	976	0
MLVA	yes	239	0
Whole genome sequencing	yes	24	0
Molecular diagnosis	yes	2229	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
Mycobacterium avium D4ER immunogen	tuberculin acitivity control	Bovine Tuberculosis French National Reference Laboratory	0	25 ml X 1	1	☐Africa ☐Americas ☐Asia and Pacific ☒Europe ☐Middle East
Plasma containing bovine IFNg	IFNg test (Elisa)	Bovine Tuberculosis French National Reference Laboratory	500 µl X 13	0	1	☐Africa ☐Americas ☐Asia and Pacific ☒Europe ☐Middle East
Crushed lymph node spiked with titrated M. bovis	molecular diagnosis - PCR	Bovine Tuberculosis French National Reference Laboratory	1.8 ml X 7	0	1	☐Africa ☐Americas ☐Asia and Pacific ☒Europe ☐Middle East
Lyophilised TB positive Suidae serum	Serology (Elisa)	Bovine Tuberculosis French National Reference Laboratory	1 ml X 20	1 ml X 1	2	☐Africa ☐Americas ☐Asia and Pacific ☒Europe ☐Middle East
Infected suidae blood-soaked filter papers	Serology (Elisa)	Bovine Tuberculosis French National Reference Laboratory	5 spots X18	0	1	☐Africa ☐Americas ☐Asia and Pacific ☐Europe ☐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
TUNISIA	May 2021	32	0

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

Yes

Name of the OIE Member Country receiving a technical consultancy	Purpose	How the advice was provided
TUNISIA	surveillance of TB in wild boars	SOP for blood collection on filter papers Serological analyses (Elisa)
ITALY	surveillance and diagnostics of TB in pinnipeds	Advice expertise (SOP)
BELGIUM	Mycobacterial infection surveillance in wild deer	Advice expertise (SOP)
MALAYSIA	TB direct diagnosis	Advice expertise (SOP)

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
OIE Project to Replace the International Standard for Bovine Tuberculin (ISBT)	7 years	Evaluate, calibrate and validate a replacement for the OIE's International Standar for Bovine Tuberculin (ISBT)	1) World Organisation for Animal Health (OIE); Paris; France, 2) Gerencia de Laboratorios (GELAB) del Servicio Nacional de Sanidad y Calidad Agroalimentaria (SENASA), Buenos Aires, Argentina 3) Anses, Unité Zoonoses Bactériennes, Laboratoire de Santé Animale, Maisons-Alfort, France 4) National Veterinary Services Laobratories, USDA, Aphis Veterinary Services, Ames, Iowa, United Sates 5) Animal and Plant Health Agency (APHA), Surrey, United Kingdom 6) MHRA-NIBSC, Potters Bar, United Kingdom 7) European Union Reference Laboratory for Bovine Tuberculosis, VISAVET Health Surveillance Centre, Universidad Complutense Madrid, Madrid, Spain 8) Wageningen Bioveterinary Research (WBVR), Lelystad; The Netherlands 9) DG Santé, European Commission, Bruxelles, Belgium	ARGENTINA
Innotub-Poctefa	3 years	To create a scientific network of excellence to improve the control and surveillance of tuberculosis in livestock and wildlife in the trans-Pyrenees region.	ANSES Laboratoire de Santé animale, UZB ANSES Laboratoire de la Rage et de la Faune sauvage Ecole nationale vétérinaire de Toulouse (ENVT) Institut de Recerca i Tecnologia Agroalimentàries (IRTA) Universitat Autònoma de Barcelona (UAB) Institut basque de recherche et de développement agricole (NEIKER)	SPAIN
Consortium ZOE - Zoonoses under a One health perspective in the EU	4 years	Provision of support to EFSA and to ECDC in the production of the EU One Health Zoonoses report and in related zoonoses online interactive data visualisation dashboards and zoonoses story maps	ISZ-ISS	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:
Second line analyses confirming TB outbreaks in different wild or domestic-livestock species. Gengotypic characterisation of TB causative agents.

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:
The European Union summary report on trends and sources of zoonoses, zoonotic agents and food-borne outbreaks in 2020. Surveillance de la tuberculose due à Mycobacterium bovis en France métropolitaine en 2018 : résultats et indicateurs de fonctionnement. Bulletin Epidémiologique Santé Animale Alimentation 94 Analyse descriptive de la situation sanitaire de la tuberculose à Mycobacterium bovis en région nouvelle-aquitaine en 2018. Bulletin Epidémiologique Santé animale Alimentation 94.

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: 5
International:

Michelet, L., C. Richomme, E. Réveillaud, K. De Cruz, J-L. Moyen et ML. Boschiroli. 2021. "Mycobacterium microti Infection in Red Foxes in France." Microorganisms 9 (6): 1257.

Remot, A., F. Carreras, A. Coupé, E. Doz-Deblauwe, ML. Boschiroli, J. A. Browne, Q. Marquant, D. Descamps, F. Archer, A. Aseffa, P. Germon, S. V. Gordon et N. Winter. 2021. "Mycobacterial Infection of Precision-Cut Lung Slices Reveals Type 1 Interferon Pathway Is Locally Induced by Mycobacterium bovis but Not M. tuberculosis in a Cattle Breed." Frontiers in Veterinary Science 8 (716). https://doi.org/10.3389/fvets.2021.696525.

National:

Michelet, L., S. Solanas, J. Tambosco, M. Grecchi, O. Gerard, A. Hartmann et ML. Boschiroli. 2021. "Réactions non spécifiques aux tests de dépistage ante mortem de la tuberculose bovine: investigations dans un centre de bovins reproducteurs." Epidémiol Santé Anim 77: 49-57.

Delavenne, C., S. Desvaux, ML. Boschiroli, S. Carles, P. Chaigneau, B. Dufour, B. Durand, K. Gache, F. Garapin, S. Girard, P. Jabert, N. Keck, E. Réveillaud, J. Rivière, C. Dupuy, and F. Chevalier. 2021. "Surveillance de la tuberculose due à Mycobacterium bovis en France métropolitaine en 2018 : résultats et indicateurs de fonctionnement." Bulletin Epidémiologique Santé Animale Alimentation 94.

Réveillaud, E. , ML. Boschiroli, P. Chaigneau, F. Chevalier, C. Delavenne, S. Desvaux, B. Dufour, K. Gache, F. Garapin, S. Girard, N. Keck, J-L. Moyen, T. Rambaud, C. Richomme, J. Rivière, C. Dupuy, and M. Mikaël. 2021. "Analyse descriptive de la situation sanitaire de la tuberculose à Mycobacterium bovis en région nouvelle-aquitaine en 2018." Bulletin Epidémiologique Santé animale Alimentation 94.

b) International conferences: 7
Charles, C. 2021. "PEMbo 3MT pitch." communication orale avec acte OHEJP ASM 2021, Virtual, 27-29 May.

Charles, C., L. Michelet, F. Biet et ML. Boschiroli. 2021. "In silico study of IS6110 sequences abundance and localisation evolution in three main Mycobacterium bovis French genotypes of endemic region." Poster Annual Scientific Meeting OHEJP 2021, Virtuelle, 9 au 11 juin 2021.

Charles, C., L. Michelet, F. Vorimore, T. Cochard, F. Biet et ML. Boschiroli. 2021. "New reference genomes of Mycobacterium bovis adapted a French genotype diversity." Poster Annual Scientific Meeting OHEJP 2021, Virtuelle, 9 au 11 juin 2021.

Duault, H., L. Michelet, ML. Boschiroli, B. Durand et L. Canini. 2021. "Evolutionary model for Mycobacterium bovis spoligotype SB0821 in the South-West of France, which came first: badger or cattle infection?" Communication orale sans acte Modelling in Animal Health conference - ModAH 2021 Virtuelle, 02 juillet 2021.

Richomme, C., S. Lesellier, F.J. Salguero, J.L. Barrat, J-M Boucher, J. Reys-Reys, S. Hénault, K. De Cruz, L. Michelet, K. Lyashchenko, C. O'Halloran, A. Balseiro et ML. Boschiroli. 2021. "Investigation on the role of red fox in TB maintenance community – second opus: experimental infection with a virulent field Mycobacterium bovis strain." communication orale sans acte 69th WDA /14th EWDA Joint Conference, virtual, 31/08 – 02/09

Vidal, E., J. Burgaya, L. Michelet, C. Arrieta-Villegas, G. Cantero, M. Di Bari, R. Nonno, ML. Boschiroli et B. Pérez de Val. 2021. "Infección experimental por Mycobacterium microti en topillo rojo (Myodes glareolus)." Communication orale sans acte XXXII Reunión de la Sociedad Española de Anatomía Patológica Veterinaria (SEAPV), virtual, 1 octobre 2021

Vidal, E., J. Burgaya, L. Michelet, C.A. Villegas, G. Cantero, M. Di Bari, R. Nono, ML. Boschiroli et B. Pérez de Val. 2021. "Experimental Mycobacterium microti infection in bank voles Myodes glareolus " Poster 69th WDA /14th EWDA Joint Conference, Virtual, 31/08 – 02/09.

c) National conferences: 7
Canini, L., G. Modenesi, A. Courcoul, ML. Boschiroli, B. Durand et L. Michelet. 2021. "Deciphering the role of host species in Mycobacterium bovis SB0120 spoligotype circulation within a cattle-badger-wild boar multi-hosts system." communication orale sans acte 2ème réunion annuelle du réseau PhyloMAP, virtuelle, 19/11/2021.

Charles, C. 2021. "Occurrence of variable insertion sites and copy numbers of IS6110 in genomes of Mycobacterium bovis field strains." Communication orale avec acte ABIES Days 2021, Paris, 6 et 7 mai 2021.

Charles, C., L. Michelet, F. Biet et ML. Boschiroli. 2021. "The insertion sequence IS6110 could play a role in genome plasticity of Mycobacterium bovis strains isolated from French bTB endemic regions." Poster Microbes 2021, 16ème congrès national de la SFM, Nantes, 22-24 septembre 2021.

Charles, C., L. Michelet, C. Conde, F. Biet et ML. Boschiroli. 2021. "The insertion sequence IS6110 could play a role in genome plasticity of Mycobacterium bovis strains isolated from French bTB endemic regions." Poster JSDA, Virtuelle, septembre 2021.

Michelet, L., L. Canini, B. Durand et ML. Boschiroli. 2021. "Contribution du WGS à la surveillance de la tuberculose bovine " Communication orale avec acte Rencontres Nationales de Santé Publique Vétérinaire et Environnementale, Tours, 30 septembre 2021.

Michelet, L., S. Solanas, J. Tambosco, M. Grecchi, O. Gerard, A. Hartmann et ML. Boschiroli. 2021. "Réactions non spécifiques aux tests de dépistage ante mortem de la tuberculose bovine: investigations dans un centre de bovins reproducteurs." Communication orale avec acte Journées Scientifiques de l'AEEMA, Virtuelle, 21 mai 2021.

Michelet, L., S. Solanas, J. Tambosco, A. Hartmann et ML. Boschiroli. 2021. "Réactions non spécifiques aux tests de dépistage ante mortem de la tuberculose bovine: développement d'une puce PCR haut débit et ses applications." Communication orale avec acte JSDA, Virtuelle, 13 septembre 2021.

d) Other:
(Provide website address or link to appropriate information) 1
AVIS et RAPPORT de l'Anses relatif à une demande d'évaluation du rôle épidémiologique du renard dans la transmission de la tuberculose bovine:
https://www.anses.fr/fr/content/avis-et-rapport-de-lanses-relatif-%C3%A0-une-demande-d%C3%A9valuation-du-r

%C3%B4le-%C3%A9pid%C3%A9miologique-du

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?

No

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)
ISO 17025	1-2246.pdf

16. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Culture	COFRAC
PCR	COFRAC

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?

No

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?

Yes

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?

No

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?

Yes

Title of the project or contract	Scope	Name(s) of relevant OIE Reference Laboratories
OIE Project to Replace the International Standard for Bovine Tuberculin (ISBT)	Evaluate, calibrate and validate a replacement for the OIE's International Standar for Bovine Tuberculin (ISBT)	Argentina, United Kingdom

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[1]	No. participating laboratories	Region(s) of participating OIE Member Countries
Serodiagnosis of TB in suidae (ORGANISER)	14	☐Africa ☐Americas ☐Asia and Pacific ☒Europe ☐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: