

OIE Reference Laboratory Reports Activities

Activities in 2019

This report has been submitted : 2020-01-15 16:05:39

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
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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

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	
		Nationally	Internationally
Indirect diagnostic tests		Nationally	Internationally
Tuberculine batch control	yes	9	6
Serology (wild boar)	no	1189	
IFNg test (Elisa)	yes	2673	
Serology (cattle)	yes	359	
Direct diagnostic tests		Nationally	Internationally
Culture	yes	24	
Strain identification	yes	545	
Spoligotyping	yes	899	
MLVA	yes	139	
Whole genome sequencing	no	592	
Molecular diagnosis	yes	1585	

**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?

No

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?

No

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
PERU	Expertise on quality of commercial tuberculines and field use	remote (e-mail correspondence)

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)	2 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 Laboratories, USDA, Aphis Veterinary Services, Ames, Iowa, United States 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
Experimental Infection of Red Fox (<i>Vulpes vulpes</i>) with a naturally virulent <i>Mycobacterium bovis</i> strain (Vetbionet)	2 years	Assess the epidemiological role of the red fox in bovine tuberculosis transmission cycle the	SERIDA, Spain APHA, UK PHE, UK	UNITED KINGDOM

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 Genotypic 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 2018

**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: 12
International (8):

Dequeant, B., Q. Pascal, H. Bilbault, E. Dagher, M. L. Boschioli, N. Cordonnier, and E. Reyes-Gomez. "Identification of Mycobacterium Genavense Natural Infection in a Domestic Ferret." *J Vet Diagn Invest* 31, no. 1 (Jan 2019): 133-36.

Hauer, A., L. Michelet, T. Cochard, M. Branger, J. Nunez, M. L. Boschioli, and F. Biet. "Accurate Phylogenetic Relationships among Mycobacterium Bovis Strains Circulating in France Based on Whole Genome Sequencing and Single Nucleotide Polymorphism Analysis." *Front Microbiol* 10 (2019): 955.

Lesellier, S., M. L. Boschioli, J. Barrat, C. Wanke, F. J. Salguero, W. L. Garcia-Jimenez, A. Nunez, et al. "Detection of Live *M. Bovis* Bcg in Tissues and Ifn-Gamma Responses in European Badgers (*Meles Meles*) Vaccinated by Oropharyngeal Instillation or Directly in the Ileum." *BMC Vet Res* 15, no. 1 (Dec 6 2019): 445.

Michelet, L., C. Conde, M. Branger, T. Cochard, F. Biet, and M. L. Boschioli. "Transmission Network of Deer-Borne Mycobacterium Bovis Infection Revealed by a Wgs Approach." *Microorganisms* 7 (2019): 687.

Pérez de Val, B., A. Sanz, M. Soler, A. Allepuz, L. Michelet, M. L. Boschioli, and et al. "Mycobacterium Microti Infection in Free-Ranging Wild Boar, Spain, 2017-2019." *Emerging Infectious Diseases* 25, no. 11 (2019): 2152-54.

Praud, A., C. Bourely, M. L. Boschioli, and B. Dufour. "Assessment of the Specificity of a Gamma-Interferon Test Performed with Specific Antigens to Detect Bovine Tuberculosis, after Non-Negative Results to Intradermal Tuberculin Testing." *Vet Rec Open* 6, no. 1 (2019): e000335.

Réveillaud, E., S. Desvaux, M. L. Boschioli, J. Hars, E. Faure, A. Fediaevsky, L. Cavalerie, et al. "Mycobacterium Bovis Infection of Wildlife in France." *OIE Bulletin Panorama 2019-1* : "Controlling Bovine Tuberculosis : A One Health Challenge" (2019).

Richomme, C., A. Courcoul, J. L. Moyen, E. Reveillaud, O. Maestrini, K. de Cruz, A. Drapeau, and M. L. Boschioli. "Tuberculosis in the Wild Boar: Frequentist and Bayesian Estimations of Diagnostic Test Parameters When Mycobacterium Bovis Is Present in Wild Boars but at Low Prevalence." *PLoS One* 14, no. 9 (2019): e0222661.

National (4):

Deffontaines, G., F. Vayr, E. Rigaud, D. Brenot, M. L. Boschioli, V. Caron, T. Comolet, et al. "Guidelines for Monitoring Workers after Occupational Exposure to Bovine Tuberculosis." *Médecine et Maladies infectieuses* (2019).

Delavenne, C., F. Pandolfi, S. Girard, E. Reveillaud, P. Jabert, M. L. Boschioli, L. Dommergues, et al. "Tuberculose Bovine : Bilan Et Évolution De La Situation Épidémiologique Entre 2015 Et 2017 En France Métropolitaine." *Bulletin épidémiologique 88 - hors série spécial MRE* (2019).

Michelet, L., A. Courcoul, B. Durand, and M. L. Boschioli. "Reconstitution Des Scénarios De Transmission De Mycobacterium Bovis Entre Animaux Domestiques Et Sauvages." *Epidémiologie et santé animale* 74 (2018): 81-90.

Michelet, L., B. Durand, and M. L. Boschioli. "Tuberculose Bovine : Bilan Génotypique De M. Bovis À L'origine Des Foyers Bovins Entre 2015 Et 2017 En France Métropolitaine." *Bulletin épidémiologique, santé animale et alimentation* 88 - hors série spécial MRE (2019).

b) International conferences: 2

Boschioli, M. L. "An Easy Way to Detect Tb in Wild Boar by Serology." In 7th EURL for Bovine tuberculosis workshop. Madrid (Spain), 2019.

Michelet, L. "Investigation of Mycobacterium Bovis Infection Linked to Deer Breeding and Animal Parks in France Using Wgs." In 7th EURL for Bovine Tuberculosis Workshop. Madrid (Spain), 2019.

c) National conferences: 4

Boschioli, M. L., and I. Tourette. "Tuberculose Bovine : Evolution Des Outils De Dépistage Et De Diagnostic Et Implications Sur Le Terrain." In *Colloque Santé Animale et Innovation*. Poitiers, 2019.

Cochard, T., A. Samba-Louaka, M. Branger, V. Delafont, W. Aucher, J-L. Moyen, L. Malherbe Duluc, et al. "Survie Environnementale De Mycobacterium Avium Spp. Paratuberculosis Et Mycobacterium Bovis : Rôle Des Amibes Libres Dans L'épidémie De La Tuberculose Bovine Et De La Paratuberculose." In *Congrès Mycobactéries 2019*. Angers, France, 2019.

Conde, C., L. Michelet, M. Branger, T. Cochard, F. Biet, and M. L. Boschioli. "Propagation Scenario of Mycobacterium Bovis Strains Circulating in French Hunting Parks/Estates by Wgs Approach." In *Congrès Mycobactéries 2019*. Angers, 2019.

Remot, A., F. Carreras, E. Doz, M. L. Boschioli, F. Biet, S. Gordon, and N. Winter. "The Study of Bovine Tuberculosis through a One Health Approach." In *Journées d'animation scientifique de la fédération de recherche en infectiologie*. Joué-les-Tours, 2019.

d) Other:

(Provide website address or link to appropriate information) 3

Alonso, B., M. L. Boschioli, and G. Hewinson. "Oie Reference Laboratory for Bovine Tuberculosis." *OIE Bulletin Panorama* (Janvier 2019 2019).

Gifford, G., B. Alonso, M. L. Boschioli, A. Caminiti, R. Capsel, S. Edwards, G. Hewinson, et al. "Oie Project to Replace International Standard Bovin Tuberculin - Controlling Bovine Tuberculosis : A One Health Challenge." *OIE Bulletin Panorama* 2019-1 (Janvier 2019 2019).

Gifford, G., B. Alonso, M. L. Boschioli, A. Caminiti, R. Capsel, S. Edwards, G. Hewinson, et al. "Controlling Bovine Tuberculosis : A One Health Challenge." *OIE Bulletin Panorama* 2019-1 (2019).

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

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?

Yes

Purpose of the proficiency tests: ¹	Role of your Reference Laboratory (organiser/ participant)	No. participants	Participating OIE Ref. Labs/ organising OIE Ref. Lab.
IFNg test	organiser	10	France
Culture and PCR	organiser	18	France

¹ validation of a diagnostic protocol: specify the test; quality control of vaccines: specify the vaccine type, etc.

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)	Animal and Plant Health Agency (APHA), Surrey, United Kingdom Gerencia de Laboratorios (GELAB) del Servicio Nacional de Sanidad y Calidad Agroalimentaria (SENASA), Buenos Aires, Argentina

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?

No

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

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?

Yes

Kind of consultancy	Location	Subject (facultative)
Responding to specific technical queries from OIE	Paris	Technical issues in relationship to diagnostic tests and reagents to use and the causative agents of bovine TB
Reviewing of scientific papers for the Revue Scientifique et Technique OIE	Paris	
Ad hoc working groups	Paris	Replacement of the International Standard Bovine Tuberculin Kick off meeting for the establish of an OIE Virtual Biobank
Revision of the Terrestrial Manual Chapter 3.4.6 Bovine Tuberculosis	Paris	

25. Additional comments regarding your report: