

OIE Reference Laboratory Reports Activities

Activities in 2021

This report has been submitted : 2022-01-18 08:05:57

| | |
|--|---|
| Name of disease (or topic) for which you are a designated OIE Reference Laboratory: | Bovine babesiosis |
| Address of laboratory: | Obihiro University of Agriculture and Veterinary Medicine Nishi 2-13, Inada-cho Obihiro, Hokkaido 080-8555 JAPAN |
| Tel.: | +81-155 49.56.49 |
| Fax: | +81-155 49.56.43 |
| E-mail address: | yokoyama@obihiro.ac.jp |
| Website: | https://www.obihiro.ac.jp/facility/protozoa/en/oie-reference-centres |
| Name (including Title) of Head of Laboratory (Responsible Official): | Prof. Naoaki Yokoyama, DVM, PhD |
| Name (including Title and Position) of OIE Reference Expert: | Prof. Naoaki Yokoyama, DVM, PhD |
| Which of the following defines your laboratory? Check all that apply: | Academic |

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 |
| ELISA | Yes | 0 | 0 |
| Direct diagnostic tests | | Nationally | Internationally |
| Babesia bovis PCR | Yes | 0 | 305 |
| Babesia bigemina PCR | Yes | 0 | 305 |
| Babesia sp. Mymensingh PCR | No | 0 | 305 |
| Babesia ovata PCR | No | 129 | 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?

Yes

NOTE: Currently, there are 22 laboratories that produce Standard Reference Reagents officially recognised by the OIE for 19 diseases/pathogens. Please click the following link to the list of OIE-approved International Standard Sera: <http://www.oie.int/en/our-scientific-expertise/veterinary-products/reference-reagents/>. If the reagent is not listed on this page, it is NOT considered OIE-approved. The next two questions allow you to indicate non-OIE-approved diagnostic reagents.

| Disease | Test | Available from |
|---------|------|----------------|
|---------|------|----------------|

| Type of reagent available | Related diagnostic test | Produced/ Supply imported | Amount supplied nationally (ml, mg) | Amount supplied internationally (ml, mg) | Name of recipient OIE Member Countries |
|---|-------------------------|---------------------------|---|---|--|
| Babesia divergens IFAT slides (Nos. 10) | IFAT | Produced and supplied | <input checked="" type="radio"/> <10mL <input type="radio"/> 10-100mL <input type="radio"/> 100-500mL <input type="radio"/> >500mL | <input checked="" type="radio"/> <10mL <input type="radio"/> 10-100mL <input type="radio"/> 100-500mL <input type="radio"/> >500mL | AUSTRIA |

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?

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 |
|---|-------------------|--|--|
| MONGOLIA | March | 305 | 0 |
| JAPAN | July and November | 129 | 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 |
|--|---|-----------------------------|
| SRI LANKA | Isolation and in vitro cultivation of bovine Babesia species | Electronic consultation |
| KYRGYZSTAN | Research plan for epidemiological survey of bovine babesiosis | Electronic consultation |
| NEW CALEDONIA | Serosurvey of bovine babesiosis | Electronic consultation |
| MONGOLIA | Role of non-cattle hosts in the epidemiology of bovine babesiosis | Electronic consultation |

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 |
|--|----------|---|---|---|
| Prevalence, causative agents, and presentation of clinical babesiosis in cattle in Sri Lanka | 4 years | To determine the prevalence, causative Babesia species, and characteristics of clinical bovine babesiosis in Sri Lanka | Veterinary Research Institute | SRI LANKA |
| Epidemiology, isolation, and in vitro cultivation of bovine Babesia species in Thailand | 3 years | To determine the current status of bovine Babesia infections and to cultivate local isolates in Thailand | Faculty of Veterinary Medicine, Chiang Mai University | THAILAND |
| Molecular epidemiology of bovine Babesia species in yaks, Bactrian camels, and small ruminants in Mongolia | 4 years | To identify the non-cattle hosts for bovine Babesia species | Institute of Veterinary Medicine, Mongolian University of Life Sciences | MONGOLIA |
| Isolation and In vitro cultivation of Babesia species from cattle in Vietnam | 3 years | To isolate and cultivate B. bovis, B. bigemina, Babesia sp. Mymensingh, and Babesia sp. Hue-1 from infected cattle in Vietnam | Hue University of Agriculture and Forestry | VIETNAM |
| Epidemiological survey of bovine babesiosis in Kyrgyzstan | 3 years | To determine the current status of bovine babesiosis in Kyrgyzstan | Kyrgyz Research Institute of veterinary named after A Duisheev | KYRGYZSTAN |

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:

We surveyed Bactrian camels in Mongolia for Babesia bovis, B. bigemina, and Babesia sp. Mymensingh. We also collected global epidemiological data of bovine babesiosis from published articles.

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:

We published the findings from the Bactrian camel survey in Mongolia in an international scientific journal. In addition, we prepared epidemiological maps of *Babesia bovis*, *Babesia bigemina*, *Babesia divergens*, and *Babesia* sp. Mymensingh, using the collected epidemiological data, and posted them on the website for OIE reference laboratory for bovine babesiosis (<https://www.obihiro.ac.jp/facility/protozoa/en/oie-rl-bb-bb>).

**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: 3

Li, Y., Rizk, M.A., Galon, E.M., Liu, M., Li, J., Ringo, A.E., Ji, S., Zafar, I., Tumwebaze, M.A., Benedicto, B., Yokoyama, N., Igarashi, I., Chahan, B., Xuan, X., 2021. Discovering the Potent Inhibitors Against *Babesia bovis* in vitro and *Babesia microti* in vivo by Repurposing the Natural Product Compounds. *Front. Vet. Sci.* 8, 762107.

Otgonsuren, D., Sivakumar, T., Amgalanbaatar, T., Enkhtaivan, B., Narantsatsral, S., Davaasuren, B., Zoljargal, M., Munkhgerel, D., Davkharbayar, B., Batmagnai, E., Tuvshintulga, B., Ahedor, B., Myagmarsuren, P., Battur, B., Battsetseg, B., Yokoyama, N., 2021. Molecular survey of bovine *Babesia* species in Bactrian camels (*Camelus bactrianus*) in Mongolia. *Ticks Tick Borne Dis.* 13, 101871.

Rittipornlertrak, A., Nambooppha, B., Muenthaisong, A., Punyapornwithaya, V., Tiwananthagorn, S., Chung, Y.T., Tuvshintulga, B., Sivakumar, T., Yokoyama, N., Sthitmatee, N., 2021. Structural and immunological characterization of an epitope within the PAN motif of ectodomain I in *Babesia bovis* apical membrane antigen 1 for vaccine development. *PeerJ.* 9, e11765.

b) International conferences: 0

c) National conferences: 0

d) Other:

(Provide website address or link to appropriate information) 1

<https://www.obihiro.ac.jp/facility/protozoa/en/oie-reference-centres>

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?

Yes

a) Technical visits: 0

b) Seminars: 17

c) Hands-on training courses: 0

d) Internships (>1 month): 0

| 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 | Vietnam | 2 |
| b | Thailand | 2 |
| b | Myanmar | 1 |
| b | Kyrgyzstan | 2 |
| b | Japan | 7 |
| b | Paraguay | 1 |
| b | Nigeria | 1 |
| b | Sri Lanka | 1 |

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) |
|-----------------------------------|---|
| ISO17025:2017 | □□□□□□.pdf |

16. Is your quality management system accredited?

Yes

| Test for which your laboratory is accredited | Accreditation body |
|--|--|
| PCR for Babesia bovis | Perry Johnson laboratory Accrediation, Inc. (PJLA) |
| PCR for Babesia bigemina | Perry Johnson laboratory Accrediation, Inc. (PJLA) |

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?

Yes

| Title of event | Date (mm/yy) | Location | Role (speaker, presenting poster, short communications) | Title of the work presented |
|--|--------------|---------------------|---|---|
| AAVS-OIE-UGM Session on Collaboration between VEEs and International Organizations in Asia | 3/2021 | Indonesia (virtual) | Speaker | An introduction to our collaboration with OIE |

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?

No

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?

No

25. Additional comments regarding your report: