World Organisation for Animal Health

Naoaki Yokoyama - - JAPAN

WOAH Reference Laboratory Reports Activities 2025

This report has been submitted: 26 janvier 2026 06:14

LABORATORY INFORMATION

***Name of disease (or topic) for which you are a designated WOAH Reference Laboratory:**	Bovine babesiosis
***Address of laboratory:**	National Research Center for Protozoan Diseases, Obihiro University of Agriculture and Veterinary Medicine, Nishi 2-13, Inada-cho, Obihiro, Hokkaido 080-8555, Japan
***Tel:**	+81-155 49.56.49
***E-mail address:**	yokoyama@obihiro.ac.jp
Website:	https://www.obihiro.ac.jp/facility/protozoa/en/woah-reference-centres
***Name (including Title) of Head of Laboratory (Responsible Official):**	Prof. Naoaki Yokoyama
***Name (including Title and Position) of WOAH Reference Expert:**	Prof. Naoaki Yokoyama
***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	
Indirect diagnostic tests		Nationally	Internationally
Direct diagnostic tests		Nationally	Internationally
Microscopy	Yes	439	12
Bovine Babesia PCR	No	359	0
Babesia bovis PCR	Yes	0	12
Babesia bigemina PCR	Yes	0	12
Babesia naoakii PCR	No	0	12
Babesia ovata PCR	No	632	0
In vitro cultivation	Yes	0	12

TOR2: REFERENCE MATERIAL

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

No

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

Yes

Type of reagent available	Related diagnostic test	Produced/ provide	Amount supplied nationally (ml, mg)	Amount supplied internationally (ml, mg)	No. of recipient WOAH Member Countries	Country of recipients
Babesia bovis blood smear	Microscopy	Produced and provided	9 slides	3 slides	2	JAPAN, SRI LANKA,
Babesia bigemina blood smear	Microscopy	Produced and provided	9 slides	3 slides	2	JAPAN, SRI LANKA,
Babesia naoakii DNA	PCR	Produced and provided	0	0.01 MG	1	THAILAND,

4. Did your laboratory produce vaccines?

No

5. Did your laboratory supply vaccines to WOAH Members?

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 WOAH Standards for the designated pathogen or disease?

No

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

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

TOR4: DIAGNOSTIC TESTING FACILITIES

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

Yes

Name of WOAH 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
SRI LANKA	2025-02-15	Microscopy	0	12
SRI LANKA	2025-02-15	PCR	12	0
SRI LANKA	2025-02-15	In vitro culture	0	12
JAPAN	2025-03-05	Microscopy	0	359
JAPAN	2025-03-12	PCR	359	0
JAPAN	2025-04-22	PCR	290	0
JAPAN	2025-05-21	PCR	53	0
JAPAN	2025-06-03	PCR	40	0
JAPAN	2025-06-03	Microscopy	0	20
JAPAN	2025-06-25	PCR	46	0
JAPAN	2025-06-30	PCR	20	0
JAPAN	2025-06-30	Microscopy	0	20
JAPAN	2025-07-29	PCR	20	0
JAPAN	2025-07-29	Microscopy	0	20
JAPAN	2025-07-31	PCR	100	0
JAPAN	2025-09-01	PCR	20	0
JAPAN	2025-09-01	Microscopy	0	20
JAPAN	2025-11-10	PCR	42	0
JAPAN	2025-12-03	PCR	1	0

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

Yes

Name of the WOAH Member Country receiving a technical consultancy	Purpose	How the advice was provided
KYRGYZSTAN	Management of clinical bovine babesiosis	In person and electronic consultation
GHANA	Surveillance of bovine babesiosis	In person and electronic consultation
THAILAND	Molecular diagnosis of Babesia naoakii	In person and electronic consultation
JAPAN	Diagnosis, surveillance, treatment, and prevention of bovine babesiosis	In person and electronic consultation
SRI LANKA	Monitoring of clinical bovine babesiosis	In person

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

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

Yes

Title of the study	Duration	Purpose of the study	Partners (Institutions)	WOAH Member Countries involved other than your country
Epidemiological survey of bovine babesiosis	4 years	To determine the current status of bovine babesiosis in Kyrgyzstan	Kyrgyz Research Institute of veterinary named after A Duisheev	KYRGYZSTAN
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
Survey of Babesia species infecting cattle in Ghana	2 years	To identify major Babesia species infecting cattle in Ghana	Noguchi Memorial Institute for Medical Research, University of Ghana	GHANA

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

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:
We surveyed cattle in Japan and Sri Lanka for bovine Babesia species.

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:
The data from our epidemiological surveys were published in peer-reviewed international scientific journals (see the list of publication in 16a).

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:

6

1. Nakao S, Sivakumar T, Ohno A, Takakuwa Y, Suzuki H, Nakamura K, Ohta K, Tsuha O, Umemiya-Shirafuji R, Yokoyama N. 2025. Prevalence, risk factors, and clinical impact of Theileria orientalis infection in Japanese Black cattle in Okinawa, Japan. Trop Anim Health Prod. 57(9), 539.

2. Li Y, Cui Z, Li J, Zhang Y, Zafar I, Rizk MA, Li H, El-Sayed SAE, Yokoyama N, Guo Q, Xuan X, Chahan B. 2025. Leveraging topoisomerase II-mediated DNA damage: repurposing etoposide as a lead compound for apicomplexan parasite control. Front Vet Sci. 12, 1689833.

3. Ma Y, Sivakumar T, Mumbi NNM, Umemiya-Shirafuji R, Yokoyama N. 2026. An epidemiological survey of zoonotic Babesia species in questing ticks in Hokkaido, Japan, using a newly developed PCR-sequencing approach. Parasitol Int. 110, 103136.
4. Mumbi NNM, Rojas CES, Ahedor B, Ma Y, Valinotti MFR, Acosta TJ, Sivakumar T, Yokoyama N. 2025. Prevalence and genetic diversity of Theileria and Anaplasma species infecting cattle in Paraguay. Parasitol Int. 109, 103116.
5. Rojas CES, Sivakumar T, Mumbi NNM, Ahedor B, Valinotti MFR, Acosta TJ, Yokoyama N. 2025. Molecular epidemiological survey of Babesia species infecting cattle in Paraguay. Vet Parasitol Reg Stud Reports. 57, 101162.
6. Nakao S, Sivakumar T, Takakuwa Y, Suzuki H, Ohta K, Nakamura K, Tsuha O, Ikehara Y, Ikehara S, Ohki S, Inumaru M, Higa Y, Umemiya-Shirafuji R, Yokoyama N. 2025. Seasonal activities, morphological characteristics, and veterinary importance of Haemaphysalis mageshimaensis in Ishigaki and Yonaguni, Okinawa, Japan. Ticks Tick Borne Dis. 16(1), 102440.

b) International conferences:

0

c) National conferences:

1
Nakao et al., Prevalence, risk factors, and clinical impact of Theileria orientalis infection in Japanese Black cattle in Okinawa, Japan 168th meeting of the Japanese Society of Veterinary Science. September 3-6, 2025. Miyazaki, Japan.

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

1
https://www.obihiro.ac.jp/facility/protozoa/en/woah-reference-centres

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

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

Yes

a) Technical visit : 4

b) Seminars : 113

c) Hands-on training courses: 2

d) Internships (>1 month) 1

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
A	GHANA	1
A	KYRGYZSTAN	1
A	JAPAN	2
B	KYRGYZSTAN	1
B	GHANA	1
B	KENYA	2
B	INDIA	2
B	SRI LANKA	1
B	UGANDA	1
B	NIGERIA	1
B	MALAWI	1
B	CONGO (DEM. REP. OF THE)	1

B	JAPAN	102
C	KYRGYZSTAN	1
C	JAPAN	1
D	KYRGYZSTAN	1

TOR8: QUALITY ASSURANCE

18. Does your laboratory have a Quality Management System?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)	
ISO17025:2017	PDF	L25-132.pdf

19. 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)

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

Yes

n accordance with the applicable laws, our university has regulations to ensure the safety when conducting experiments with pathogens, animals, and gene editing. The expert committees regularly review and update these regulations. The expert committees on biorisk management review and approve research plans involving animals, pathogens, and gene manipulation only after a thorough review. All laboratories are routinely examined to ensure that all experiments are carried out safely. All laboratories and animal facilities, including the RL for bovine babesiosis, are run at the BSL2 standard.

TOR9: SCIENTIFIC MEETINGS

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

No

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

No

TOR10: NETWORK WITH WOAH REFERENCE LABORATORIES

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

Yes

24. Are you a member of a network of WOAH Reference Laboratories designated for the same pathogen?

No

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

No

No

26. Did your laboratory collaborate with other WOAH 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 WOAH Reference Laboratories for the same pathogen during the past 2 years?

Yes

Naoaki Yokoyama - - JAPAN

Purpose for inter-laboratory test comparisons1	Role of your reference laboratory (organizer/participant)	No. participating laboratories	Name of the test	WOAH Member Countries
Microscopic diagnosis of bovine babesiosis	Organizer	4	Microscopy	JAPAN,

TOR12: EXPERT CONSULTANTS

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

No

29. Additional comments regarding your report:

No