

WOAH Reference Laboratory Reports Activities 2025

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LABORATORY INFORMATION

*Name of disease (or topic) for which you are a designated WOA Reference Laboratory:	Equine piroplasmosis
*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
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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 WOA 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 WOA Manual (Yes/No)	Total number of test performed last year	
		Nationally	Internationally
Indirect diagnostic tests			
Theileria equi IFAT	Yes	0	17
Babesia caballi IFAT	Yes	0	17
Theileria equi cELISA	Yes	0	17
Babesia caballi cELISA	Yes	0	17
Direct diagnostic tests			
Theileria equi PCR	Yes	0	195
Babesia caballi PCR	Yes	0	195
Theileria equi in vitro culture	Yes	0	30
Babesia caballi in vitro culture	Yes	0	30
Microscopy	Yes	0	185

TOR2: REFERENCE MATERIAL

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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
Theileria equi IFAT slides	IFAT	Produced and provided	200 slides	2,355 slides	6	ARGENTINA, CHINA (PEOPLE'S REP. OF), FRANCE, JAPAN, THE NETHERLANDS, UNITED STATES OF AMERICA,
Babesia caballi IFAT slides	IFAT	Produced and provided	200 slides	2,275 slides	6	ARGENTINA, CHINA (PEOPLE'S REP. OF), FRANCE, JAPAN, THE NETHERLANDS, UNITED STATES OF AMERICA,
Theileria equi DNA	PCR	Produced and provided	0	0.05 MG	3	AUSTRALIA, CHINA (PEOPLE'S REP. OF), PORTUGAL,
Babesia caballi DNA	PCR	Produced and provided	0	0.05 MG	2	AUSTRALIA, PORTUGAL,
Theileria equi-infected horse serum	IFAT	Provided	1 ML	0	1	JAPAN,
Babesia caballi-infected horse serum	IFAT	Provided	1 ML	0	1	JAPAN,

4. Did your laboratory produce vaccines?

Not applicable

5. Did your laboratory supply vaccines to WOA?H 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 WOA?H 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 WOA?H Standards for the designated pathogen or disease?

TOR4: DIAGNOSTIC TESTING FACILITIES

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

Yes

Name of WOA?H 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
MALAWI	2025-01-05	PCR and Microscopy	185	0
SINGAPORE	2025-01-14	IFAT and cELISA	0	1
GERMANY	2025-01-16	IFAT and cELISA	0	1
UNITED KINGDOM	2025-02-03	IFAT and cELISA	0	1
SRI LANKA	2025-02-15	In vitro culture	0	30
ARGENTINA	2025-03-04	IFAT, cELISA, and PCR	0	10

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SINGAPORE	2025-08-07	IFAT and cELISA	0	3
UNITED STATES OF AMERICA	2025-12-25	IFAT and cELISA	0	1

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

Yes

Name of the WOA Member Country receiving a technical consultancy	Purpose	How the advice was provided
ARGENTINA	Choice of serodiagnostic assays	Electronic consultation
AUSTRALIA	Molecular diagnosis of equine piroplasmosis	Electronic consultation
THE NETHERLANDS	Diagnostic assays and interpretation of their results	Electronic consultation
CHILE	Molecular diagnosis of equine piroplasmosis	Electronic consultation
TURKEY	Molecular diagnosis of equine piroplasmosis	Electronic consultation
PORTUGAL	Molecular diagnosis of equine piroplasmosis	Electronic consultation
ITALY	Microscopic diagnosis of equine piroplasmosis	Electronic consultation
CHINA (PEOPLE'S REP. OF)	Microscopic diagnosis of equine piroplasmosis	In person and electronic consultation
SRI LANKA	Surveillance and in vitro cultivation of Theileria equi and Babesia caballi	In person
PHILIPPINES	Management of equine piroplasmosis	Electronic consultation
JAPAN	Diagnostic assays and interpretation of their results	In person and electronic consultation

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

12. Did your laboratory participate in international scientific studies in collaboration with WOA 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
In vitro cultivation of Theileria equi and Babesia caballi genotypes and their characterization	4 years	To assess the taxonomic, diagnostic, clinical, and therapeutic implications of Theileria equi and Babesia caballi genotypes	Faculty of Veterinary Medicine and Animal Science, University of Peradeniya	SRI LANKA
Molecular Survey and genotyping of Theileria equi and Babesia caballi in equines in Nigeria	2 years	To identify the Theileria equi and Babesia caballi genotypes infecting horses in Nigeria	Department of Veterinary Parasitology and Entomology, University of Maiduguri, Nigeria	NIGERIA
Survey of Theileria equi and Babesia caballi in presumed non-endemic regions in Argentina	5 years	To assess the risk for the transmission Theileria equi and Babesia caballi among horses in presumed non-endemic regions in Argentina	Clinica Equina S.R.L.	ARGENTINA
Molecular Survey and genotyping of Theileria equi and Babesia caballi in equines in Ghana	2 years	To identify the Theileria equi and Babesia caballi genotypes infecting horses in Ghana	Noguchi Memorial Institute for Medical Research, University of Ghana	GHANA
Genotypic diversity and vectors of Theileria equi and Babesia caballi in Kyrgyzstan	5 years	To identify the predominant genotypes and tick vectors of Theileria equi and Babesia caballi in Kyrgyzstan	Kyrgyz Research Institute of Veterinarysr	KYRGYZSTAN

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

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 equines in Malawi for Theileria equi, Babesia caballi, and their genotypes.

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:

2

1. 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.* 19, 12.
2. Chatanga E, Ahedor B, Atabek B, Kainga H, Kapalamula T, Razemba T, Nakao R, Nonaka N, Sivakumar T, Yokoyama N. 2025. An epidemiological survey of equine piroplasmiasis in donkeys and horses in Malawi. *Vet Parasitol Reg Stud Reports.* 63, 101315.

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/woah-reference-centres>

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

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

Yes

a) Technical visit : 9

b) Seminars : 178

c) Hands-on training courses: 15

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

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A	CHINA (PEOPLE'S REP. OF)	1
A	GHANA	1
A	KYRGYZSTAN	2
A	JAPAN	5
B	CHINA (PEOPLE'S REP. OF)	132
B	JAPAN	22
B	KYRGYZSTAN	1
B	GHANA	1
B	KENYA	2
B	MONGOLIA	3
B	PHILIPPINES	10
B	INDIA	2
B	SRI LANKA	1
B	UGANDA	1
B	NIGERIA	1
B	MALAWI	1
B	CONGO (DEM. REP. OF THE)	1
C	KYRGYZSTAN	2
C	CHINA (PEOPLE'S REP. OF)	2
C	JAPAN	8
C	KENYA	2
C	CONGO (DEM. REP. OF THE)	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)	
ISO/IEC 17025:2017	PDF	L25-132.pdf

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
PCR for Theileria equi	Perry Johnson laboratory Accrediation, Inc. (PJLA)
PCR for Babesia caballi	Perry Johnson laboratory Accrediation, Inc. (PJLA)

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

Yes

In 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 equine piroplasmosis, 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 WOAHP?

No

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

No

TOR10: NETWORK WITH WOAHP REFERENCE LABORATORIES

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

Yes

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

No

25. Did you organise or participate in inter-laboratory proficiency tests with WOAHP 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 WOAHP Ref. Labs/ organising WOAHP Ref Lab
Microscopic diagnosis of equine piroplasmosis	Organizer	2	WOAHP Reference Laboratory for Babesiosis, National Reference Center for Anaplasma, Babesia, Rickettsia and Theileria, Istituto Zooprofilattico Sperimentale della Sicilia, Palermo, Italy

26. Did your laboratory collaborate with other WOAHP 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 WOAHP Reference Laboratories
Development of improved diagnostics for equine piroplasmosis	To develop diagnostic assays for field application	WOAHP Reference Laboratory for Equine Piroplasmosis, Indian Council of Agricultural Research-National Research Center on Equines (ICAR-NRCE), India

TOR11: OTHER INTERLABORATORY PROFICIENCY TESTING

27. Did your laboratory organise or participate in inter-laboratory proficiency tests with laboratories other than WOAHP 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	WOAHP Member Countries
Microscopic diagnosis of equine piroplasmosis	Organizer	5	Microscopy	CHINA (PEOPLE'S REP. OF), JAPAN, MONGOLIA,

TOR12: EXPERT CONSULTANTS

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

No

29. Additional comments regarding your report:

No