# WOAH Reference Laboratory Reports Activities 2022

# Activities in 2022

### This report has been submitted : 25 avril 2023 16:55

# Laboratory Information

Name of disease (or topic) for which you are a designated WOAH Reference Laboratory:	Surra
Address of laboratory:	Inada-cho Nishi 2-13 Obihiro, Hokkaido 080-8555 JAPAN
Tel.:	+81-155-495652
E-mail address:	ircpmi@obihiro.ac.jp
Website:	https://www.obihiro.ac.jp/facility/protozoa/en/oie
Name (including Title) of Head of Laboratory (Responsible Official):	Dr. Keisuke Suganuma, Assistant Prof., D.V.M., Ph.D.
Name (including Title and Position) of WOAH Reference Expert:	Dr. Noboru Inoue, Professor, D.V.M., Ph.D.
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)

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
PCR	YES	50	42

Microscopic test of blood smear	YES	50	12
			42

## **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
Total DNA, Trypanosoma evansi	PCR	PRODUCED / PROVIDE		50 micro g	1	MiddleEast
Total DNA, Trypanosoma brucei	PCR	PRODUCED / PROVIDE		50 micro g	1	MiddleEast
Total DNA, Trypanosoma vivax	PCR	PRODUCED / PROVIDE		50 micro g	1	MiddleEast
Total DNA, Trypanosoma equiperdum	PCR	PRODUCED / PROVIDE		50 micro g	1	MiddleEast
Total DNA, Trypanosoma equiperdum	PCR	PRODUCED / PROVIDE		50 ng	1	Africa
Total DNA, Trypanosoma congolense	PCR	PRODUCED / PROVIDE		50 ng	1	Africa
Crude Antigen, Trypanosoma equiperdum	PCR	PRODUCED / PROVIDE		22 mg	1	Africa

4. Did your laboratory produce vaccines?

No

5. Did your laboratory supply vaccines to WOAH Members?

No

# **TOR3: NEW PROCEDURES**

6. Did your laboratory develop new diagnostic methods for the designated pathogen or disease?

Yes

NAME OF THE NEW TEST OR DIAGNOSTIC METHOD DEVELOPED	DESCRIPTION AND REFERENCES (PUBLICATION, WEBSITE, ETC.)
	Recombinant TeGM6-4r-based immunochromatographic test and an enzyme-linked immunosorbent assay for animal trypanosomoses (Nagana, surra and dourine).

Immunochromatographic test and ELISA

#### (https://doi.org/10.1007/s00436-018-5982-8) (https://doi.org/10.1016/j.vetpar.2017.07.036)(https://doi.org/10.1007/s00436-015-4672-z)

7. Did your laboratory validate diagnostic methods according to WOAH Standards for the designated pathogen or disease?

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

No

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

No

# **TOR4: DIAGNOSTIC TESTING FACILITIES**

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

Y	′es				
	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
	JAPAN	2022-11-18	Microscopy	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
JAPAN	Advice to the dog owner about diagnosis of surra, in relation to travel to South Africa.	Remote assistance
UNITED STATES OF AMERICA	Advice to the dog owner about diagnosis of surra, in relation to travel to South Africa.	Remote assistance
UNITED STATES OF AMERICA	Advice to the veterinarian about diagnosis of surra, in relation to travel to Ghana.	Remote assistance
JAPAN	Advice to the Quarantine Officer, MAFF, Japan about diagnostic tests and quarantine measures for dourine.	Remote assistance
JAPAN	Advice about control measures for surra outbreak in Indonesia.	Remote assistance
UNITED STATES OF AMERICA	Advice to the dog owner about diagnosis of surra, in relation to travel to South Africa.	Remote assistance
JAPAN	Advice to the Quarantine Officer (Moji branch), MAFF, Japan about PCR tests for animal trypanosomoses	Direct communication

INDONESIA	Advice about control measures for surra outbreak in Indonesia.	Remote assistance
JAPAN	Advice to the veterinarian about Trypanosoma theileri infection in cow.	Remote assistance
CHINA (PEOPLE'S REP. OF)	Advice to the dog owner about diagnosis of surra, in relation to travel to South Africa.	Remote assistance

## **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 studies on aniaml trypanosomosis in domestic animals in Paraguay.	3 years	Epidemiological surveillance of animal trypanosomosis in domestic animals by means of molecular tests.	Centro de Diagnostico Veterinario	PARAGUAY
Development of drugs for African trypanosomosis	3 years	Drug development	North-West University	SOUTH AFRICA
Epidemiological studies on aniaml trypanosomosis and mechanical vectors in domestic animals in South Africa.	5 years	Epidemiological surveillance of animal trypanosomosis and mechanical vectors in domestic animals.	North-West University	SOUTH AFRICA
Epidemiological studies on dourine and blood sucking insects in Mongolia	5 years	Epidemiological surveillance of dourine and blood sucking insects in Mongolia	Institute of Veterinary Medicine	MONGOLIA
Development of drugs for African animal trypanosomosis	3 years	Drug development	Egerton University	KENYA

# 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:

In collaboration with institutions shown in the list of ToR5, we had conducted country wide epidemiological study of animal trypanosomoses and blood sucking insects.

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 epidemiological data was disseminated as scientific articles listed below (ToR6, 16).

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:

7

Medicinal plants as potential therapeutic agents for trypanosomosis: a systematic review Moitshepi Plaatjie, ThankGod Onyiche, Lesetja Legoabe, Tsepo Ramatla, Nthatisi Nyembe, Keisuke Suganuma, Oriel Thekisoe Advances in Traditional Medicine https://doi.org/10.1007/s13596-022-00662-2

The Broad-Spectrum Antitrypanosomal Inhibitory Efficiency of the Antimetabolite/Anticancer Drug Raltitrexed Mahmoud Kandeel, Keisuke Suganuma Processes, 10(11), 2158 https://doi.org/10.3390/pr10112158

A PCR-based survey of animal trypanosomes among domestic animals herded together in the Bayan-Ulgii and Khovd provinces of Mongolia Simon Peter Musinguzi, Keisuke Suganuma, Batdorj Davaasuren, Badgar Battsetseg, Banzragch Battur, Noboru Inoue The Journal of Protozoology Research 32 https://doi.org/10.32268/jprotozoolres.32.1-2\_1

Risk factors for equine trypanosomosis and hematological analysis of horses in Paraguay. Ai Yamazaki, Keisuke Suganuma, Mitsunori Kayano, Tomás J Acosta, Tomoko Saitoh, Maria Fátima Rodríguez Valinotti, Antonio Rodríguez Sanchez, Noboru Inoue Acta tropica 233 106543-106543 https://doi.org/10.1016/j.actatropica.2022.106543

Therapeutic Efficacy of Orally Administered Nitrofurantoin against Animal African Trypanosomosis Caused by Trypanosoma congolense Infection. Keisuke Suganuma, David D N'Da, Ken-Ichi Watanabe, Yusuke Tanaka, Ehab Mossaad, Afraa Elata, Noboru Inoue, Shin-Ichiro Kawazu Pathogens (Basel, Switzerland) 11(3) https://doi.org/10.3390/pathogens11030331

Genetic and seasonal variations of Trypanosoma theileri and the association of Trypanosoma theileri infection with dairy cattle productivity in Northern Japan Keisuke Suganuma, Mitsunori Kayano, Katsuya Kida, Yrjö T. Gröhn, Ryotaro Miura, Yuma Ohari, Daiki Mizushima, Noboru Inoue Parasitology International 86 102476-102476 https://doi.org/10.1016/j.parint.2021.102476

First molecular survey of animal trypanosomes in Paraguayan horses. Keisuke Suganuma, Tomás J Acosta, Maria Fátima Rodríguez Valinotti, Antonio Rodríguez Sanchez, Ehab Mossaad, Afraa Elata, Noboru Inoue Veterinary parasitology, regional studies and reports 27 100664-100664 https://doi.org/10.1016/j.vprsr.2021.100664

b) International conferences:

0

c) National conferences:

2

Epidemiological survey of trypanosome in Ezo Shika deer (Cervus nippon yesoensis) The 91th Annual Meeting of the Japanease Society of Paasitology Keisuke Suganuma, Yujon Hong, Yuma Ohari, Mitsunori Kayano, Kenji Nakazaki, Shinya Fukumoto, Shin-ichiro Kawazu, Noboru Inoue

Seasonal prevalence of blood sucking horse flies in farms in Tokachi district, Hokkaido. The 74th Annual Meeting of the Japan Society of Medical Entomology and Zoology Keisuke Suganuma, Eito Amma, Takeo Yamauchi, Shin-ichiro Kawazu, Noboru Inoue

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

1

https://www.obihiro.ac.jp/facility/protozoa/en/oie-rl-tryp-about-us

# **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 : 5

b) Seminars : 5

c) Hands-on training courses: 5

#### d) Internships (>1 month) 4

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
А, В, С	Mongolia	2
A, B, C, D	South Africa	3
А, В, С	South Africa	1
A, B, C, D	The Phlippines	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	iso-Eng.pdf

#### 19. Is your quality management system accredited?

#### Yes

Test for which your laboratory is accredited	Accreditation body
PCR test	Perry Johnson Laboratory Accreditation, Inc. (PJLA)

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

#### Yes

In order to safely conduct experiments on animals, pathogens, and gene manipulation, our university has established regulations and special committees based on relevant laws. Laboratory and animal facilities are managed at BSL2 level. Periodical inspections are carried out to ensure that animal experiments, pathogen and gene manipulation experiments are being conducted appropriately. Plans for animal experiments, pathogens, and gene manipulation experiments are reviewed in advance by relevant expert committees and approved before implementation.

# **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?

Y	e	s

PURPOSE OF THE PROFICIENCY TESTS: 1	ROLE OF YOUR REFERENCE LABORATORY (ORGANISER/ PARTICIPANT)	NO. PARTICIPANTS	PARTICIPATING WOAH REF. LABS/ ORGANISING WOAH REF. LAB.
WOAH Non-Tsetse Transmitted Animal Trypanosomoses Network	To create awareness on NTTAT as high impact neglected veterinary diseases To develop tools that enhance countries' capacity for surveillance of the NTTAT in view of improved disease reporting To foster collaborative research on identified topics To respond to needs for scientific evidence as expressed by endemic countries and/or organisations engaged in NTTAT control To		RL for Dourine Dr. Laurent Hebert ANSES, France E-mail: Laurent.hebert@anses.fr RL for Surra Dr. Nick Van Reet Institute of Tropical Medicine Antwerp E-mail: nvanreet@itg.be Dr. Philippe Büscher E- mail: pbuscher@itg.be RL for Surra Prof. Noboru Inoue National Research Center for Protozoan Diseases, Obihiro University of Agriculture and Veterinary Medicine E-mail: ircpmi@obihiro.ac.jp Dr. Keisuke Suganuma E-mail:

fill gaps in knowledge on	k.suganuma@obihiro.ac.jp RL for
disease epidemiology,	trypanosomoses (tsetse-transmitted) Dr.
pathogenesis, drug efficacy,	Marc DESQUESNES CIRAD-IRD, FRANCE
vaccines, modes of	E-mail: marc.desquesnes@cirad.fr
transmission, reservoir hosts	
and vector control.	

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

No

Yes

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?

TITLE OF THE PROJECT OR CONTRACT	SCOPE	NAME(S) OF RELEVANT WOAH REFERENCE LABORATORIES
	To create awareness on NTTAT as high	
	impact neglected veterinary diseases To	RL for Dourine Dr. Laurent Hebert ANSES, France E-
	develop tools that enhance countries'	mail: Laurent.hebert@anses.fr RL for Surra Dr. Nick
	capacity for surveillance of the NTTAT in	Van Reet Institute of Tropical Medicine Antwerp E-
	view of improved disease reporting To	mail: nvanreet@itg.be Dr. Philippe Büscher E-mail:
	foster collaborative research on	pbuscher@itg.be RL for Surra Prof. Noboru Inoue
WOAH Non-Tsetse Transmitted Animal	identified topics To respond to needs for	National Research Center for Protozoan Diseases,
Trypanosomoses Network	scientific evidence as expressed by	Obihiro University of Agriculture and Veterinary
	endemic countries and/or organisations	Medicine E-mail: ircpmi@obihiro.ac.jp Dr. Keisuke
	engaged in NTTAT control To fill gaps in	Suganuma E-mail: k.suganuma@obihiro.ac.jp RL for
	knowledge on disease epidemiology,	trypanosomoses (tsetse-transmitted) Dr. Marc
	pathogenesis, drug efficacy, vaccines,	DESQUESNES CIRAD-IRD, FRANCE E-mail:
	modes of transmission, reservoir hosts	marc.desquesnes@cirad.fr
	and vector control.	

## **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?

No

# TOR12: EXPERT CONSULTANTS

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

No

29. Additional comments regarding your report:

No