World Organisation for Animal Health

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WOAH Reference Laboratory Reports Activities 2024

This report has been submitted: 26 janvier 2025 22:50

LABORATORY INFORMATION

***Name of disease (or topic) for which you are a designated WOAH Reference Laboratory:**	Babesiosis
***Address of laboratory:**	Carretera Cuernavaca Cuautla #8534 Colonia Progreso CB 62550, Jiutepec Morelos
***Tel:**	+52-777 3.19.02.02
***E-mail address:**	joel.mosqueda@uaq.mx
Website:	https://www.gob.mx/senasica/acciones-y-programas/centro-nacional-de-servicios-de-constatacion-en-salud-animal-cenapa
***Name (including Title) of Head of Laboratory (Responsible Official):**	Rosario Quezada Delgado. Director
***Name (including Title and Position) of WOAH Reference Expert:**	Juan Mosqueda, MVZ, PhD. WOAH representative
***Which of the following defines your laboratory? Check all that apply:**	Governmental

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
IFAT	Yes	75	0

ELISA	Yes	43	0
Direct diagnostic tests		Nationally	Internationally
DIRECT SMEAR TEST FOR DIAGNOSIS OF HEMOPARASITES IN GIEMSA-STAINED BLOOD	Yes	418	0

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?

No

4. Did your laboratory produce vaccines?

Not applicable

5. Did your laboratory supply vaccines to WOAH Members?

Not applicable

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?

Yes

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

Yes

Name of the new vaccine developed	Description and References (Publication, website, etc)
A new vaccine against Babesia bigemina was conceded the patent in November 2024	Registration number: Mx/a/2019/001555. File: MX/E/2019/009063.

TOR4: DIAGNOSTIC TESTING FACILITIES

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

No

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
ITALY	Seek advice on serology and molecular detection methods	By email and Zoom meeting

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
Interlaboratory test using the smear technique for the detection of Hemoparasites	1 month	To evaluate the hability of laboratory technichians on this assay	CENAPA CENID-SAI, INIFAP INTA National Laboratory of Nicaragua	ARGENTINA MEXICO NICARAGUA

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

Yes

Research need : 1

Please type the Research need: Tha IFAT performed in different laboratories is performed different in each of them. We need a standardized protocol.

Relevance for WOAH Standard Setting, Facilitation of international collaboration,

Relevance for the Code or Manual Manual,

Field Diagnostics,

Animal Category Terrestrial,

Disease:

Bovine babesiosis

Kind of disease (Zoonosis, Transboundary diseases)

If any, please specify relevance for Codes or Manual, chapter and title

(e.g. Terrestrial Manual Chapter 2.3.5 - Minimum requirements for aseptic production in vaccine manufacture)

Answer: Babesiosis chapter

Notes:

Answer:

TOR6: EPIZOOLOGICAL DATA

14. Did your Laboratory collect epidemiological data relevant to international disease control?

No

15. Did your laboratory disseminate epidemiological data that had been processed and analysed?

No

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:

1

7. HERNÁNDEZ-ARVIZU EE, ASADA M, KAWAZU SI, VEGA CA, RODRÍGUEZ-TORRES A, MORALES-GARCÍA R, PAVÓN-ROCHA AJ, LEÓN-ÁVILA G, RIVAS-SANTIAGO B, MOSQUEDA J. ANTIPARASITIC EVALUATION OF AQUILUSCIDIN, A CATHELICIDIN OBTAINED FROM CROTALUS AQUILUS, AND THE VCN-23 DERIVATIVE PEPTIDE AGAINST BABESIA BOVIS, B. BIGEMINA AND B. OVATA. PATHOGENS. 2024 JUN 10;13(6):496. DOI: 10.3390/PATHOGENS13060496.

b) International conferences:

5

1. The LINVAS research program on the control of ticks and the diseases they transmit. International Symposium on Ticks and Tick-Transmitted diseases. Queretaro, Mexico 16-18 de octubre, 2024.
2. Design and expression of a multi-antigenic and multi-epitopic recombinant protein against bovine babesiosis caused by Babesia bovis. International Symposium on Ticks and Tick-Transmitted diseases. Queretaro, Mexico 16-18 de octubre, 2024.
3. COMPOSITION AND TOPOLOGY OF Rhipicephalus microplus DURING THE Babesia bovis INFECTION. International Symposium on Ticks and Tick-Transmitted diseases. Queretaro, Mexico 16-18 de octubre, 2024.
4. Characterization of the TCTP protein of Babesia bigemina and its differential expression in the infective phases of the parasite. International Symposium on Ticks and Tick-Transmitted diseases.
5. CHARACTERIZATION OF THETRANSLATIONALLY CONTROLLED TUMOR PROTEIN (TCTP) IN BABESIA BOVIS AND EVALUATION OF ITS PARTICIPATION IN THE ESTABLISHMENT OF INFECTION. International Symposium on Ticks and Tick-Transmitted diseases. Queretaro, Mexico 16-18 de octubre, 2024.
6. Generation of a recombinant single variable domain (VHH) antibody from the Lama glama model against a Babesia bovis antigen. 11th Edition of the Ticks and Tick-borne Pathogen Conference. Havana, Cuba. September 1-6, 2024.
7. The Translationally Controlled Tumor Protein (TCTP) of Babesia bovis induces neutralizing antibodies and participates in the establishment of an acute infection.11th Edition of the Ticks and Tick-borne Pathogen Conference. Havana, Cuba. September 1-6, 2024.
8. Composition and topology of the Rhipicephalus microplus microbiota during an infection with Babesia bovis. 11th Edition of the Ticks and Tick-borne Pathogen Conference. Havana, Cuba. September 1-6, 2024.

c) National conferences:

4

1. Quantum vaccinomics: Una Plataforma para el desarrollo de vacunas contra patógenos de importancia en medicina humana y veterinaria. Segundo simposio de Inmunología, Inmunobajío 2024. Morelia, Michoacán, 21-22 de noviembre, 2024.
2. Desarrollo de vacunas contra enfermedades de importancia veterinaria empleando la vacunología inversa. X Curso de actualización en la campaña nacional para la prevención y control de la Rabia en bovinos y especies ganaderas, y la campaña nacional para el control de las Garrapata Boophilus. Guanajuato, Mexico 3-5 de diciembre de 2024.
3. La respuesta inmune contra los parásitos causantes de la babesiosis en animales domésticos. Asociación Mexicana de Parasitologos Veterinarios. 31 de enero del 2024.
4. Desarrollo de vacunas de nueva generación y métodos serológicos de diagnóstico. SENASA, Tecamac, Edo de Mexico. 15 de Marzo de 2024.

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

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

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

No

TOR8: QUALITY ASSURANCE

18. Does your laboratory have a Quality Management System?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)	
ISO-9001	Renovación Cenapa ISO 9001. PDF	1 - Renovación CENAPA. ISO 9001.pdf
ISO-7025	Certificado ISo7025Lab ensayos.PDF	2 - certificado ISO17025 LAB ENSAYOS.pdf
ISO-17043	Certificacdo ISo 17042 PEA.pdf	

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Certificación del Sistema de Calidad por la Norma NMX-EC-17043-IMNC-2010	Proveedor de ensayos de aptitud. SIGE
Acreditacion del Sistema de Calidad por la norma NMX-EC-17025-IMNC	Entidad Mexicana de Acreditación. EMA

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

Yes

We maintain a system for toxic residues and biological residues as especified in our QCS.

TOR9: SCIENTIFIC MEETINGS

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

Yes

National/ International	Title of event	Co-organiser	Date	location	No. Participants
International	International Symposium "Ticks and the diseases they transmit"	Autonomous University of Queretaro,	2024-10-16	Queretaro, Qro, Mexico	200

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. Do you network (collaborate or share information) with other WOAH Reference Laboratories designated for the same pathogen?

Yes

NETWORK/DISEASE	ROLE OF YOUR LABORATORY (PARTICIPANT, ORGANISER, ETC)	NO. PARTICIPANTS	PARTICIPATING WOAH REF. LABS
Babesiosis	Participant (we are only two laboratories for Babesiosis	2	Italy and Mexico

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

Snding and receiving biological samples is very complicated.

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

Purpose for inter-laboratory test comparisons1	**Role of your reference laboratory (organizer/participant)**	**No. participating laboratories**	**Name of the test**	**WOAH Member Countries**
Interlaboratory test using the smear technique for the detection of Hemoparasites	Organizer	5	smear technique for the detection of hemoparasites	ARGENTINA, MEXICO, NICARAGUA,

TOR12: EXPERT CONSULTANTS

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

No

29. Additional comments regarding your report:

Yes

We are only two laboratories for babesiosis and the exchange of biological samples is very complicated.