WOAH Reference Laboratory Reports Activities 2022

Activities in 2022

This report has been submitted : 25 avril 2023 13:27

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 MEXICO
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):	Biól. María del Rosario Quezada Delgado
Name (including Title and Position) of WOAH Reference Expert:	MVZ, PhD Juan Joel Mosqueda Gualito
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
Indirect ELISA for Babesia bigemina and B. bovis	yes	174	

Indirect ELISA for Babesia spp	no	39	
Indirect ELISA for Babesia spp	no		900
Direct diagnostic tests		Nationally	Internationally
Microscopy of giemsa-stained bloof for Babesia bovis and B. bigemina	yes	293	

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?

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

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

Yes

NAME OF THE NEW TEST OR DIAGNOSTIC METHOD DEVELOPED	DESCRIPTION AND REFERENCES (PUBLICATION, WEBSITE, ETC.)
LAMP for Babesia bigemina	A loop-mediated isothermal amplification test for the detection of Babesia bigemina. https://www.frontiersin.org/articles/10.3389/fvets.2022.1056355/full
A new ELISA test for the serological detection of Babesia spp.	An interlaboratory validation of a new ELISA test for the immunological detection of Babesia spp in cattle. Manuscript yet to be submitted.

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?

No

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

No

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

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

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:
Cattle sera analyzed by the two Reference Laboratories available

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:
Prevalence of antibodies against GP45 peptides containing B-cell epitopes. https://www.mdpi.com/2076-0817/11/5/591

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:

3

1. MERCADO-URIOSTEGUI MA, CASTRO-SÁNCHEZ LA, BATIHA GE-S, VALDEZ-ESPINOZA UM, FALCÓN-NERI A, RAMOS-ARAGON JA, HERNÁNDEZ-ORTIZ R, KAWAZU S-I, IGARASHI I, MOSQUEDA J. THE GP-45 PROTEIN, A HIGHLY VARIABLE ANTIGEN FROM BABESIA BIGEMINA, CONTAINS CONSERVED B-CELL EPITOPES IN GEOGRAPHICALLY DISTANT ISOLATES. PATHOGENS. 2022; 11(5):591. HTTPS://DOI.ORG/10.3390/PATHOGENS11050591.

2. 1. ANDREA P. LIZARAZO-ZULUAGA, BERTHA I. CARVAJAL-GAMEZ, SILVINA WILKOWSKY, SILVIO CRAVERO, MARCOS TRANGONI, AND JUAN MOSQUEDA. DEVELOPMENT AND STANDARDIZATION OF A LOOP-MEDIATED ISOTHERMAL AMPLIFICATION (LAMP) TEST FOR THE DETECTION OF BABESIA BIGEMINA. FRONTIERS IN VETERINARY SCIENCE-VETERINARY INFECTIOUS DISEASES. 2022.

3. HIDALGO-RUIZ, M., MEJIA-LÓPEZ, S., PÉREZ-SERRANO, R. M., ZALDÍVAR-LELO DE LARREA, G., GANZINELLI, S., FLORIN-CHRISTENSEN, M., SUAREZ, C. E., HERNÁNDEZ-ORTIZ, R., MERCADO-URIOSTEGUI, M. A., RODRÍGUEZ-TORRES, A., CARVAJAL-GAMEZ, B. I., CAMACHO-NUEZ, M., WILKOWSKY, S. E., & MOSQUEDA, J. (2022). BABESIA BOVIS AMA-1, MSA-2C AND RAP-1 CONTAIN CONSERVED B AND T-CELL EPITOPES, WHICH GENERATE NEUTRALIZING ANTIBODIES AND A LONG-LASTING TH1 IMMUNE RESPONSE IN VACCINATED CATTLE. VACCINE, 40(8), 1108–1115. HTTPS://DOI.ORG/10.1016/J.VACCINE.2022.01.023

b) International conferences:

3

1. The Spherical Body Protein 4 from Babesia bigemina is a novel gene, contains conserved B-cell epitopes and induces cross-reactive, neutralizing antibodies in Babesia ovata. Apicowplexa 5-7 October 2022. Bern Switzerland

2. Rhipicephalus microplus VDAC is a vaccine candidate that contains conserved B-cell epitopes, which induce antibodies in immunized

cattle. BioTicks, 27-31 March, 2022. varadero Cuba.
3. Efficacy evaluation of a multiepitopic recombinant protein as a vaccine against Babesia bigemina. August 21-26, 2022, Copenhaguen, Denmark.

c) National conferences:

3
1. Desarrollo de vacunas contra garrapatas y hemoparásitosde los bovinos: desafíos y perspectivas. IV Congreso Nacional e internacional de proteínas y grasas de origen animal
Universidad de Colima, 30 de noviembre del 2022
2. DETECCIÓN MOLECULAR DE BABESIA BIGEMINA, BABESIA BOVIS Y ANAPLASMA MARGINALE EN BÚFALOS DE AGUA (BUBALUS BUBALIS) EN UN RANCHO DE TABASCO . Congreso de Ciencias Veterinarias y producción Animal. 31 Oct 2022.
3. Epidemiología, Diagnóstico y Control de hemoparásitos en bovinos. Primer
Seminario de Actualización en Parasitología de Animales en Producción. 30 Nov a 2 de Dic, 2022. Oaxaca, Mexico.

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 17025	pdf	2 - certificado ISO17025 LAB ENSAYOS.pdf

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Certificado del Sistema de Calidad	SIGE
Acreditación de la Norma de Calidad	Entidad Mexicana de Acreditación EMA

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

Yes

We follow the Manual of Diagnostics test and Vaccinnes for terrestial animals 1.1.4.

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 (MM/YY)	LOCATION	NO. PARTICIPANTS
National	Primer Seminario de Actualización en Parasitología de Animales en Producción	Autonomous University Benito Juarez of Oaxaca	2023-11-30	Oaxaca Mexico	100

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

Yes

Title of event	Date (mm/yy)	Location	Role (speaker, presenting poster, short communications)	Title of the work presented
ICOPA	2022-08-21	Copenhaguen Denmark	Short communication	Efficacy evaluation of a multiepitopic recombinant protein as a vaccine against Babesia bigemina
Primer Seminario de Actualización en Parasitología de Animales en Producción	2022-11-30	Oaxaca, Mexico	Speaker	Desarrollo de vacunas contra garrapatas y hemoparásitosde los bovinos: desafíos y perspectivas

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?

Yes

PURPOSE OF THE PROFICIENCY TESTS: 1	ROLE OF YOUR REFERENCE LABORATORY (ORGANISER/ PARTICIPANT)	NO. PARTICIPANTS	PARTICIPATING WOAH REF. LABS/ ORGANISING WOAH REF. LAB.
Validation of an Indirect ELISA test for the serological detection of anti- Babesia spp antibodies	Organizer	2	National Research Center for Protozoan Diseases (Japan)/ CENAPA-SENASICA (Mexico)

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?

Yes

TITLE OF THE PROJECT OR CONTRACT	SCOPE	NAME(S) OF RELEVANT WOAH REFERENCE LABORATORIES

Identification of vaccine candidates for bovine babesiosis	To identify potential vaccine antigens of Babesia bigemina.	National Research Center for Protozoan Diseases (Japan)/ CENAPA-SENASICA (Mexico)

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?

Yes

KIND OF CONSULTANCY	Location	SUBJECT (FACULTATIVE)
Review of babesiosis chapter	local	I revised the babesiosis chapter for WOAH

29. Additional comments regarding your report:

Yes

Despite the limited interlaboratory exchange due to Covid-19 with the Japanese laboratory (the other only Reference laboratory for babesiosis in the world) we were able to work in several collaborative projects.