

WOAH Reference Laboratory Reports Activities 2023

Activities in 2023

This report has been submitted : 18 juin 2024 17:32

Laboratory Information

Name of disease (or topic) for which you are a designated WOAHO Reference Laboratory:	Nagana, ou trypanosomose animale africaine transmissible par tsé-tsé
Address of laboratory:	Campus international de Baillarguet TA A-17 / G 34398 Montpellier Cedex 5
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Website:	https://umr-intertryp.cirad.fr/
Name (including Title) of Head of Laboratory (Responsible Official):	Delphine Luquet, directrice du département CIRAD-Bios
Name (including Title and Position) of WOAHO Reference Expert:	Marc Desquesnes, DVM, PhD, HDR, chercheur, coordonnateur de projets de recherche
Which of the following defines your laboratory? Check all that apply:	EPIC

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 WOAHO Manual (Yes/No)	Total number of test performed last year	
		Nationally	Internationally
Indirect diagnostic tests			
ELISA T. vivax		0	892
ELISA T. brucei		0	1012
ELISA T. congolense		0	892
ELISA T. evansi		0	892
CATT T. evansi		1	0
PCR Trypanozoon		1	100
Direct diagnostic tests			
Examen de frottis sanguin Giemsa		1	0
HCT test de Woo		1	0
culture sur rongeur		0	200
purification sur DE52		0	4

TOR2: REFERENCE MATERIAL

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

No

3. Did your laboratory supply standard reference reagents (nonWOAH-approved) and/or other diagnostic reagents to WOAHO 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 MEMBER COUNTRIES	COUNTRY OF RECIPIENTS
T. vivax	ELISA	antigène	0	2,2mg	8	BURKINA FASO, MOZAMBIQUE, SAUDI ARABIA, SENEGAL, SOUTH AFRICA, SPAIN, ZIMBABWE,
T. brucei brucei	ELISA	antigène	0	0.95mg	6	BURKINA FASO, ETHIOPIA, MOZAMBIQUE, SENEGAL, SOUTH AFRICA, ZIMBABWE,
T. congolense	ELISA	antigène	0	1.2mh	6	BURKINA FASO, ETHIOPIA, MOZAMBIQUE, SENEGAL, SOUTH AFRICA, ZIMBABWE,
T. evansi	ELISA	antigène	0	1.75mg	8	BURKINA FASO, ETHIOPIA, MOZAMBIQUE, SAUDI ARABIA, SENEGAL, SOUTH AFRICA, SPAIN, ZIMBABWE,

4. Did your laboratory produce vaccines?

Not applicable

5. Did your laboratory supply vaccines to WOA Member?

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 WOA Standards for the designated pathogen or disease?

Yes

NAME OF THE NEW TEST OR DIAGNOSTIC METHOD DEVELOPED	DESCRIPTION AND REFERENCES (PUBLICATION, WEBSITE, ETC.)
In vitro-produced and freeze-dried whole cell lysate antigens for ELISA Trypanosoma evansi	Validation of in vitro-produced and freeze-dried whole cell lysate antigens for ELISA Trypanosoma evansi antibody detection in camels; Bossard & Desquesnes, Vet Par 2023 doi: 10.1016/j.vetpar.2023.109980.

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

No

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

No

TOR4: DIAGNOSTIC TESTING FACILITIES

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

No

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
GHANA	Capacity building in AAT diagnostic tools	Theory and practical courses
	Diagnostic tools of AAT and Ticks born	

BENIN COTE D'IVOIRE GHANA NIGERIA TOGO	Diseases and diagnose of their respective vectors	Theory and practical courses
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TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

12. Did your laboratory participate in international scientific studies in collaboration with WOAAH 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
Evaluation/Validation of dry ELISA kit for animal trypanosomes	12 mois	Evaluation/Validation of a new ELISA kit using dry reagents (antigen and reference sera)	UEM	MOZAMBIQUE
Evaluation/Validation of dry ELISA kit for animal trypanosomes	12 mois	Evaluation/Validation of a new ELISA kit using dry reagents (antigen and reference sera)	ISRA	SENEGAL
Evaluation/Validation of dry ELISA kit for animal trypanosomes	12 mois	Evaluation/Validation of a new ELISA kit using dry reagents (antigen and reference sera)	CIRDES	BURKINA FASO
Evaluation/Validation of dry ELISA kit for animal trypanosomes	12 mois	Evaluation/Validation of a new ELISA kit using dry reagents (antigen and reference sera)	ARC/OVI	SOUTH AFRICA
Evaluation/Validation of dry ELISA kit for animal trypanosomes	12 mois	Evaluation/Validation of a new ELISA kit using dry reagents (antigen and reference sera)	ULPGC	SPAIN
Evaluation/Validation of dry ELISA kit for animal trypanosomes	12 mois	Evaluation/Validation of a new ELISA kit using dry reagents (antigen and reference sera)	NICETT/AHI	ETHIOPIA
Diagnostic dry ELISA kit for animal trypanosomes	6 mois	Diagnosis of trypanosomes	University of Zimbabwe	ZIMBABWE
Diagnostic dry ELISA kit for animal trypanosomes	6 mois	Diagnosis of trypanosomes	University of King Faisal	SAUDI ARABIA

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

No

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:

9

1. Ilboudo K, Boulangé A, Hounyèmè RE, Gimonneau G, Kaboré J, Belem AGM, Desquesnes M, Lejon V, Koffi M, Jamonneau V, Thévenon S. Performance of diagnostic tests for *Trypanosoma brucei brucei* in experimentally infected pigs. *PLoS Negl Trop Dis*. 2023 Nov 9; 17(11):e011730. doi: 10.1371/journal.pntd.0011730

2. Bossard G, Desquesnes M. Validation of in vitro-produced and freeze-dried whole cell lysate antigens for ELISA *Trypanosoma evansi* antibody detection in camels. *Vet Parasitol*. 2023 Aug;320:109980. doi: 10.1016/j.vetpar.2023.109980.

3. Gstöttenmayer F, Moyaba P, Rodriguez M, Mulandane FC, Mucache HN, Neves L, De Beer C, Ravel S, De Meeûs T, Mach RL, Vreysen MJB, Abd-Alla AMM. Correction Notice to: Development and characterization of microsatellite markers for the tsetse species *Glossina brevipalpis* and preliminary population genetics analyses - *Parasite* 30, 34 (2023), <https://doi.org/10.1051/parasite/2023038>. *Parasite*. 2023 30: 47. doi: 10.1051/parasite/2023046

4. Kaba D, Koffi M, Kouakou L, N'Gouan EK, Djohan V, Courtin F, N'Djetchi MK, Coulibaly B, Aningra GP, Berté D, Ta BT, Koné M, Sutherland SA, Crump RE, Huang CI, Madan J, Bessell PR, Barreaux A, Solano P, Crowley EH, Rock KS, Jamonneau V. Towards the sustainable elimination of human African trypanosomiasis in Côte d'Ivoire using

an integrated approach. *PLoS Negl Trop Dis* 17(7): e0011514. <https://doi.org/10.1371/journal.pntd.0011514>

5. Minet C, Chantal I, Berthier D. Recent advances in genome editing of bloodstream forms of *Trypanosoma congolense* using CRISPR-Cas9 ribonucleoproteins: Proof of concept. *Exp Parasitol*. 2023 Sep;252:108589. doi: 10.1016/j.exppara.2023.108589

6. Pagabeleguem S, Koughuindida O, Wendemanegde Salou E, Gimonneau G, Toe AI, Kabore BA, Dera KM, Maiga H, Belem AMG, Sanou/Ouedraogo GMS, Vreysen MJB, Bouyer J. Gamma-radiation of *Glossina palpalis gambiense* revisited: effect on fertility and mating competitiveness. *Parasite* 30, 8. <https://doi.org/10.1051/parasite/2023009>

7. Peylhard M, Berthier D, Dayo GK, Chantal I, Sylla S, Nidelet S, Dubois E, Martin G, Sempéré G, Flori L, Thévenon S. Whole blood transcriptome profiles of trypanotolerant and trypanosusceptible cattle highlight a differential modulation of metabolism and immune response during infection by *Trypanosoma congolense*. *Peer Community Journal*, Volume 3 (2023), article no. e17. doi: 10.24072/pcjournal.239. <https://peercommunityjournal.org/articles/10.24072/pcjournal.239/>

8. SAWITRI D H., APRIL H. WARDHANA, MOHAMAD SADIKIN, HERI WIBOWO & MARC DESQUESNES (2022) Pathogenic Effects and Prepatent Periods of *Trypanosoma evansi* Isolates from Indonesia in Mice; *Sains Malaysiana* 51(11)(2022): 3579-3590 <http://doi.org/10.17576/jsm-2022-5111-0>

9. Tejedor-Junco MT, Melián Henríquez A, Peláez Puerto P, Ramos MD, González-Martín M, Morales Doreste M, Gimonneau G, Desquesnes M, Martín Martel S, Corbera JA. Surveillance and control of *Trypanosoma evansi* in the canary Islands: A descriptive analysis. *Acta Trop*. 2023 Oct;246:106990. doi: 10.1016/j.actatropica.2023.106990

b) International conferences:

8

1. Berté D, Coulibaly B, Coulibaly KD, Ta BTD, Egnankon NS, Konan YJR, Kouadio KAM, Adingra GP, Ouattara AA, Bamba KL, Hounyèmè RE, Kallo V, Boulangé A, Paone M, Jamonneau V, Djohan V, Kaba D, Cecchi G. Developing an atlas of tsetse flies and african animal trypanosomiasis in Côte d'Ivoire.

2. Adjil Marème Gaye, Assane Guèye Fall, Momar Talla Seck, Mamadou Ciss, Mame Thierno Bakhom, Baba Sall, Geoffrey Gimonneau, Mireille Djimangali Bassène, Marc J.B. Vreysen, Jérémy Bouyer. Tsetse fly and trypanosomiasis control in Senegal.

3. Robert Eustache Hounyèmè, Loïc Rivière, Dramane Kaba, Veerle Lejon, Dominique Valtain, Antoine Abel Missihoun, Alain Boulangé. Design and production of five chimeric multivalent proteins for the serological diagnosis of African animal trypanosomiasis.

4. Fabrice Gnihon Somé, Modou Séré, Bienvenu Martin Somda, Guiguigbaza-Kossigan Dayo, Hassane Sakandé, Saïdou Bolly, Moldago Ouaré, Prudenciène Agboho, Jacques Kaboré, Isabelle Chantal, Sophie Thévenon, David Berthier. Characterization of the evolution of basic haematological and biochemical variables in relation with bovine trypanotolerance during an experimental infection by *Trypanosoma congolense*.

5. Soumaïla Pagabeleguem, Oumar Koughuindida, Ernest Wendemanegde Salou, Geoffrey Gimonneau, Ange Irénée Toé, Bénéwendé Aristide Kaboré, Kiswend-sida Mikhailou Dera, Hamidou Maïga, Adrien Marie Gaston Belem, Gisèle Marie Sophie Sanou/Ouedraogo, Marc JB Vreysen, Jeremy Bouyer. Gamma-radiation of *Glossina palpalis gambiense* revisited: effect on fertility and mating competitiveness.

6. Assane Guèye Fall, Adjil Marème Gaye, Momar Talla Seck, Mamadou Ciss, Mame Thierno Bakhom, Baba Sall, Geoffrey Gimonneau, Mireille Djimangali Bassène, Renaud Lancelot, Marc J.B. Vreysen, Jérémy Bouyer. Elimination of *Glossina palpalis gambiense* from the Niayes area of Senegal, a dream that became true: impact on the epidemiology of African animal trypanosomiasis.

7. Bakhom MT, Bassène MD, B. Faye, M. Diouf, I. Sarr, A.S. Thiall, M.T. Seck, M. Ciss, G. Gimonneau, A.G. Fall What do we know about Animal Trypanosomiasis (AT) in tsetse-free areas in Senegal?

8. À compléterZ. Bengaly, G.K. Dayo, B. Soudah, B.M. Somda, S. Sanogo, J. Kaboré. Research and innovations activities in tsetse and trypanosomiasis control in west and central Africa: CIRDES's contributions. 36th general conference of International Scientific Council for Trypanosomiasis research and control (ISCTRC), Mombassa (Kenya), 18-22 September 2023.

c) National conferences:

0

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

0

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

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

Yes

- a) Technical visit : 0
- b) Seminars : 1
- c) Hands-on training courses: 2
- d) Internships (>1 month) 0

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
C	MOZAMBIQUE	10
C	ZIMBABWE	13
C	GHANA	10

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	Certification "sérologie"(/ASTRE) et Equivalence de certification	Quality Management System CIRAD.pdf

19. Is your quality management system accredited?

No

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

Yes

Biorisk management system is included in our laboratories and animal facility approvals: Laboratory approval (level 2) registered as L2-0243 Laboratory approval (level 3) registered as L3-0244 Animal facility approval (level 2) registered as A2-0242 Observation des bonnes pratiques de laboratoire (port obligatoire de blouses, de gants, de masque de protection L'ouverture et le traitement des échantillons provenant d'Afrique se fait en laboratoire P3/CIRAD, destruction des déchets toxiques intermédiaires et finaux

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?

Yes

Title of event	Date (mm/yy)	Location	Role (speaker, presenting poster, short communications)	Title of the work presented
AU_IBAR "TASK FORCE" meeting for implementing continental strategy of tsetse and AAT elimination or eradication	2023-12-18	Naivasha	Short communication (15 mn)	Contributions of CIRDES to tsetse and trypanosomosis research and innovation activities
Training workshop on vectors born diseases (Ticks Born Diseases, AAT) and their vectors	2023-10-27	Dakar	Teachers	Diagnostic of AAT and TBD and Diagnose of their vectors

TOR10: NETWORK WITH WOAHP REFERENCE LABORATORIES

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

No

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

Not applicable (Only WOAHP Reference Laboratory designated for the disease)

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

Not applicable (Only WOAHP Reference Laboratory designated for the disease)

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?

Not applicable (Only WOA Reference Laboratory designated for the disease)

TOR11: OTHER INTERLABORATORY PROFICIENCY TESTING

27. Did your laboratory organise or participate in inter-laboratory proficiency tests with laboratories other than WOA Reference Laboratories for the same pathogen?

Yes

Purpose for inter-laboratory test comparisons ¹	Role of your reference laboratory (organizer/participant)	No. participating laboratories	Name of the Test	WOAH Member Countries
Validation of a diagnostic protocol: ELISA	organiser	7	ELISA Trypanosoma spp	BURKINA FASO, CAMEROON, ETHIOPIA, MOZAMBIQUE, SENEGAL, SOUTH AFRICA, SPAIN,

TOR12: EXPERT CONSULTANTS

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

Yes

KIND OF CONSULTANCY	Location	SUBJECT (FACULTATIVE)
Expert in a WOA ad hoc group on equine trypanosomosis	OMSA Paris	Writing of Code Chapters on surra and dourine

29. Additional comments regarding your report:

Yes

Dans le cadre du rapprochement entre les instituts, le présent rapport a été préparé conjointement par le CIRAD à Montpellier et le CIRDES, Bobo-Dioulasso, Burkina Faso.

Le recueil des méthodes de diagnostic des trypanosomes agréé par l'OMSA a été publié en français et en anglais pour être diffusé auprès des laboratoires partenaires et/ou demandeurs; cet ouvrage est disponible sur le site web de l'OMSA/WOAH (formerly OIE):

<https://www.woah.org/app/uploads/2021/06/compendiumstandarddiagnosticprotocolsanimaltrypanosomosesafricanorigin-en.pdf>

<https://www.woah.org/fr/document/recueil-des-protocoles-de-diagnostic-du-laboratoire-de-referance-de-loie-sur-les-trypanosomoses-animales-dorigine-africaine/>

Une mise à jour de ces documents pourra être envisagée en 2024 ou 2025