

# OIE Reference Laboratory Reports Activities

## *Activities in 2019*

**This report has been submitted : 2020-01-20 10:30:57**

<b>Name of disease (or topic) for which you are a designated OIE Reference Laboratory:</b>	Heartwater
<b>Address of laboratory:</b>	UMR Cirad-INRAE ASTRE (Animal, Santé, Territoires, Risques et Écosystèmes). Departement BIOS du Cirad Domaine de Duclos, Prise d'eau 97170 Petit-Bourg - Guadeloupe - France
<b>Tel.:</b>	+33 (0)5 90 25 54 44
<b>Fax:</b>	
<b>E-mail address:</b>	nathalie.vachier@cirad.fr
<b>Website:</b>	umr-astre.cirad.fr
<b>Name (including Title) of Head of Laboratory (Responsible Official):</b>	Dr Emmanuel Albina (responsable du laboratoire de Guadeloupe)
<b>Name (including Title and Position) of OIE Reference Expert:</b>	Dr Nathalie Vachiéry
<b>Which of the following defines your laboratory? Check all that apply:</b>	Other: academic

**ToR 1: To use, promote and disseminate diagnostic methods validated according to OIE Standards**

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 OIE Manual (Yes/No)	Total number of test performed last year	
		Nationally	Internationally
Indirect diagnostic tests		Nationally	Internationally
indirect MAP1-B ELISA	oui	417	0
Direct diagnostic tests		Nationally	Internationally
pCS20 PCR nichée	oui	0	39
pCS20 Sol1 qPCR	oui	211	605

**ToR 2: To develop reference material in accordance with OIE requirements, and implement and promote the application of OIE Standards.  
To store and distribute to national laboratories biological reference products and any other reagents used in the diagnosis and control of the designated pathogens or disease.**

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

No

3. Did your laboratory supply standard reference reagents (non OIE-approved) and/or other diagnostic reagents to OIE Member Countries?

No

4. Did your laboratory produce vaccines?

Yes

5. Did your laboratory supply vaccines to OIE Member Countries?

No

**ToR 3: To develop, standardise and validate, according to OIE Standards, new procedures for diagnosis and control of the designated pathogens or diseases**

6. Did your laboratory develop new diagnostic methods validated according to OIE Standards for the designated pathogen or disease?

No

7. Did your laboratory develop new vaccines according to OIE Standards for the designated pathogen or disease?

No

**ToR 4: To provide diagnostic testing facilities, and, where appropriate, scientific and technical advice on disease control measures to OIE Member Countries**

8. Did your laboratory carry out diagnostic testing for other OIE Member Countries?

No

9. Did your laboratory provide expert advice in technical consultancies on the request of an OIE Member Country?

Yes

Name of the OIE Member Country receiving a technical consultancy	Purpose	How the advice was provided
MALI	Discussions et conseils pour la mise en place de protocoles de diagnostic de la cowdriose sur des dromadaires	échanges de courriels

**ToR 5: To carry out and/or coordinate scientific and technical studies in collaboration with other laboratories, centres or organisations**

10. Did your laboratory participate in international scientific studies in collaboration with OIE Member Countries other than the own?

Yes

Title of the study	Duration	Purpose of the study	Partners (Institutions)	OIE Member Countries involved other than your country
Multivalent vaccine against CCPP and Heartwater in Africa - Financement CRDI	30 mois (extension demandée)	Développement d'un vaccin multivalent contre 2 maladies des petits ruminants, la pleuropneumonie contagieuse caprine et la cowdriose.	CIRDES centre international pour la recherche et le développement sur l'élevage en région sub-humide	BURKINA FASO
Multivalent vaccine against CCPP and Heartwater in Africa- Financement CRDI	30 mois (extension demandée)	Développement d'un vaccin multivalent contre 2 maladies des petits ruminants, la pleuropneumonie contagieuse caprine et la cowdriose.	NoCSL National Center of Specialization on Livestock	NIGER
Multivalent vaccine against CCPP and Heartwater in Africa- Financement CRDI	30 mois (extension demandée)	Développement d'un vaccin multivalent contre 2 maladies des petits ruminants, la pleuropneumonie contagieuse caprine et la cowdriose.	EPAC Ecole Polytechnique d'Aborney Calavi	BENIN
Multivalent vaccine against CCPP and Heartwater in Africa- Financement CRDI	30 mois (extension demandée)	Développement d'un vaccin multivalent contre 2 maladies des petits ruminants, la pleuropneumonie contagieuse caprine et la cowdriose.	KALRO Kenyan agricultural livestock reasearch organization	KENYA
Multivalent vaccine against CCPP and Heartwater in Africa- Financement CRDI	30 mois (extension demandée)	Développement d'un vaccin multivalent contre 2 maladies des petits ruminants, la pleuropneumonie contagieuse caprine et la cowdriose.	ILRI International livestock research Institute	KENYA
Multivalent vaccine against Heartwater in Africa - Financement UE-LeapAgri	36 mois	Developpement d'un vaccin multivalent local contre la cowdriose en Afrique	CIRDES centre international pour la recherche et le développement sur l'élevage en région sub-humide	BURKINA FASO
Multivalent vaccine against Heartwater in Africa - Financement UE-LeapAgri	36 mois	Developpement d'un vaccin multivalent local contre la cowdriose en Afrique	INERA Institut National de environnement et de recherches agricoles	BURKINA FASO

Multivalent vaccine against Heartwater in Africa - Financement UE-LeapAgri	36 mois	Developpement d'un vaccin multivalent local contre la cowdriose en Afrique	IBET Institut de biologie experimentale et technologique	PORTUGAL
Multivalent vaccine against Heartwater in Africa - Financement UE-LeapAgri	36 mois	Developpement d'un vaccin multivalent local contre la cowdriose en Afrique	ARC-OVI Onderstepoort Veterinary institute et Université de Pretoria	SOUTH AFRICA
Development of strategies to control tick-borne bacterial pathogens of livestocks	48 mois	mise en place de gorgements artificiels des tiques Amblyomma	USDA-ARS Animal research Unit (Pullman-Washington)	UNITED STATES OF AMERICA

***ToR 6: To collect, process, analyse, publish and disseminate epizootiological data relevant to the designated pathogens or diseases***

11. Did your Laboratory collect epizootiological data relevant to international disease control?

Yes

If the answer is yes, please provide details of the data collected:

Dans le cadre des projets CRDI Multivacc et UE-LeapAgri MuVHA.

12. Did your laboratory disseminate epizootiological data that had been processed and analysed?

No

If the answer is no, please provide a brief explanation of the situation:

Identification de souches locales récoltées récemment d'Ehrlichia ruminantium en Afrique de l'Ouest et en Afrique du Sud: typages en cours et séquençage à venir.

**13. What method of dissemination of information is most often used by your laboratory? (Indicate in the appropriate box the number by category)**

a) Articles published in peer-reviewed journals: 3

Noroy Christophe, Lefrançois Thierry, Meyer Damien. Searching algorithm for Type IV effector proteins (S4TE) 2.0: Improved tools for Type IV effector prediction, analysis and comparison in proteobacteria. 2019. PLoS Computational Biology, 15 (3):e1006847, 12 p.<https://doi.org/10.1371/journal.pcbi.1006847>

Marcelino Isabel, Colomé-Calls Núria, Holzmuller Philippe, Lisacek Frédérique, Reynaud Yann, Canals Francesc,

Vachiéry Nathalie. Sweet and sour Ehrlichia: Glycoproteomics and phosphoproteomics reveal new players in Ehrlichia ruminantium physiology and pathogenesis. 2019. *Frontiers in Microbiology*, 10:450, 18 p. <https://doi.org/10.3389/fmicb.2019.00450>

Huber Karine, Jacquet-Cretides Loïc, Rivallan Ronan, Adakal Hassane, Vachiéry Nathalie, Risterucci Ange-Marie, Chevillon Christine. Low effective population sizes in *Amblyomma variegatum*, the tropical bont tick. 2019. *Ticks and Tick-borne Diseases*, 10 : 93-99. <https://doi.org/10.1016/j.ttbdis.2018.08.019>

b) International conferences: 2

Eloi Marcelino I., Holzmüller P., Fernandez B., Seveno M., Vigy O., Coelho A.V., Vachiéry N. Revisiting Ehrlichia ruminantium life cycle using proteomics: the host and the bacterium perspectives. EMSC 2018. European Mass Spectrometry Conference , 2108-03-11/2018-04-15, Sarrebruck (Allemagne)

Silou S., Meyer D. Identification pipeline of Ehrlichia ruminantium type IV effectors. 30th Meeting of American Society for Rickettsiology, June 2019, Santa Fe, (USA).

c) National conferences: 4

Valérie Rodrigues, Bernard Fernandez, Léo Chamayou, Alexandre Andersen, Edith Demettre, Martial Seveno, Oana Vigy, Guylène Miotello, Rosalie Aprelon, Ken Giraud-Girard, Frédéric Stachurski, Nathalie Vachiéry, Etienne Loire, Jean Armengaud, Philippe Holzmüller. Ruminants-Amblyomma variegatum-Ehrlichia ruminantium: what cellular immunology and proteomics reveal about host-vector-pathogen interactions. 2019. MicrobiOccitanie, Montpellier (France) 18-20/02/2019.

Philippe Holzmüller, Bernard Fernandez, Isabel Marcelino, Khadija El Koulali, Martial Seveno, Oana Vigy, Nathalie Vachiéry, Valérie Rodrigues. Impact of quantitative proteomics in better understanding Ehrlichia ruminantium infectious process and better defining an inactivated vaccine against Heartwater. SMAP 2019. Mass Spectrometry Conference. 16-19/09/2019. Strasbourg (France)

Bernard Fernandez, Valérie Rodrigues, Isabel Marcelino, Vercoutere A, Léo Chamayou, Alexandre Andersen, Oana Vigy, Edith Demettre, Martial Seveno, Guylène Miotello, Rosalie Aprelon, Ken Giraud-Girard, Frédéric Stachurski, Nathalie Vachiéry, Etienne Loire, Jean Armengaud, Philippe Holzmüller. What cellular immunology and proteomics reveal about host-tick-pathogen interactions in Heartwater? 2019. SMAP Mass Spectrometry Conference. 16-19/09/2019. Strasbourg (France)

Silou S., Meyer D. Identification pipeline of Ehrlichia ruminantium type IV effectors. Réunion des sciences et Innovations de la Caraïbe, oct 2019, Guadeloupe (France)

d) Other:

(Provide website address or link to appropriate information) 1

Brevet:

Meyer Damien, Gordon Jonathan, Vachiéry Nathalie, Martinez Dominique. Live attenuated bacterial strain and its use as a vaccine. 2019. Genève : OMPI, 44 p. N° de dépôt international : PCT/EP2018/075634, N° de brevet international : WO2019057909A1, N° de dépôt européen : 17306235.7, N° de brevet européen : EP3459561 <https://patentscope.wipo.int/search/fr/detail.jsf?docId=WO2019057909>

SUN Y. Identification of biomarkers correlating with protection against Heartwater. Mémoire d'ingénieur « innovation et bioproduits », 48 p. Université Technologique de Compiègne - France

2ème réunion annuelle du comité de pilotage du projet Multivacc au Kenya, du 25 au 27/09/2019. Etat des lieux des activités réalisées et en cours, réajustements suite aux discussions entre les partenaires africains, prévision des activités pour l'année à venir et mise en place des nouvelles collaborations entre les partenaires, réflexions pour la mise en place de la suite du projet (Multivacc 2) - 14 personnes présentes : partenaires Français (Cirad), du Burkina Faso (Cirdes et INERA), du Kenya (KALRO et ILRI), du responsable du projet et de la responsable des budgets du CRDI (bailleur).

2ème réunion annuelle du comité de pilotage du projet MuVHA au Portugal, du 29 au 31/10/2019. Etat des lieux des activités réalisées et en cours, discussions sur les résultats obtenus et prévision des activités pour l'année à venir - 8 personnes présentes : partenaires français (Cirad), du Burkina Faso (Cirdes et INERA) et d'Afrique du Sud (ARC-OVI et Université de Pretoria).

**ToR 7: To provide scientific and technical training for personnel from OIE Member Countries****To recommend the prescribed and alternative tests or vaccines as OIE Standards**

14. Did your laboratory provide scientific and technical training to laboratory personnel from other OIE Member Countries?

Yes

- a) Technical visits: 0
- b) Seminars: 0
- c) Hands-on training courses: 1
- 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: culture et isolement d'Ehrlichia ruminantium	Burkina Faso	1

**ToR 8: To maintain a system of quality assurance, biosafety and biosecurity relevant for the pathogen and the disease concerned**

15. Does your laboratory have a Quality Management System?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)
Système de management Qualité/sécurité/environnement ISO 17025	Att_COFRAC_CiradDuclosCirad_2019.pdf

16. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
ELISA MAP1B	COFRAC (suspension à l'initiative du laboratoire au 01/08/19)
PCR nichée pCS20	COFRAC (suspension à l'initiative du laboratoire au 01/08/19)

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

Yes

(See *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals, Chapter 1.1.4*)

**ToR 9: To organise and participate in scientific meetings on behalf of the OIE**

18. Did your laboratory organise scientific meetings on behalf of the OIE?

No

19. Did your laboratory participate in scientific meetings on behalf of the OIE?

No

**ToR 10: To establish and maintain a network with other OIE Reference Laboratories designated for the same pathogen or disease and organise regular inter-laboratory proficiency testing to ensure comparability of results**

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

Not applicable (Only OIE Reference Lab. designated for disease)

21. Was your laboratory involved in maintaining a network with OIE Reference Laboratories designated for the same pathogen or disease by organising or participating in proficiency tests?

Not applicable (Only OIE Reference Lab. designated for disease)

22. Did your laboratory collaborate with other OIE Reference Laboratories for the same disease on scientific research projects for the diagnosis or control of the pathogen of interest?

Not applicable (Only OIE Reference Lab. designated for disease)

**ToR 11: To organise inter-laboratory proficiency testing with laboratories other than OIE Reference Laboratories for the same pathogens and diseases to ensure equivalence of results**

23. Did your laboratory organise or participate in inter-laboratory proficiency tests with laboratories other than OIE Reference Laboratories for the same disease?

No

*Note: See Interlaboratory test comparisons in: Laboratory Proficiency Testing at: <http://www.oie.int/en/our-scientific-expertise/reference-laboratories/proficiency-testing> see point 1.3*

***ToR 12: To place expert consultants at the disposal of the OIE***

24. Did your laboratory place expert consultants at the disposal of the OIE?

No

25. Additional comments regarding your report: