

# WOAH Collaborative Centre Reports Activities 2024

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## CENTRE INFORMATION

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<b>*Name (including Title and Position) of Head of the Collaborating Centre (WOAH Contact Point):</b>	Dr Jean-Claude MANUGUERRA, directeur de recherches, chef de l'unité "Environment and Infectious risks"
<b>*Name of the writer:</b>	Jean-Claude MANUGUERRA

## TOR 1 AND 2: SERVICES PROVIDED

1. Activities as a centre of research, expertise, standardisation and dissemination of techniques within the remit of the mandate given by WOAHC

Category	Title of activity	Scope
		1/ One workshops on "Mobile



<p>Training, capacity building (true)</p>	<p>1/ Workshop «Mobile laboratories and field diagnostics» for the MediLabSecure Network 2/ Webinar for External Quality Assessment on «Metagenomic data analyses» for the MediLabSecure Network</p>	<p>laboratories and field diagnostics" was held at Institut Pasteur of Dakar (IPD) in May 2024, organized conjointly with the Arbovirus and Viral Hemorrhagic Unit and the entomology department of IPD. The objective was to train scientists on field diagnostic technics and the use of mobile laboratories. This workshop included 23 participants from animal virology (9), human virology (9) and medical entomology (5) sectors from 15 countries belonging to MediLabSecure network. 2/ A Webinar of restitution and analysis was organized following the external Quality Assessment (EQA) of 2023 for the analysis of Metagenomics data was organized following the two Workshops on "Metagenomics technologies". 38 participants from animal virology , human virology, and medical entomology sectors belonging to 20 countries of the MediLabSecure network participated.</p>
		<p>1/ EBO-SURSY study - Orthoebolavirus in Cameroon: This study assessed the presence of antibodies against orthoebolaviruses (EBOV and SUDV) in rural human populations in Cameroon. The results revealed significant seroreactivity, suggesting a potential silent circulation of these viruses in these forest regions. 2/ EBO-SURSY study - Orthoebolavirus and pigs in Guinea: A study in Guinea detected possible exposure of pigs to orthoebolaviruses, particularly in coastal and forest regions. These results highlight the potential role of pigs in the spread of the Ebola virus. 3/ EBO-SURSY study - Rift Valley fever virus (RVFV) in Gabon: A survey in north-east Gabon revealed sylvatic circulation of RVFV in small ruminants, with a significant prevalence of IgG antibodies, marking the first detection in this region. 4/ AVATAR project - Avian arboviruses in French Guiana: This project focused on arboviruses in birds in French Guiana, adapting serological tests to detect and differentiate infections. The data showed</p>



<p>Zoonoses (true)</p>	<p>1-6/ Sero-surveys and molecular screening of zoonoses at the human-animal interface</p>	<p>favourable transmission zones, particularly near Cayenne. 5/ ARMAGUEDON Study - Study of rats in Paris parks 5Urban rats in Paris parks are carriers of several zoonotic agents, including leptospirosis, yersiniosis, murine typhus, Streptobacillus and Borrelia. Although the prevalence varies according to the pathogens, the overall risk of transmission to humans is considered low, except in situations of direct or prolonged contact with rats or their droppings. These results underline the importance of ongoing monitoring and management of rat populations to reduce health risks. 6/ Hantavirus NRC - Surveillance of Hantavirus human cases in France In 2024, 77 acute hantavirus cases were detected in the traditional endemic area in metropolitan France: 55 PUUV (reservoir host: Myodes glareolus), 1 SEOV (reservoir host: Rattus norvegicus) and, 21 anti-hantavirus positive IgM and IgG antibodies. We also diagnosed a case of Choclo virus infection (reservoir host: Oligoryzomys fulvescens) in a French West Indies resident (Guadeloupe) who returned from Panama in August 2024. This represents the first reported case of Choclo virus infection imported in French West Indies to date. No human cases of Maripa hantavirus infection (reservoir hosts: Zygodontomys brevicauda and Oligoryzomys delicatus) have been diagnosed in French Guyana in 2024. Since 2008, 11 cases have been detected in French Guyana, including six deaths.</p>
<p>Diagnosis, biotechnology and laboratory (true)</p>	<p>1/ Evaluation of molecular diagnostic</p>	<p>1/ As part of the preparations for the Paris 2024 Olympic Games, several molecular diagnostic kits (syndromic multiplex qRT-PCR) were evaluated for the rapid detection of various pathogens responsible for infectious syndromes. The evaluation revealed problems with the specificity (cross-detection) and sensitivity (failure to detect certain viruses such as Chikungunya and Ebolavirus</p>

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	platforms 2/ Laboratory diagnosis	Sudan) of certain kits. 2/ Investigation of two cases of gold panners who died in French Guiana because of neurological complications, using differential multiplex qRT-PCR for Latin American neurotropic viruses and metagenomics. The patients died because of an infection by an amazonian vampire bat- related rabies virus.
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## TOR 3: HARMONISATION OF STANDARDS

2. Proposal or development of any procedure that will facilitate harmonisation of international regulations applicable to the main focus area for which you were designated

Proposal title	Scope/Content	Applicable Area

3. In exercising your activities, have you identified any regulatory research needs\* relevant for WOAHP?

No

4. Did your Collaborating Centre maintain a network with other WOAHP Collaborating Centres (CC), Reference Laboratories (RL), or organisations designated for the same specialty, to coordinate scientific and technical studies?

Yes

Name of WOAHP CC/RL/other organisation(s)	Location	Region of networking Centre	Purpose
Friedrich-Loeffler-Institut,(FLI) Institute of Novel and Emerging Infectious Diseases	Insel Riems, Germany	Europa	FLI and I. Pasteur are 2 core members of the project for the European Health Emergency Preparedness and Response Authority (HERA): Delivering a Unified Research Alliance of Biomedical and public health Laboratories against Epidemics
			ISZAM and I. Pasteur are partners of the EU funded MediLabSecure Network The

Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise (IZSAM)	Teramo, Italy	Europa	aims are to strengthen a network of laboratories and health institutions to prevent vector-borne diseases in 22 countries around the Mediterranean, Balkans, Black Sea, Maghreb and Sahel regions. Enhancing preparedness and response capacities to vector-borne diseases by promoting a One Health approach is the core of MediLabSecure project.
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## TOR 4 AND 5: NETWORKING AND COLLABORATION

5. Did your Collaborating Centre maintain a network with other WOAHC Collaborating Centres, Reference laboratories, or organisations in other disciplines, to coordinate scientific and technical studies?

Yes

Name of WOAHC CC/RL/other organisation(s)	Location	Region of networking Centre	Purpose
WOAHC Wildlife Collaborating Centre Network	Worldwide	Africa Americas Asia and Pacific Europe Middle East	Participation in the network

## TOR 6: EXPERT CONSULTANTS

6. Did your Collaborating Centre place expert consultants at the disposal of WOAHC?

Yes

Name of expert	Kind of consultancy	Subject
Jean-Claude MANUGUERRA and Jessica VANHOMWEGEN	Principal drafters of the WOAHC case definition	Crimean-Congo Haemorrhagic Fever
Jean-Claude MANUGUERRA	WOAHC ad hoc group	Covid-19 at the animal-human interface

## TOR 7: SCIENTIFIC AND TECHNICAL TRAINING

7. Did your Collaborating Centre provide advice/services to requests from Members in your main focus area?

No

8. Did your Collaborating Centre provide scientific and technical training, within the remit of the mandate given by WOA, to personnel from WOA Members?

No

## TOR 8: SCIENTIFIC MEETINGS

9. Did your Collaborating Centre organise or participate in the organisation of scientific meetings related to your main focus area on behalf of WOA?

No

## TOR 9: DATA AND INFORMATION DISSEMINATION

10. Publication and dissemination of any information within the remit of the mandate given by WOA that may be useful to Members of WOA

a) Articles published in peer-reviewed journals:

8

1: Kane Y, Tendu A, Li R, Chen Y, Mastriani E, Lan J, Catherine Hughes A, Berthet N, Wong G. Viral diversity in wild and urban rodents of Yunnan Province, China. *Emerg Microbes Infect.* 2024 Dec;13(1):2290842. doi: 10.1080/22221751.2023.2290842. Epub 2024 Jan 30. PMID: 38047395; PMCID: PMC10829829.

2: Kwasiborski A, Hourdel V, Balière C, Hoinard D, Grassin Q, Feher M, De La Porte Des Vaux C, Cresta M, Vanhomwegen J, Manuguerra J-C, Batéjat C, Caro V. Direct metagenomic and amplicon-based Nanopore sequencing of French human monkeypox from clinical specimen. *Microbiol Resour Announc.* 2024 Jan 17;13(1):e0081123. doi: 10.1128/MRA.00811-23. Epub 2023 Dec 4. PMID: 38047654; PMCID: PMC10793249.

3: Allen SW, Ribeiro Dos Santos G, Paul KK, Paul R, Rahman MZ, Alam MS, Rahman M, Al-Amin HM, Vanhomwegen J, Weaver SC, Smull T, Lee KH, Gurley ES, Salje H. Results of a Nationally Representative Seroprevalence Survey of Chikungunya Virus in Bangladesh. *J Infect Dis.* 2024 Nov 15;230(5):e1031-e1038. doi: 10.1093/infdis/jiae335. PMID: 38942731; PMCID: PMC11565896.

4: Hourdel V, Balière C, Vanhomwegen J, Brisebarre A, Grassin Q, Manuguerra J-C, Kallel H, Demar M, Dacheux L, Caro V. Complete genome sequence of a vampire bat-related rabies virus obtained by metagenomics from a patient with encephalitis of unknown etiology, French Guiana. *Microbiol Resour Announc.* 2024 Nov 12;13(11):e0051424. doi: 10.1128/mra.00514-24. Epub 2024 Oct 4. PMID: 39365087; PMCID: PMC11556106.

5: Li R, Tendu A, Kane Y, Omondi V, Ying J, Mao L, Xu S, Xu R, Chen X, Chen Y, Descorps-Declère S, Bienes KM, Fassatoui M, Hughes AC, Berthet N, Wong G. Differential prevalence and risk factors for infection with coronaviruses in bats collected from Yunnan Province, China. *One Health.* 2024 Oct 28;19:100923. doi: 10.1016/j.onehlt.2024.100923. PMID: 39605930; PMCID: PMC11600012.

6: Mendiboure V, Teiti I, Aubry M, Teissier A, Paoaafaite T, Vanhomwegen J, Manuguerra JC, Fontanet A, Cao-Lormeau VM, Madec Y. SARS-CoV-2 seroprevalence and associated factors of infection before and after the Delta wave in French Polynesia: a cross-sectional

study. *BMC Public Health*. 2024 Feb 5;24(1):382. doi: 10.1186/s12889-024-17869-4. PMID: 38317107; PMCID: PMC10840228.

7: Bohou Kombila L, Lerolle S, Mombo IM, Longo-Pendy NM, Koumba Mavoungou D, Maganga GD, Cosset FL, Vanhomwegen J, Deschermeier C, Leroy EM, Legros V, N'Dilimabaka N, Becquart P. First Detection of Antibodies Specific to Crimean- Congo Hemorrhagic Fever Virus in Rural Populations of Gabon. *Am J Trop Med Hyg*. 2024 Jul 23;111(4):880-886. doi: 10.4269/ajtmh.24-0054. PMID: 39043170; PMCID: PMC11448543.

8: Becquart P, Bohou Kombila L, Mebaley TN, Paupy C, Garcia D, Nesi N, Olive MM, Vanhomwegen J, Boundenga L, Mombo IM, Piro-Mégy C, Fritz M, Lenguiya LH, Ar Gouilh M, Leroy EM, N'Dilimabaka N, Cêtre-Sossah C, Maganga GD. Evidence for circulation of Rift Valley fever virus in wildlife and domestic animals in a forest environment in Gabon, Central Africa. *PLoS Negl Trop Dis*. 2024 Mar 1;18(3):e0011756. doi: 10.1371/journal.pntd.0011756. PMID: 38427694; PMCID: PMC10936825.

b) International conferences:

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c) National conferences:

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

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11. What have you done in the past year to advance your area of focus, e.g. updated technology?

12. Additional comments regarding your report:

*In 2023 and 2024, two major international events took place in France: the Rugby XV World Cup and the Paris Olympic and Paralympic Games. These mass gatherings were placed under particular microbiological surveillance because of the risk of imported cases of emerging diseases, the usual risks of collective infections, exacerbated by the scale of the gathering, and the risk of bioterrorism. Our laboratory was mobilised and on alert from May to September 2024. In 2024, our preparation and mobilisation for the Olympic and Paralympic Games took priority over everything else.*

*We prepared by : 1/ an increase in the panel of pathogenic micro-organisms targeted by our laboratory's detection tests; 2/ developments in detection techniques to improve the speed of primary and differential diagnosis and 3/ the deployment of our mobile laboratory, which can be deployed at a strategic site (e.g. the Olympic village) in conjunction with the entire surveillance and health system. These 3 aspects required a great deal of development, validation and implementation work.*