MERIT UMR 261
Mère et enfant en milieu tropical

Institut de Recherche pour le Développement — FRANCE

Université Paris Cité

MANAGEMENT TEAM

Unit Director (DU): André Garcia
Assistant Unit Director (DUA): Florence Migot-Nabias
Chief Administrator (RA): Brigitte Techer

RESEARCH STRUCTURE

3 multidisciplinary and complementary research groups
- Host-Pathogen Interactions (**HOPE)**
- Pharmaceuticals : from molecule to marketplace (**MEDS**)
- Host genetic adaptation (**GENE**)

1 group for backup and support of research activities
- Management, information and communication (**GECO**)

SET-UP IN THE GLOBAL SOUTH

2 Sites (Calavi - Benin, Accra - Ghana)
1 Clinical Research Centre (IRCB - Benin)
1 International Mixed Laboratory (LMI CONS-HELM)
1 Communal Mixed Laboratory (CML CERPAGE - Benin)
2 IRD-Associated Young Research Teams (JEAI)

- Respiratory illnesses and air pollution exposure in school children (**RIPE**)
- Severe malaria: clinical profiles, aetiology of anaemias and of paediatric sepsis (**TILAPIA**)

The unit has been committed to a quality-focused approach since 2010. We are ISO 9001:2015 certified for

- **Parasite culture in the L2 laboratory**
- **Reception and supervision**
- **Support services: laboratory management, health and safety, administrative (HRD, purchasing, suppliers), documented information, regulatory monitoring, archive management and logistics (stocks, IT)**

afaq ISO 9001 Qualité AFNOR CERTIFICATION

SOME KEY FACTS in 2023

1,45 M€ Annual Budget

78 people
- **19 Researchers** (14 IRD – 5 UPC)
- **10 Technicians** (9 IRD - 1 UPC)
- **4 associated staff**
- **3 PLP** (permanent local personnel)
- **8 contract workers**
- **15 PhD students**
- **19 interns**

- **4 EDCTP projects**
- **2 international Organization projects**
- **3 partnership projects**
- **2 Foundation projects**
- **10 ANR projects**
- **1 Expertise France project**
- **5 IDEX projects**

RESULTS
Scientific Journal

56 peer-reviewed publications in 2023
2 book chapters

OUR ACTIVITIES IN THE FIELD

Our global aim : to improve the treatment and prevention of maternal and childhood diseases in the context of national public health policies and strategies

Research Themes : some highlights

1 MALARIA

Community-Based Approach to Malaria Surveillance and Prevention among Vulnerable Populations in Benin (SUCOPPA)

This multidisciplinary intervention research project (epidemiology, entomology, biology, socio-anthropology) aims to support the NMCP in the restructuring of the national malaria control strategy it has initiated in the country. It revolves around 2 main axes:
- Axis 1: support for epidemiological and entomological surveillance and socio-anthropological surveys in communities by strengthening the sentinel network that the NMCP is setting up across the country.
- Axis 2: co-construction, implementation of an intervention and cluster trial to test its effectiveness.

Funding : Expertise France
Partners: Clinical Research Institute of Benin (IRCB), University of Abomey-Calavi, Benin, NMCP Ministry of Health, Benin

2 NON-COMMUNICABLE DISEASES

Production of innovative air quality monitoring tools in Ghana (R_Ghana)

The project aims to produce sensors to measure air quality and increase the production of reliable spatial and temporal data on fine particulate matter concentrations in three major cities in Ghana (Accra, Kumasi, Cape Coast). These data are essential for implementing strategies to reduce air pollution, and they will also make it possible to study the link between exposure to fine particles and respiratory health (JEAI RIPE supported by the IRD).

Funding: FSPI Embassy of France in Ghana
Partners: UMR GET, UMR PRODIG, UMR UMMISCO, University of Cape Coast, University of Ghana, Kwame Nkrumah University of Science and Technology, Kumasi Hive

3 BASIC RESEARCH

Extracellular vesicles: contribution in the pathogenesis of cerebral malaria and source of biomarkers and therapeutic targets (PEXCEL)

Studies have shown that extracellular vesicles (EVs) from red blood cells infected with *Plasmodium* play an important role in the pathogenesis of cerebral malaria. However, little is known about the nature and content of EVs. We propose a multidisciplinary approach combining biophysical and proteomic information at the single particle level by nanoparticle tracking analysis, phenotypic analysis on immunocaptured EVs, electron microscopy and biomolecular signature by Raman spectroscopy to characterize EVs from patient samples. We will also study the functions of these EVs in primary endothelial cells and astrocytes of human origin to define their contribution to the pathogenesis of cerebral malaria.

Funding: IdEx UPCité
Partners: UMR 7057 (Laboratory of Matter and Complex Systems UPCité), UMS 3612 CNRS-US25 INSERM (Laboratory of Cellular and Molecular Imaging), US24 INSERM (SFR Necker, Faculty of Medicine, UPCité)