Laboratoire Génomique Pathogènes | Institut National Recherche Biomédicale

# NEWSLETTER

003/25

Mars 2025


## The Pathogen Genomics Laboratory of INRB at the Heart of Genomic Surveillance in Africa

The Pathogen Genomics Laboratory (LGP) of the Institut National de Recherche Biomédicale (INRB) shone with its scientific contribution at the 1st annual meeting of the Africa PGI - DETECT project, held in Lusaka, Zambia from March 26 to 28, 2025.

Organized by Africa CDC, the event brought together experts, policymakers and partner institutions around a common goal: to strengthen molecular and genomic surveillance systems to improve epidemic detection and response in Africa.

The DRC was represented by Professor Placide Mbala, Head of the Epidemiology and Global Health Department at INRB and head of the LGP. INRB is one of four regional reference laboratories designated by Africa CDC to support DETECT pilot countries. As such, it plays an important role in skills transfer, technical support and the implementation of molecular algorithms for the rapid detection of epidemic pathogens.

During the three days of proceedings, delegations discussed national experiences, operational challenges and innovative tools to be integrated into epidemic investigations. In particular, LGP contributed to the session on lessons learned and best practices, where Professor Mbala presented the progress made in the DRC in integrating genomic surveillance into responses to outbreaks of Mpox, viral hemorrhagic fevers and cholera.

The DETECT project aims to strengthen the capacity of a number of African countries (including the DRC, Cameroon, Mali, Tanzania and Burkina Faso) to use molecular tools in their responses to epidemics. With the support of regional hubs, the pilot countries receive technical support, training, equipment and reagents to improve the quality and speed of diagnosis.

Highlights include LGP's participation in discussions on integrating detection algorithms into public health systems, regional coordination, and sharing genomic data for effective collective action.


# INRB's Pathogen Genomics Laboratory takes part in CholGen 2025 annual meeting

INRB's Pathogen Genomics Laboratory (LGP) was present at the annual meeting of the Africa PGI-CholGEN consortium, held from March 10 to 12, 2025 in Kampala, Uganda. The meeting, which focused on regional genomic surveillance of cholera, brought together scientists, decision-makers and international partners involved in the fight against epidemics in Africa.

Under the leadership of Professor Placide Mbala, Head of the Epidemiology and Global Health Department at INRB, and in collaboration with LGP teams, the DRC presented its progress, challenges and prospects for 2025 in terms of cholera genomic surveillance. LGP's contributions were praised for their technical rigor and their key role in generating genetic data essential to understanding circulating strains of Vibrio cholerae.

Discussions covered national prospective surveillance strategies, metadata standards, qPCR testing, antimicrobial resistance publication plans, and data sharing.

The meeting brought together several member countries of the CholGEN network, including Uganda, Cameroon, Nigeria, Zambia, Malawi, Mozambique and the DRC. Renowned experts such as Dr Sofonias Kifle Tessema (Africa CDC), Dr Amanda Debes (Johns Hopkins), and Prof Nick Thomson (Sanger Institute) shared their perspectives on innovative surveillance tools such as the VibrioWatch project.

The Congolese delegation also highlighted the contribution of several women scientists at LGP, illustrating the dynamism and leadership of women in genomics research.


*family photo during a visit to the Central Public Health Laboratories in Kampala*

# INRB Strengthens Genomic Surveillance Capacity of the National Public Health Laboratory of the Republic of the Congo

From March 19 to 21, 2025, the Institut National de Recherche Biomédicale (INRB) team led a technical mission to the Republic of Congo's National Public Health Laboratory (NPHL), as part of the continental Africa PGI-DETECT project piloted by Africa CDC.

As the regional reference laboratory for Central Africa, INRB is contributing its expertise in providing technical support to the beneficiary countries of the continental Africa PGI-DETECT project, and in strengthening epidemiological alert systems through a structured approach based on the 7-1-7 framework (detection, notification, rapid response).

Given the resurgence of outbreak such as Mpox, cholera and viral hemorrhagic fevers, this collaboration underlines the importance of INRB in building a strong and responsive African genomic surveillance network.

The aim of the visit was to assess local genomic surveillance capabilities and make concrete recommendations to encourage the implementation of a quality management system, including: the introduction of standardized quality assurance protocols, ongoing staff training in bioinformatics and molecular diagnostic techniques, the structuring of process documentation, rigorous inventory management, and enhanced participation in proficiency testing programs.

*INRB team at the evaluation session at the Republic of Congo's National Public Health Laboratory (NPHL)*


# INRB participation in a workshop on environmental monitoring of wastewater in Nairobi

From March 3 to 7, 2025, Africa CDC brought together scientists from across the African continent for a workshop dedicated to pathogen surveillance from wastewater, held at the International Livestock Research Institute (ILRI) in Nairobi. This event is part of a growing trend to incorporate environmental methods into the prevention and response to new health threats.

For five days, participants from Côte d'Ivoire, Cameroon, Congo, Burundi, Uganda and the Democratic Republic of Congo received intensive laboratory training. ILRI, as organizer of the event, shared its technical know-how in metagenomic sequencing and bioinformatics analysis of wastewater samples.

These hands-on sessions enabled scientists to familiarize themselves with advanced tools for detecting pathogens in the environment.

The Pathogen Genomics Laboratory of the Institut National de Recherche Biomédicale (INRB) took part in the workshop, reinforcing its commitment to innovative environmental monitoring methods.

Wastewater analysis is now recognized as a strategic tool in public health, facilitating the early detection of infectious diseases, the assessment of virus spread, and the prevention of epidemics.

*Family photo of participants and facilitators on day 1 of the hands-on laboratory workshop*

# SPOTLIGHT

**ADRIENNE AMURI AZIZA**

LAB MANAGER, INRB PATHOGEN GENOMICS LABORATORY

Adrienne Amuri Aziza is a Congolese medical biologist specializing in molecular biology and pathogen genomics. She is currently in charge of the Pathogen Genomics Laboratory within the Epidemiology and Global Health Department of the Institut National de Recherche Biomédicale (INRB) in Kinshasa.

With her expertise in genomic surveillance, she plays an important role in efforts to combat emerging and re-emerging diseases such as Ebola, Mpox, COVID-19, polio and other respiratory viruses in the Democratic Republic of Congo.

Adrienne Amuri has a degree in medical biology and is pursuing a Master's degree in Tropical Medicine at the Institute of Tropical Medicine in Antwerp (Belgium) and a DEA in molecular biology at the University of Kinshasa.

Since 2018, Adrienne has headed the sequencing laboratory at INRB. She has led and participated in several applied research projects, epidemic response field missions, randomized clinical trials, and training in health crisis contexts.

Multilingual in French, English, Lingala and Swahili, she has collaborated with international partners such as Africa CDC, CDC US, Institut Pasteur, Institute of Tropical Medicine in Antwerp (Belgium), Chan Zuckerberg Biohub, and universities such as Johns Hopkins, Imperial College London and Stellenbosch University.

Alongside her scientific work, Adrienne regularly takes part in international conferences (Afroscreen, Africa CDC, ASTMH), training workshops and technical support missions in Central and West Africa. She is actively involved in training new generations of biologists in the DRC.

Through her responsibilities, international publications and training activities, Adrienne Amuri Aziza is inspiring a whole generation of young women to embrace ambitious scientific careers and believe in their ability to transform public health in Africa.

Some publications:

- *Sustained Human Outbreak of a New MPXV Clade I Lineage in Eastern DRC (2024)*- https://www.medrxiv.org/content/10.1101/2024.04.12.24305195v1
- *Co-Circulating Monkeypox and Swinepox Viruses, DRC, 2022*.**Emerging Infectious Diseases** (CDC)- https://wwwnc.cdc.gov/eid/article/30/4/23-1413_article
- *Sensitive poliovirus detection using nested PCR and nanopore sequencing*.**Nature Microbiology**(2023)- https://www.nature.com/articles/s41564-023-01453-4
- *Use of Mpox Multiplex Serology in Outbreak Investigations in DRC*.**Pathogens** (MDPI, 2023)- https://www.mdpi.com/2076-0817/12/7/916
- *SARS-CoV2 mutations and impact on mortality in Sub-Saharan Africa*.**Virology Journal** (2023)- https://virologyj.biomedcentral.com/articles/10.1186/s12985-023-02014-1
- *Ebola Virus Transmission Initiated by Relapse of Systemic Ebola Virus Disease*.**New England Journal of Medicine** (NEJM)- https://www.nejm.org/doi/full/10.1056/NEJMoa2024670

## PUBLICATIONS – From January 1 to April 6, 2025


1.Epidemiological and clinical features of mpox during the clade Ib outbreak in South Kivu, Democratic Republic of the Congo: a prospective cohort study - The Lancet (2025)
https://www.sciencedirect.com/science/article/abs/pii/S0140673625000479
2.Clade I mpox virus genomic diversity in the Democratic Republic of the Congo, 2018–2024: Predominance of zoonotic transmission - Cell (mars 2025)
https://www.cell.com/cell/fulltext/S0092-8674(24)01199-1?_returnURL=https%3A%2F%2Flinkinghub.elsevier.com%2Fretrieve%2Fpii%2FS0092867424011991%3Fshowall%3Dtrue
3.Establishment of a regional Mpox surveillance network in Central Africa: shared experiences in an endemic region - Global Health Research and Policy (Mars 2025)
https://ghrp.biomedcentral.com/articles/10.1186/s41256-025-00408-y
4.Suspected and confirmed mpox cases in DR Congo: a retrospective analysis of national epidemiological and laboratory surveillance data, 2010–23 - The Lancet (février 2025)
https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(24)02669-2/abstract
5.Evolving Epidemiology of Mpox in Africa in 2024 - The New England Journal of Medicine (février 2025)
https://www.nejm.org/doi/full/10.1056/NEJMoa2411368
Concurrent outbreaks of mpox in Africa—an update - The Lancet (janvier 2025)
https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(24)02353-5/abstract


## Chers partenaires, Merci pour votre engagement à nos côtés !


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