Laboratoire Génomique Pathogènes | Institut National Recherche Biomédicale

NEWSLETTER

002/25

February 2025

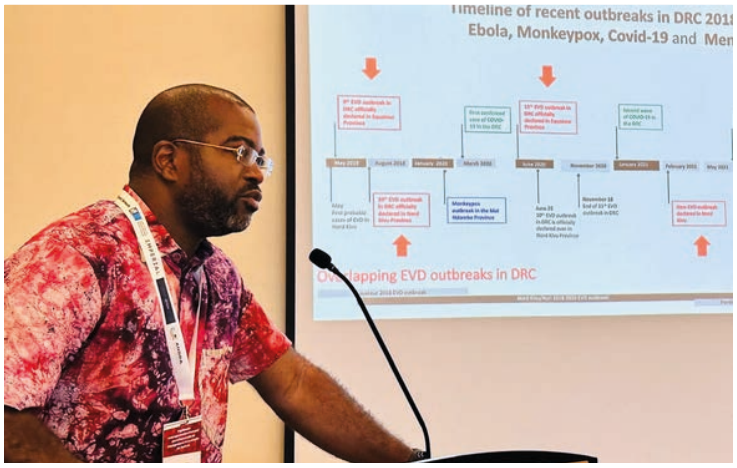
Genomic Surveillance of Pathogens: An International Conference in Luanda with Participation from INRB's Pathogen Genomics Laboratory

On February 24, 2025, the city of Luanda hosted a conference on genomic surveillance of pathogens—a key issue for public health in Central Africa. This event took place within the framework of the FEEVIR project (Metagenomic surveillance for epidemic prevention in the DRC-Angola cross-border), a joint initiative involving Imperial College London, Angola's National Institute for Health Research (INIS), and several regional scientific institutions, including the Pathogen Genomics Laboratory (LGP) of the Institut National de Recherche Biomédicale (INRB) of the Democratic Republic of Congo (RDC).

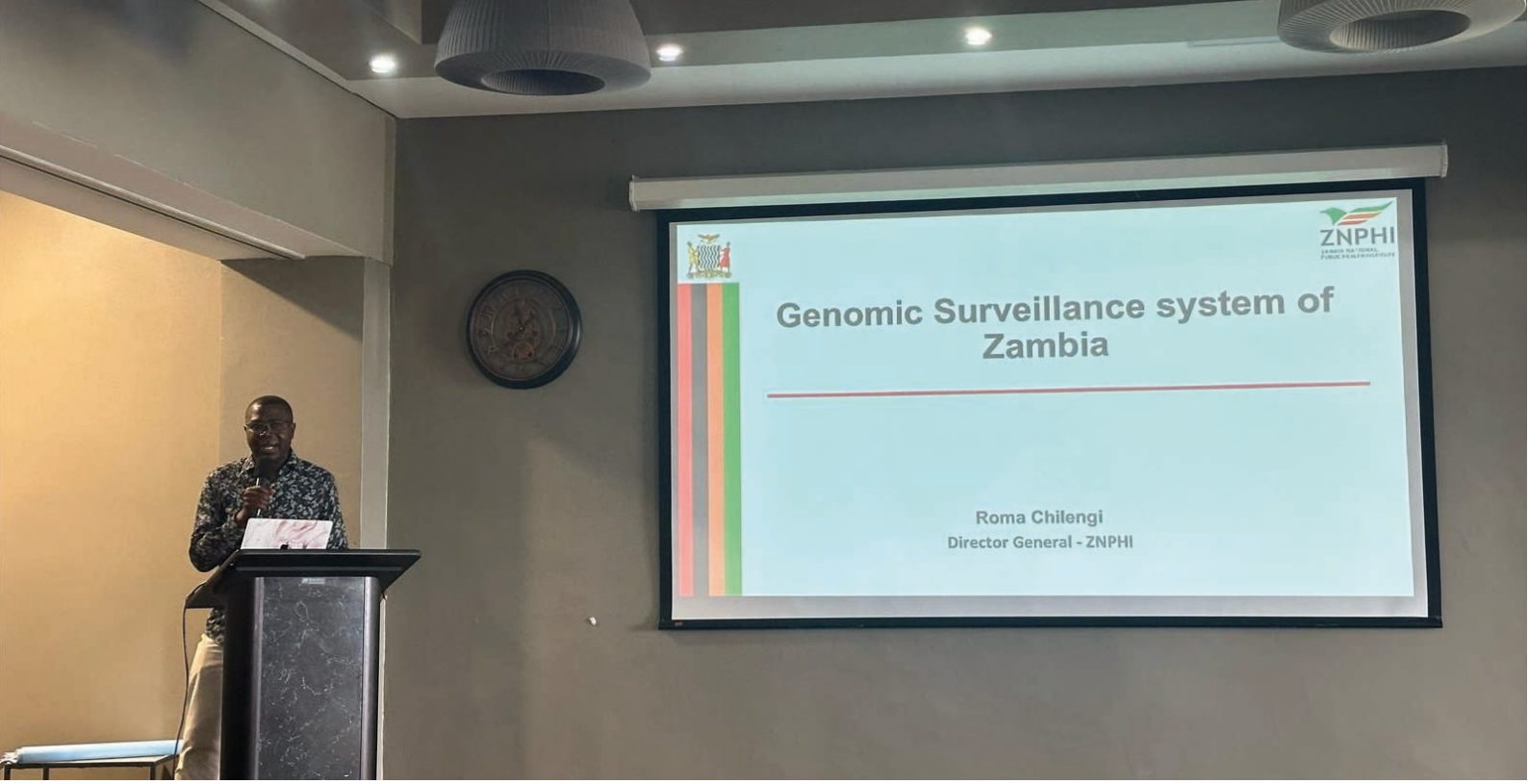
Professor Placide Mbala, Director of the Clinical Research Center and Head of the Department of Epidemiology and Global Health at INRB, delivered a speech highlighting the importance of genomic surveillance in the DRC. He emphasized the critical role of new sequencing technologies in early pathogen detection and epidemic prevention.

Alongside the conference, a training session was held from February 16 to 28, 2025, bringing together laboratory technicians from the DRC, Brazil, and Angola under the same theme. This training enabled participants to acquire advanced skills in genomic surveillance and share experiences to strengthen local capabilities in outbreak detection and prevention.

The FEEVIR project aims to develop local metagenomic surveillance capacity by facilitating the exchange of knowledge and skills among Angolan, Congolese, and British researchers. This collaborative approach is expected to improve detection of circulating pathogens and strengthen the health response in the cross-border region of DRC-Angola.



Professor Placide, presenting at the genomic surveillance conference in Luanda in February 2025



Genomic Surveillance Training to Transform the Fight Against Cholera

From February 9 to 14, 2025, Lusaka hosted a major scientific event: an advanced training session on cholera genomics organized by the Centre for Infectious Disease Research in Zambia (CIDRZ) and the Wellcome Trust Sanger Institute.

This intensive program aimed to revolutionize the approach to cholera by training experts in genomic analysis of Vibrio cholerae. Through practical sessions and strategic discussions, participants explored the evolution and dynamics of this disease in Africa and globally.

The main goal was to strengthen local and regional capacities in the use of genomic data to inform public health decisions and improve cholera control. By bringing together public health genomics experts, the program sought to build strong ties between regional specialists and international stakeholders working on cholera genomics.

Participants learned how to produce and analyze genomic data of Vibrio cholerae, gaining essential knowledge to guide strategies for surveillance and epidemic control.

This training targeted public health professionals in Africa: personnel from National Public Health Institutes, clinicians, microbiologists, and researchers at master's, PhD, or postdoctoral levels. The INRB Pathogen Genomics Laboratory was represented by a staff member in bioinformatics. The program included theoretical courses, bioinformatics exercises based on real African genomic data, and discussions on analytical solutions and data types relevant to cholera study.

Cloud Computing in Africa Conference: Building a Sustainable Digital Infrastructure for Genomics

On February 27, 2025, the Pathogen Genomics Laboratory of INRB participated in the prestigious international scientific conference 'Cloud Computing in Africa', held in Banjul, The Gambia. Organized by the Medical Research Council Unit The Gambia at the London School of Hygiene & Tropical Medicine, in collaboration with CLIMB Big Data and the ARTIC Network, this event gathered international experts around a key issue: building a sustainable digital infrastructure for pathogen genomics in Africa.

Represented by Professor Eddy Kinganda Lusamaki, the INRB's Pathogen Genomics Laboratory actively contributed to discussions aimed at strengthening African capacities in genomic surveillance of infectious diseases. INRB showcased the DRC's advances in genomic sequencing and bioinformatics while exploring opportunities offered by cloud computing for large-scale genomic data analysis and sharing.

Researchers and experts from various countries, including the UK (England, Wales, Scotland), Kenya, South Africa, Ghana, Nigeria, Sierra Leone, Senegal, Guinea-Bissau, Cape Verde, and the DRC, discussed the challenges and solutions for a robust and sustainable digital infrastructure in Africa.

INRB's participation reaffirms its role in developing scientific solutions tailored to the continent's realities. Integrating new technologies in pathogen research represents a major step forward to better understand epidemics, improve public health response, and strengthen Africa's scientific sovereignty.

Prof Eddy Kinganda from INRB's pathogen genomics laboratory during the exchange and sharing time at the conference on cloud computing in Africa 2025.

SPOTLIGHT

PROFESSOR PLACIDE MBALA KINGEBENI:
A SCIENTIFIC LEADER ON THE FRONT LINES

Head of the Epidemiology and Global Health Department at INRB

Placide Mbala Kingebeni is a renowned epidemiologist, Public Health Expert, and Associate Professor at the Faculty of Medicine, University of Kinshasa. He heads the Clinical Research Center and the Department of Epidemiology and Global Health at the the Institut National de Recherche Biomédicale (INRB), playing a major role in epidemic surveillance and response in the DRC and across Africa.

Since the early 2010s, he has become a leading figure in the fight against emerging infectious diseases. His work at the Pathogen Genomics Laboratory (LGP) helps decipher the DNA of infectious agents to better combat them.

From Ebola to COVID-19 to Mpox, he has been at the forefront of scientific and medical responses to health threats. A committed and visionary scientist, Professor Mbala also dedicates himself to training the next generation of African researchers, thus contributing to the development of high-quality biomedical research on the continent.

His research is highly influential and frequently published in top scientific journals. Notable contributions include:

- *PhD thesis (2019): Ebola virus at the human–wildlife interface and animal reservoir of Ebola viruses in the DRC.*

- *Recent scientific studies:*
- *Extensive survey and analysis of factors associated with presence of antibodies to orthoebolaviruses in bats from West and Central Africa. MDPI, https://www.mdpi.com/1999-4915/15/9/1927 (2023).*
    - *Survey of Ebola viruses in frugivorous and insectivorous bats in Guinea, Cameroon, and the Democratic Republic of the Congo, 2015–2017.* Emerg Infect Dis., https://wwwnc.cdc.gov/eid/article/24/12/18-0740_article (2018)
    - *Clade I–Associated Mpox Cases Associated with Sexual Contact, the Democratic Republic of the* Congo *.Emerg Infect Dis.*, https://wwwnc.cdc.gov/eid/article/30/1/23-1164_article (2024)
    - *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 https://www.sciencedirect.com/science/article/abs/pii/S0140673625000479 (2025).

In 2024, Professor Mbala received prestigious recognition from *Nature Medicine* for his key role in a study on Mpox. His article, *Sustained human outbreak of a new MPXV clade I lineage in eastern DRC*, highlighted a new virus lineage and contributed to refining Mpox control strategies in the country.

👉 Find all articles by Professor Placide Mbala on our website: www.inrb.cd

PUBLICATIONS : January 1st to March 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

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Editorial team

Joelle BOTAMBA
Magloire Vakaniaki
Gradi LUAKANDA

Layout & Design

Joelle BOTAMBA

Laboratoire de Génomique des Pathogènes - INRB

@labgenpath

@labgenpath.bsky.social

www.inrb.cd
+243822851584
+243896729720
labgenpath@inrb.cd
Av. De la Démocratie N°5345,
(Ex Av. Des huileries), Kinshasa - Gombe.