Laboratoire Génomique Pathogènes | Institut National Recherche Biomédicale

NEWSLETTER

JANUARY 2026 *01/2026*

Message from the Head of the Laboratory

Dear colleagues and partners,

The month of January was marked by strong momentum within our laboratory, with activities focused on capacity building, scientific innovation, and collaboration with our partners. The training on wastewater sample sequencing illustrates our commitment to anticipating public health threats and strengthening epidemiological surveillance through modern and integrated approaches.

I would like to commend the dedication and professionalism of all teams, whose daily commitment contributes to the quality of our work and the impact of our actions. Together, we continue our efforts to generate reliable data that support evidence-based public health decision-making, in service of our populations.

Amuri Aziza Adrienne

SUMMARY

Participation of the INRB Pathogen Genomics Laboratory (LGP/INRB) in research on the genomic epidemiology of cholera in the DRC at the University of Geneva

From 13 to 31 January, a member of the Pathogen Genomics Laboratory of the Institut National de Recherche Biomédicale (PGL/INRB) participated in the genomic data analysis of *Vibrio cholerae* as part of a project aimed at investigating local persistence and reintroduction events of cholera in Uvira, Democratic Republic of the Congo (DRC). This work was conducted in close collaboration with Johns Hopkins University, Oxfam DRC, the London School of Hygiene & Tropical Medicine, the Uvira Health Zone (South Kivu), and the Institute of Global Health at the University of Geneva.

The activities primarily sought to assess the impact of mass cholera vaccination campaigns in Uvira, with the goal of improving understanding of transmission dynamics, identifying potential sources of disease resurgence, and effectively informing prevention, surveillance, and control strategies.

Among the major contributions of the LGP/INRB was the development of a dedicated Nextstrain build for the genomic epidemiology of *Vibrio cholerae*, enabling the analysis, visualization, and interpretation of genetic diversity.

Strengthening Mpox Diagnostic Capacity in the Comoros

As part of efforts to strengthen inter-laboratory capacity building, the Pathogen Genomics Laboratory of the Institut National de Recherche Biomédicale (LGP/INRB), with the support of Africa CDC and the Government of the Union of the Comoros, conducted a technical support mission to public health laboratories in the Union of the Comoros from 21 to 27 January 2026.

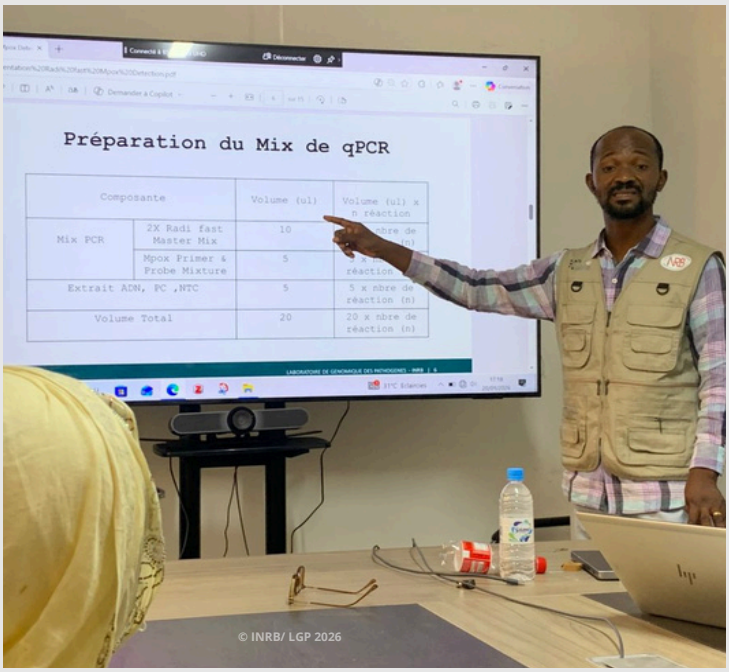
This mission followed an alert regarding four suspected cases of Mpox in the Comoros. The situation highlighted the urgent need to strengthen national capacities for reliable molecular diagnostics, in order to ensure appropriate patient management and to provide clear and reassuring communication to the population.

In Moroni (Grande Comore), an initial training session was organized at the Public Health Laboratory, focusing on Mpox molecular diagnostic techniques and laboratory best practices.

On the island of Anjouan, a second training was delivered at the Bambao laboratory, followed by a laboratory capacity assessment and targeted technical support mission conducted from 26 to 27 January 2026.

This phase enabled the identification of existing strengths, priority needs, and key actions required to sustainably enhance preparedness and response capacities to emerging epidemics.

Through this mission, INRB reaffirms its commitment to supporting countries in the region in strengthening surveillance and diagnostic systems, contributing to a coordinated, effective, and evidence-based response to cross-border public health threats.



Training on Mpox and cholera diagnosis and sequencing in wastewater – Practical sessions

The Pathogen Genomics Laboratory of the Institut National de Recherche Biomédicale (INRB) organized a specialized training course on wastewater sample sequencing from 26 January to 4 February 2026, as part of capacity-building efforts in environmental surveillance.

Held at the Pathogen Genomics Laboratory, the training was led by Catherine Pratt, Director at Biosurv International and consultant for the implementation of the wastewater surveillance project conducted in collaboration with the Bill & Melinda Gates Foundation. The activity brought together laboratory professionals around a shared objective: optimizing molecular approaches for more effective detection of Mpox and other pathogens in wastewater.

The technical sessions focused on identifying the most performant PCR method for cholera, as well as on a comparative evaluation of the SCRIPPS, ARTIC, and XGen sequencing approaches, with the aim of determining those offering the best balance between sensitivity, reliability, and operational applicability.

Beyond the technical components, the training also served as a valuable platform for exchange and experience sharing, contributing to the strengthening of local expertise and to the consolidation of the foundations for a more proactive and predictive environmental surveillance system in the Democratic Republic of the Congo.

LGP-INRB mission to the Cameroon National Public Health Laboratory (NPHL): assessment of Mpox sequencing capacities

From 13 to 16 January, a team from the Pathogen Genomics Laboratory (LGP-INRB) conducted a mission at the National Public Health Laboratory (NPHL) of Cameroon.

This mission was carried out under the Africa CDC Pathogen Genomics Initiative (PGI) programme and aimed to assess the organization and operational framework of genomic activities at the National Public Health Laboratory of Cameroon.

The mission placed particular emphasis on molecular analyses, sequencing activities, and the identification of operational challenges faced by the local team.

Technical discussions also addressed the quality of Mpox sample collection, leading to the recommendation to prioritize crust and vesicular lesion samples, which were considered more reliable for diagnosis than blood samples.

The assessment indicated that activities were being conducted satisfactorily, with a notable improvement compared to the previous mission. On this occasion, the laboratory was provided with extraction and PCR reagents, as well as Mpox ARTIC-INRB primer sets for sequencing.

Maternal and neonatal outcomes after infection with monkeypox virus clade I during pregnancy in DR Congo: a pooled, prospective cohort study

In a context of Mpox virus endemicity in the Democratic Republic of the Congo, researchers and clinicians from the Institut National de Recherche Biomédicale (INRB) and partners conducted a prospective study across four sites in three provinces Sud-Kivu, Maniema, and Sankuru to characterize maternal and neonatal outcomes associated with Mpox (clade I) infection during pregnancy.

By combining data from multiple clinical cohorts and a randomized trial, the study highlights a high frequency of adverse outcomes, including intrauterine fetal death and congenital infections, with a significantly higher risk when infection occurs during the first trimester.

These findings strengthen understanding of vertical transmission mechanisms of MPXV and underscore the need for targeted prevention, surveillance, and care strategies for pregnant women in endemic areas.

Access the full article published in January 2026 in The Lancet via the following link:
https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(25)02309-8/fulltext

CEFRI Training – Practical Sessions at the Pathogen Genomics Laboratory

As part of the 5th session of the INRB Regional Training Centre of Excellence (CEFRI), two groups of participants from Burundi, Cameroon, Congo-Brazzaville, Gabon, Guinea, the Central African Republic, the Democratic Republic of the Congo, and Chad took part in hands-on training sessions held on 21 and 28 November 2025 at the Pathogen Genomics Laboratory (LGP) of INRB. These sessions aimed to strengthen participants' skills in genomic sequencing and bioinformatics analysis, two essential pillars of modern infectious disease surveillance.

The programme combined theoretical and practical components. Morning sessions focused on laboratory-based sequencing activities, including an overview of sequencing workflows, hands-on use of equipment, sample preparation, and an understanding of the key steps involved in genomic data generation.

Afternoon sessions were dedicated to an introduction to bioinformatics, covering fundamental theoretical concepts applied to pathogen genomics, an overview of Oxford Nanopore Technologies and Illumina sequencing platforms, and an initiation into preliminary genomic data analysis.

Organizing the sessions into two groups ensured closer supervision, enhanced interaction with facilitators, and more effective learning outcomes.

Overall, these two training days enabled all participants to acquire essential practical skills in genomics and data analysis, fully aligning with the objectives of the CEFRI programme to strengthen regional capacities in diagnostics, genomic surveillance, and epidemic preparedness and response.

Mpox Clade IIb Virus Introduction into Kinshasa, Democratic Republic of the Congo, July 2025 : INRB-documented study

In a study published in the journal Viruses, researchers from the National Institute for Biomedical Research (INRB) and their partners report, for the first time in Kinshasa, Democratic Republic of the Congo, cases of Mpox Clade IIb/sh2017. A man who had recently returned from West Africa and his partner tested positive by PCR, and full viral genome sequencing confirmed affiliation with the G.1 lineage, previously identified in Sierra Leone in early 2025.

These findings highlight the risk of importation and subsequent local transmission in a highly connected urban setting. They underscore the critical importance of rapid diagnosis, case isolation, and contact tracing, as well as the strengthening of genomic surveillance, to limit the spread of this variant and other MPXV lineages within the capital and beyond.

Access the full article: https://www.mdpi.com/1999-4915/18/1/87

Environmental surveillance of Mpox in Mbandaka: implementation and perspectives

From 13 to 23 December 2025, a technical mission under the Wastewater project was conducted in Mbandaka as part of Mpox environmental surveillance efforts, with the objective of supporting epidemiological surveillance systems through wastewater analysis. This approach enables early detection of viral circulation within communities, thereby contributing to improved anticipation of public health risks.

The mission was marked by institutional engagements with the Provincial Health Division (PHD), the World Health Organization (WHO), the management of the Mbandaka Central Laboratory, as well as the Wangata and Mbandaka health zones, with the aim of strengthening coordination, local ownership, and operationalization of the environmental surveillance system.

At the operational level, teams benefited from capacity building on the precise geolocation of sampling sites using GPS tools, as well as on environmental sampling procedures. In addition, the installation of a freezer at the Mbandaka Central Laboratory strengthened the cold chain, ensuring the integrity and reliability of collected samples.

This initiative is part of an integrated and phased approach, with the prospect of extending environmental surveillance to other public health priority diseases, notably cholera and poliomyelitis, in order to sustainably strengthen national capacities for epidemic anticipation, prevention, and response.

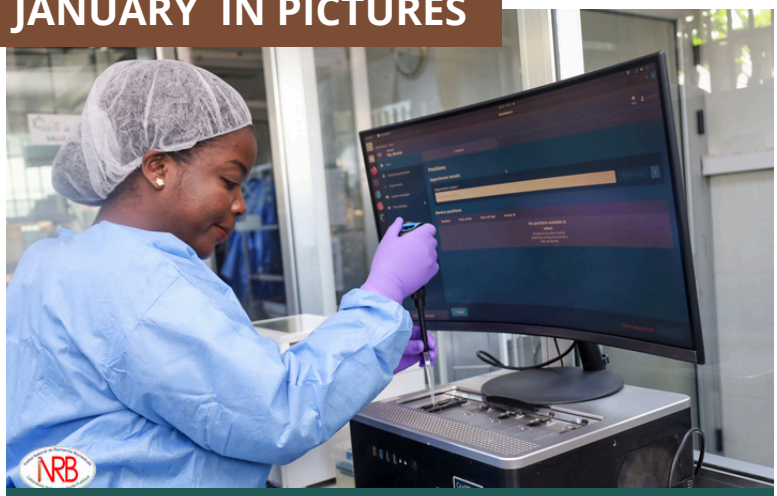
Participation of the LGP-INRB team in African training on malaria molecular surveillance in Kenya

The team from the Pathogen Genomics Laboratory (LGP) of the Institut National de Recherche Biomédicale (INRB) participated in the Malaria Molecular Surveillance (MMS) training, held from 1 to 13 December 2025 at the KEMRI–Wellcome Trust campus in Kilifi, Kenya.

This intensive two-week training brought together participants from 13 African countries as part of a programme aimed at sustainably strengthening scientific and technical capacities in malaria genomics at the continental level. The training comprised in-depth hands-on wet-lab practical sessions and advanced bioinformatics modules, enabling an integrated approach to molecular and genomic surveillance.

This initiative aligns with the mission of generating high-quality scientific data and strengthening research capacity in Africa. It was implemented with the support of Africa CDC and the African Society for Laboratory Medicine (ASLM), strategic partners committed to advancing African expertise and translating research outputs into high-impact public health actions.

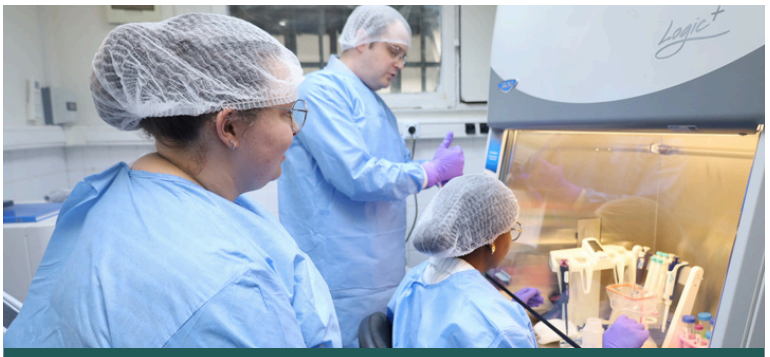
JANUARY IN PICTURES



Loading of the stool sample library on the GridION as part of poliovirus sequencing activities

Capacity-building training on Mpox diagnostics in Comoros – Step 2

Preparation of Mpox sample libraries for sequencing



Training on Mpox diagnosis in wastewater at the Pathogen Genomics Laboratory under the Wastewater Project

First step of the capacity-building training on Mpox diagnostics in Comoros

Visit to INRB by the Director of Thematic and Multilateral Cooperation at the Directorate-General for Development Cooperation and Humanitarian Aid (DGD) of Belgium

Wastewater sample collection for environmental surveillance of Mpox in Kisangani under the Wastewater Project

Group photo of the teams from the National Public Health Laboratory (LNSP) in Cameroon, the Pathogen Genomics Laboratory of INRB, and Africa CDC

OUR PARTNERS

PUBLICATIONS : From 1st to 31st January, 2026

1. Maternal and neonatal outcomes after infection with monkeypox virus clade I during pregnancy in DR Congo: a pooled, prospective cohort study. (The Lancet Jan 2026) https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(25)02309-8/fulltext
2. Determinants of long-term SARS-CoV-2 immune responses in asymptomatic-to-moderate COVID-19 patients in sub-Saharan Africa (Springer Nature Jan 2026) https://link.springer.com/article/10.1186/s12916-025-04607-9
3. Mpox Clade IIb Virus Introduction into Kinshasa, Democratic Republic of the Congo, July 2025 (Viruses Jan 2026) https://www.mdpi.com/1999-4915/18/1/87

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