

# Mérieux Foundation GABRIEL Network

The international scientific network GABRIEL was created by the Mérieux Foundation in 2008 to strengthen the research and training capacities of local laboratories and improve the surveillance of diseases with a major impact on public health in developing countries.

The GABRIEL network promotes collaboration in the field of infectious diseases and supports local responses to health challenges through:

- **Collaborative research** on acute respiratory infections, tuberculosis and antimicrobial resistance,
- **Technology transfer** of diagnostic testing tools to enable local laboratories to detect diseases,
- **Training and knowledge sharing** to empower local scientists so they can conduct autonomous research projects.

This non-profit network brings together **20 research laboratories** in academic, public and private institutions and aims to improve laboratory- and hospital-based surveillance (virology, bacteriology, molecular epidemiology and immunology) and research capacity on infectious diseases that have a major impact on public health.

Members meet every 18 months to present and discuss the results of collaborative research projects and design new ones. The GABRIEL network includes the eight Rodolphe Mérieux Laboratories, which meet the most exacting international standards. They were built by the Mérieux Foundation and transferred to local partners to improve capacity in regions of the developing world at high risk of infectious disease outbreaks.

The Mérieux Foundation's Emerging Pathogens Laboratory (LPE) in Lyon coordinates the network's activities and assists member laboratories through:

- Highly trained staff and compliance with international standards (BSL2 and BSL3),
- Development and transfer of diagnostic research tools to identify viruses, bacteria, and biomarkers, as part of a syndromic approach, using multiplex technologies and "omics",
- Strong relationships with clinicians and local public health authorities,
- Expertise in the field of viral and bacterial respiratory infections,
- Presence in areas exposed to a high risk of emerging disease outbreaks.

The GABRIEL network also supports member laboratories to meet the international accreditation requirements for the ISO 15189 standard. This is part of a quality initiative launched by the Mérieux Foundation in 2014.

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# **GABRIEL LABORATORY NETWORK IN THE WORLD**



# **KEY FIGURES**

- 20 member laboratories in 16 countries
- >70 scientists dedicated to GABRIEL research programs
- >160 scientists trained in new diagnostic tools
- Nearly 700 scientists trained in molecular biology, immunology, bioinformatics, epidemiology, biosafety, quality assurance, etc.
- 46 organized workshops
- 50 technical trainings by mentoring
- **10 e-learning modules** on epidemiology, clinical research, molecular biology, Zika diagnosis, biobanks
- 459 publications since 2012
- 26 editions of the newsletter GABRIEL
- 9 international meetings of members

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# **Collaborative research: network members**

The member laboratories of the GABRIEL network jointly conduct research programs aimed at improving the control, prevention and treatment of infectious diseases that have a significant impact on public health. The network builds strong relationships with national institutions and supports public health and research initiatives at the national and international levels.

## BANGLADESH

- 1) Bangladesh Institute of Tropical & Infectious Diseases (BITID), Rodolphe Mérieux Laboratory - Chittagong
  - Public institution under the Ministry of Health
  - Focus: enteric diseases, tuberculosis, pneumonia
  - Infrastructure and technology: BSL2, BSL3, molecular biology, microbiology
  - Built according to ISO 14644 (part 4 and 1); accredited ISO 15189
  - Direct clinical access to patients



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- 2) International Centre for Diarrheal Disease Research Bangladesh icddr,b (Mycobacteriology Laboratory) - Dhaka Private institution with public funding
  - Focus: tuberculosis diagnosis, surveillance, drug resistance, immunology, epidemiology, genotyping, transmission, control and prevention
  - Infrastructure and technology: BSL2, immunology, molecular biology and typing
  - Indirect clinical access to patients
- 3) Institute for Developing Science and Health Initiatives ideSHi (Laboratory of Infectious Diseases and Laboratory of Genetics and Genomics) Dhaka
  - Non-government organization
  - Focus: antibiotic susceptibility testing, bacteria identification, dengue, diarrhea infectious diseases, hepatitis B and C, HIV, neglected diseases, respiratory infectious diseases (influenza, pneumonia...), tuberculosis, other routine diagnosis tests
  - Infrastructure and technology: molecular biology, microbiology
  - Indirect clinical access to patients

## BRAZIL

## 4) Oswaldo Cruz Institute, Oswaldo Cruz Foundation - FIOCRUZ (Laboratory of Respiratory Viruses) – Rio de Janeiro

- National Reference Laboratory
- Focus: respiratory infectious diseases (influenza, pneumonia, measles).
- Infrastructure and technology: molecular biology, bioinformatics, genomics, proteomics, immunology
- Indirect clinical access to patients
- 5) Laboratorio Nacional de Computação Científica (LNCC), Laboratorio de bioinformatica (LABINFO) - Petrópolis
  - Public academic / research institution
  - Focus: bioinformatics
  - Infrastructure and technology: genomics and bioinformatics platforms

#### Rodolphe Mérieux Laboratory, Fundhacre Hospital - Rio Branco

- Public institution
- Focus: tuberculosis, hepatitis B and C, HIV
- Infrastructure and technology: BSL3, BSL2, bacteriology, molecular biology, plasmid production
- Direct clinical access to patients
- GABRIEL membership under preparation



## CAMBODIA

- 6) University of Health Sciences, Rodolphe Mérieux Laboratory -Phnom Penh
  - Autonomous public academic institution
  - Focus: bacteria identification, diarrhea infectious diseases, hepatitis B and C, HIV, respiratory infectious diseases (influe nza, pneumonia...), zoonotic infectious diseases, pharmacokinetic of HIV drugs
  - Infrastructure and technology: BLS3, molecular biology, microbiology, typing, biobanking, DST
  - Built according to ISO14644 (part 4 and 1)
  - Indirect clinical access to patients





# CAMEROON

#### 7) Centre Pasteur du Cameroun - Yaoundé

- National Laboratory, public institution under the Ministry of Health
- Focus: hepatitis B and C, HIV, respiratory infectious diseases (influenza, pneumonia...), tuberculosis, arbovirus, zoonotic infectious diseases, Buruli ulcer
- Infrastructure and technology: BSL2, BSL3, molecular biology, immunology, typing, DST
- Indirect clinical access to patients

## **CHINA**

- 8) Institute of Pathogen Biology, Chinese Academy of Medical Sciences & Peking Union Medical College (IPB, CAMS, PUMC), Christophe Mérieux Laboratory - Beijing
  - National Laboratory, Ministry of Health
  - Focus: detection of respiratory infectious diseases (influenza, pneumonia)
  - Technological centers/platforms: molecular screening on respiratory pathogens; viral evolutionary analyzing; deep sequencing platforms; proteins expression and purification platforms



Indirect clinical access to patients

# FRANCE

- 9) Emerging Pathogens Laboratory, Mérieux Foundation Lyon
  - Non-profit organization, family foundation with public interest status
  - Focus: biomarkers in respiratory infections, epidemiology of acute respiratory infections, TB multidrug resistance identification, surveillance for antimicrobial resistance, emerging viral infections
  - Infrastructure and technology: BSL2, BSL3, access to the BSL4 Jean Mérieux-Inserm lab, molecular biology, microbiology, immunology, typing, bioinformatics
  - ISO 17025 accreditation underway



# **GEORGIA**

## 10)National Center for Tuberculosis and Lung Disease (Mycobacteriology Laboratory) -Tbilisi

- National Laboratory, non-profit organization national tuberculosis program
- Focus: antibiotic susceptibility testing, bacteria identification and tuberculosis
- Infrastructure and technology: molecular biology PCR, hybridization, typing (Spoligo, MIRU-VNTR)
- Direct clinical access to patients

## HAITI

## 11) GHESKIO, Rodolphe Mérieux Laboratory – Port-au-Prince

- Non-profit organization
- Focus: HIV, sexually transmitted infections, tuberculosis, respiratory infectious diseases (influenza, pneumonia), diarrhea/cholera, Zika, gender-based research
- Infrastructure and technology: BSL2, BSL3, molecula r biology, microbiology, immunology, typing
- Built according to ISO 14644 (part 4 and 1), ISO 15189 accreditation
- Direct clinical access to patients



# INDIA

## 12)King George's Medical University (Translational Medicine Unit) - Lucknow

- Autonomous state government university
- Focus: pneumonia; public health issues in child survival
- Infrastructure and technology: hospital laboratory BSL2, molecular biology, immunology
- Direct clinical access to patients





# LAOS

## 13)Center of Infectiology Lao Christophe Mérieux – Vientiane

- Public institution under the Ministry of Health
- Focus: tuberculosis, hepatitis B and C, HIV, respiratory infectious diseases (influenza, pneumonia)
- Infrastructure and technology: BSL2+, BSL3 (underway), molecular biology, immunology, typing
- Aiming at ISO 15189 accreditation
- Indirect clinical access to patients

# **LEBANON**

## 14) Université Libanaise - Laboratoire Microbiologie, Santé et Environnement

### – Tripoli

- Specialized laboratory for conventional and molecular techniques in the diagnosis of TB and drug susceptibility in North Lebanon, public university
- Focus: tuberculosis, pneumonia, antimicrobial resistance, microbiota, immunity and infections
- Technology: molecular biology, immunology, typing, bioinformatics
- Indirect clinical access to patients

### 15) Université Saint-Joseph, Rodolphe Mérieux Laboratory - Beirut

- University laboratory, approved by the Ministry of Health; reference laboratory for tuberculosis
- Focus: tuberculosis
- Infrastructure and technology: BSL2, BSL2+, BSL3, ISO8 cleanroom, molecular biology, typing
- Aiming at ISO 15189 accreditation
- Indirect clinical access to patients





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## MADAGASCAR

## 16)Charles Mérieux Center for Infectious Diseases, Rodolphe Mérieux Laboratory - Antananarivo

- University of Antananarivo, national reference laboratory for leprosy
- Focus: antimicrobial resistance, diarrhea diseases, neglected diseases (leprosy, chromoblastomycosis, sporotrichosis), respiratory infectious diseases (influenza, pneumonia), HIV, HPV
- Infrastructure and technology: BSL2+, molecular biology, immunology, DST
- Built according to ISO 14644 (part 4 and 1)
- Indirect clinical access to patients



## MALI

## 17)Charles Mérieux Center for Infectious Diseases, Rodolphe Mérieux Laboratory - Bamako

- Public institution under the Ministry of Health
- Focus: respiratory infectious diseases (pneumonia), f evers, tuberculosis, antimicrobial resistance, hepatitis
- Infrastructure and technology: BSL2, BSL3 (container lab), molecular biology, immunology, microbiology
- Built according to ISO 14644 (part 4 and 1)
- Indirect clinical access to patients





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## **MONGOLIA**

#### 18) Mongolian Academy of Medical Sciences – Ulaanbaatar

- Public institution under the authority of the Minister of Education, Culture, Science and Sports
- Focus: respiratory infectious diseases (pneumonia), fevers, tuberculosis
- Infrastructure and technology: BSL2, molecular biology, immunology

# PARAGUAY

## 19)Instituto de Investigaciones en Ciencias de la Salud, National University of Asunción, Departamento de Biología Molecular y Biotecnologia - Asuncion

- Public institution
- Focus: respiratory infectious diseases (influenza, pneumonia), tuberculosis, atypical mycobacteria, meningoencephalitis, leishmaniosis, Chagas disease, gastroenteritis viral infections
- Infrastructure and technology: BSL2, molecular biology, microbiology, immunology, typing, bioinformatics
- Indirect clinical access to patients

# UKRAINE

# 20)Zaporozhye State Medical University (Laboratory of Molecular Genetic Studies) - Zaporozhye

Academic institution

- Focus: tuberculosis, enterovirus infections
- Infrastructure and technology: BSL2, BSL3, molecular biology, immunology
- Indirect clinical access to patients

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