



2018 ANNUAL REPORT



ROOTS FOR LIFE



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“Infectious diseases cause 17 million deaths each year around the world, predominantly in developing countries. For over 50 years, the Mérieux Foundation, an independent family foundation, has been taking action to ensure that every man, woman and child has fairer access to essential healthcare.”

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Alain Mérieux,
President

“In the face of an ever-present threat from infectious diseases, our model confirms its effectiveness.”

Our world is complex, unpredictable and brutal, changing at a constantly accelerating pace. In this changing landscape, new infectious threats are emerging.

There have always been epidemics, and in the wake of influenza A, SARS, chikungunya, Ebola, and Zika, other epidemics are likely to occur. The emergence and re-emergence of pathogens are inextricably linked to inadequate management of these crises and insufficient health infrastructures in the countries where they appear.

Unfortunately, they are also linked to new risk factors, for which humans and their activities are largely responsible: deterioration of the environment, uncontrolled urbanization, massive exoduses of populations escaping threats, climate change, increasing resistance of pathogens to treatment due to the overuse of antibiotics...

The threat of infectious disease is ever present. However, the weight of this threat varies depending on whether you are born in the North or the South of our planet, and the consequences for the most vulnerable are dramatic.

This is something that we can change. This is the mission of our foundation.

The experience of recent years has demonstrated the relevance of our choices, the impact of our model on public health in disadvantaged countries, and its long-term effect on health systems. We focus on direct action in the field, collaborating as equal partners with the healthcare stakeholders in these countries. We are strengthening diagnostic testing infrastructure to prevent and combat epidemic risks and provide better care for patients. We have created nine laboratories of excellence with a high biosafety level and renovated a large number of diagnostic testing laboratories in outlying regions. To ensure the long-term success and sustainability of these endeavors, we develop training and applied research programs on the diseases affecting these countries.

The BAMS (Bachelor of Science in Biological and Applied Medical Sciences) degree programs that

we have deployed in partnership with the ESTBB (School of Biology-Biochemistry-Biotechnologies) at UCLy for many years—first in Mali, then in Haiti and, in the future, Madagascar—have proven their effectiveness and achieved formal recognition. The courses prepare women and men who will go on to improve and create a lasting impact on their country's healthcare system. In parallel with these training courses in the field, Les Pensières Center for Global Health continues to play an increasingly important role. In 2019, we organize the 20th edition of the ADVAC Advanced Course of Vaccinology, and the 10th anniversary of our ACDx Advanced Course on Diagnostics.

The strength of the foundation's model is the exceptional global network that we have built and gradually expanded over the past 15 years, with laboratories in more than 16 countries in West Africa, Asia, Madagascar, Haiti and Latin America. We were able to achieve this by working hand-in-hand with exceptional doctors, scientists and researchers, wholly dedicated to their country. In particular, my thoughts turn to my friend Ogobara Doumbo, whom we had the great sadness of losing in 2018.

In countries where we work in the field of medical biology, we too often witness terrible poverty and suffering. Therefore, we have chosen to extend our action, taking a global health approach to aid the most vulnerable: mothers and children. We are working to improve care but also to address the factors that will improve their daily lives, such as water and food quality, education, decent housing, and income-generating activities, to foster sustainable social inclusion.

The extreme poverty of some countries, the tragedies of exile and refugees make the task immense. Thus, we work closely with foundations and associations in Haiti, in refugee camps in Iraq, in the Rohingya camps in Bangladesh... We have projects in medical biology with partners in Morocco and the Republic of Congo, and we are also planning new humanitarian actions to help homeless children in several countries.

We are making progress, step by step, and there is still so much to be done. Yet I am confident in our capacity to build, with our partners, the foundations for better health.



PRESENTATION OF THE FOUNDATION



PRESENTATION OF THE FOUNDATION

The world is undergoing profound changes, leading to crises, which impact and multiply in all regions. Whether political, demographic, economic or even climatic in nature, all crises contribute to worsening the health conditions of affected populations, creating an ideal breeding ground for epidemics. Here again, developing countries are the hardest-hit, with mothers and children at the forefront.

This is why the Mérieux Foundation, an **independent family foundation with public interest status**, has been fighting infectious diseases affecting vulnerable populations in developing countries for over 50 years.

The foundation works closely with **Fondation Christophe et Rodolphe Mérieux**, an independent family foundation under the aegis of the Institut de France, to sustainably improve the quality of life and health of mothers and children.

Taking a global health approach, the **Mérieux Foundation** looks beyond medical care to address the health and socio-economic issues that compromise the well-being of populations in countries where it operates.

The foundation works side-by-side with **local partners and builds networks** to mobilize the skills and energies necessary to implement effective and sustainable actions.

THE MÉRIEUX FOUNDATION'S ACTION FOCUSES ON FOUR MAIN OBJECTIVES:

Increasing vulnerable populations' access to diagnostics by strengthening clinical laboratories in national healthcare systems;

Enhancing local applied research capabilities by training researchers, developing collaborative programs and creating Rodolphe Mérieux Laboratories, transferred to local partners;

Encouraging knowledge-sharing and public health initiatives working with Les Pensières Center for Global Health;

Improving conditions for mothers and children taking a global health approach.

60% of child deaths in developing countries are due to infectious diseases.

THE MÉRIEUX FOUNDATION'S PHILOSOPHY OF ACTION

A collaborative dynamic driven by partnerships with local healthcare stakeholders, international organizations, academic research, companies and NGOs;

A long-term vision with sustained support leading to autonomy and local ownership of infrastructures and programs;

Building networks for international cooperation to share experience and pool skills;

A global health approach from humans to animals, taking into account healthcare, but also nutrition, environmental safety, education and socio-economic support for patients.

01 ACCESS TO DIAGNOSIS



The first step in an effective course of care, diagnostic testing is also essential for the surveillance and control of diseases and epidemics. The slightest weakness and the entire healthcare chain is impaired and even ineffective. Aggravation of disease, resistance to treatment, spread of epidemics..., these consequences pose a particular threat to developing countries, due to the lack of human resources, infrastructure and funding dedicated to laboratory systems.

In response to this alarming fact, the Mériex Foundation engages in local initiatives and makes access to quality diagnostic services a top priority. It collaborates with governments, national and international, private and public organizations to set up clinical laboratories for diagnostic testing and surveillance of infectious diseases and antimicrobial resistance. It builds networks of biologists and healthcare professionals that team up on projects to support laboratories. Based on this experience in capacity building, the foundation develops systemic approaches, addressing all of the laboratories in a given region.

The Mériex Foundation provides support for the overall functioning of medical biology activities, thereby improving the autonomy of laboratories and securing their long-term future within national health systems. Its support covers the following aspects:

- Creating the **environment needed for diagnostic testing** (infrastructure, IT systems, waste management, etc.),
- Strengthening the **technical skills of laboratory personnel** to improve diagnostic testing (training, quality, etc.),
- Improving **clinical laboratory management and efficiency** (cost recovery systems, audits),
- Helping health authorities build a **laboratory system** that covers the country and improves access to high-quality diagnostic testing, in addition to monitoring and preventing the spread of disease (laboratory supervision, policy, and capacity mapping, epidemiological surveillance, network activities).

RECOGNIZED EXPERTISE

- 50 laboratories built or rehabilitated
- 26 training centers
- 6 healthcare centers
- 40 consultancy projects on behalf of partners such as the World Health Organization (WHO), the United Nations Development Program (UNDP), and the Global Fund to Fight Aids, Tuberculosis and Malaria

BAMS TRAINING

A NEW MILESTONE HAS BEEN REACHED



The Bachelor of Science in Biological and Applied Medical Sciences (BAMS) is a continuing professional development program, initiated in Mali and then in Haiti. It aims to strengthen the country's medical biology capacities by training working laboratory technicians. The degree course is provided by experts in medical biology (cell and molecular biology, immunology, parasitology, bacteriology, epidemiology, virology, hematology and pharmacology) to update the participants' knowledge of diagnostic testing techniques and strengthen good laboratory practices in the areas of quality assurance, biosafety and waste management. BAMS is evolving in Mali and Haiti to become integrated into the countries' university education systems.

In May 2018, the **14 students of the 7th and final class of BAMS Haiti graduated**. In total, this program has enabled 126 laboratory technicians, spread over 7 classes, to obtain the BAMS diploma. As part of a partnership between the State University of Haiti and BAMS' partners, it was decided to integrate this training program into the curriculum of the university's Bachelor of Medical Biology as the fourth year of study. This integration is effective from the start of the 2019 school year.

This decision follows the transformation of BAMS Mali, which officially became a Master of Medical Biology at the University of Sciences, Techniques and Technologies of Bamako, in 2018. Created in 2007, BAMS Mali trained 208 technicians from West Africa in 10 years. The courses of this new Master's degree begin in 2019.

These developments are in line with the Mériex Foundation's vision: to **provide support that aims at project autonomy and local ownership**. Building on these successful experiences, the Mériex Foundation intends to develop BAMS programs in other countries where it operates, firmly convinced that training is essential for strengthening a country's medical biology capacities.

PARTNERS

The BAMS program is conducted with the Graduate School of Biology – Biochemistry - Biotechnology (ESTBB) of the Catholic University of Lyon (UCLy) and receives support from Fondation Christophe et Rodolphe Mériex.

The course is also the result of a close collaboration with local partners and government authorities, such as the Ministry of Public Health and Population and the National Public Health Laboratory of Haiti, and the Charles Mériex Center for Infectious Disease of Mali.

SPHAILAB PROJECT

LAUNCHING HAITI'S NATIONAL LABORATORY POLICY

To improve public health across the country, the SPHAILAB project supports Haiti's Ministry of Public Health and Population in developing its laboratory and research policies, by providing strategic advice, decision-making support, and training.

In 2018, **the country published its very first National Laboratory Policy**, presented by Haiti's Minister of Health, **Dr. Marie Gréta Roy Clément** at a ceremony held in Port-au-Prince on June 19, 2018. Building on this important milestone towards a comprehensive public health strategy, Haiti will also publish a "National Strategic Plan for the Laboratory System 2019-2023" setting out operational details and the deployment timetable.

In addition, **sample collection for the multidrug-resistant tuberculosis prevalence survey**, beginning at the GHESKIO Centers in 2016, was completed in February 2018. Some 3,028 patients were screened and 2.6% of the samples had tuberculosis strains that are resistant to rifampicin (an antibiotic used to treat the disease). They underwent further analysis at the Rodolphe Mérieux Laboratory located in the GHESKIO Centers. The GHESKIO mobile team played a key role in supervising the eight laboratories that are working to improve the quality of diagnostic testing. This includes the introduction of the GeneXpert® MTB/RIF rapid molecular test.

PARTNERS

The project, which is jointly funded by the European Union (under the DEVCO "Supporting Public Health Institutes" program), draws on the complementary expertise of its operational partners: the Ministry of Public Health and Population, GHESKIO Centers (Haitian Group for the Study of Kaposi's Sarcoma and other Opportunistic Infections), and the African Institute of Public Health in Burkina Faso.



QUALITY INITIATIVE

ACHIEVING THE FIRST INTERNATIONAL ACCREDITATION

The Mérieux Foundation has launched a laboratory quality improvement program to safeguard the reliability of diagnostic tests—a vital factor in effective patient care.

The Mérieux Foundation's Quality Initiative, spanning six laboratories in six countries, aims to achieve the highest standards of quality through implementing a quality management system, developing high-caliber training, and dispensing quality-related advice for other Mérieux Foundation projects. The initiative is based on the certification criteria for ISO 15189, the international standard for medical biology laboratories, and the ultimate aim is for all participating laboratories to gain accreditation.

Two accreditations were obtained in 2018: **the GHESKIO Centers laboratories in Haiti, which were accredited by Accreditation Canada, and the Molecular Biology and Biotechnology Department, Institute of Research in Health Sciences of the National University of Asunción, which gained ISO 17025:2017 accreditation from Paraguay's National Accreditation Body.** Two other laboratories participating in the initiative, in Laos and Mali, submitted their applications to the Thai and Moroccan accreditation agencies respectively. In 2018, the Rodolphe Mérieux Laboratory in Lebanon signed up to the initiative, joining the Rodolphe Mérieux Laboratory in Chittagong, Bangladesh. Three new members have applied to join for 2019.

SIX MEMBER LABORATORIES IN SIX COUNTRIES IN 2018

- Haiti: GHESKIO Centers (Haitian Group for the Study of Kaposi's Sarcoma and other Opportunistic Infections)
- Laos: Center of Infectiology Lao Christophe Mérieux in Vientiane
- Mali: Charles Mérieux Center for Infectious Disease in Bamako
- Paraguay: Molecular Biology and Biotechnology Department, Institute of Research in Health Sciences of the National University of Asunción
- Bangladesh: Rodolphe Mérieux Laboratory of Chittagong
- Lebanon: Rodolphe Mérieux Laboratory of Beirut

➤ A step-by-step procedure developed by the World Health Organization

The Quality Initiative uses the Laboratory Quality Stepwise Implementation (LQSI) tool, developed by WHO to support step-by-step implementation of a quality management system. The LQSI breaks the ISO standard down into easily digestible activities, with four phases and 12 system essentials (facilities & safety, organization, personnel, equipment, etc.).



WEST AFRICA

WORKING WITH THE WEST AFRICAN HEALTH ORGANISATION

The Mériex Foundation is pursuing and strengthening its collaboration with the West African Health Organisation (WAHO) via a series of **programs to support medical biology facilities**. For instance, the Mériex Foundation is involved in a multi-country initiative as part of the REDISSE project, funded by the World Bank, and in the “Strengthening of Epidemiological Services and Health Systems in the ECOWAS Region” project, in a consortium with the GFA Consulting Group. The project, which is funded by the German Development Bank (KfW), aims to strengthen epidemiological services in the Economic Community of West African States (ECOWAS) region.

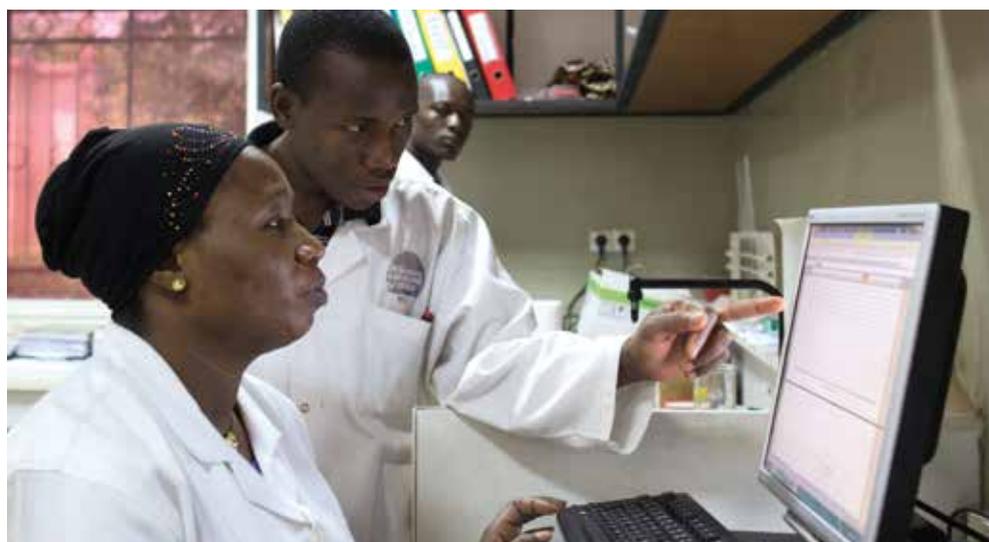
REDISSE

Regional Disease Surveillance Systems Enhancement

Under its partnership with the West African Health Organisation (WAHO), the Mériex Foundation continued its efforts to **strengthen 47 district laboratories in five countries** (Guinea, Guinea-Bissau, Liberia, Sierra Leone and Togo) in 2018. Working with Canadian NGO Centre for International Cooperation in Health and Development (CCISD), it conducted assessments and delivered training and supervision.

► Joint organization of a regional workshop on antimicrobial resistance (AMR)

The meeting, which took place in Abuja in December 2018, provided an update on antimicrobial resistance (AMR) in West Africa. Attendees also drew up a roadmap for harmonization of AMR surveillance in the region. The Mériex Foundation provided funding for a focal point from each of the subregion's 15 countries to attend the workshop.



RESAOLAB



WEST AFRICAN NETWORK OF CLINICAL LABORATORIES

RESAOLAB has strengthened and networked **laboratory systems in Benin, Burkina Faso, Guinea, Mali, Niger, Senegal and Togo**, through a regional approach involving all seven countries' ministries of health. Renovated facilities, new quality plans and annual supervisions count among the network's many achievements to date. In 2018, the second phase of the project came to an end and a new regional program was launched, spanning medical biology initiatives across West Africa.

» Organization of a regional workshop on antimicrobial resistance – a side event during the International Forum on Biology in Africa (FIBAfrica)

The RESAOLAB program held its first meeting in May 2018. The event was attended by laboratory system representatives from 14 countries, who assessed needs ahead of the next phase of the project and discussed the **state of antimicrobial resistance in the region**.

» Support for the Inter-University Diploma of Antibiology at the Polytechnic University of Bobo-Dioulasso

The Higher Institute of Health Sciences of the Polytechnic University of Bobo-Dioulasso in Burkina Faso launched a new Inter-University Diploma of Antibiology and Antibiotherapy, in collaboration with the University of Montpellier, to equip African countries with the skilled professionals they need to combat antimicrobial resistance. Through the RESAOLAB project, the Mérieux Foundation contributed to the initiative by leading a **round-table session on global efforts to combat antimicrobial resistance** in order to help participants finalize national action plans and surveillance systems in their respective countries. The Mérieux Foundation also contributed towards travel and attendance costs for 21 participants from all seven network countries.

» Presentations at the African Society for Laboratory Medicine conference 2018

The Mérieux Foundation shared the benefits of its experience at the fourth conference of the African Society for Laboratory Medicine (ASLM), via a series of presentations that included a special session on laboratory system strengthening. The theme for the event, which took place in Abuja, Nigeria from December 10-13, 2018, was the role of laboratories in preventing pandemics. It was an opportunity for the Mérieux Foundation and its partners to present **new approaches to biological monitoring of patients and epidemic surveillance**.



ASLM CONFERENCES

The biennial ASLM conference is an international event where over 1,500 public health and laboratory medicine experts discuss and debate issues around access to diagnosis in Africa.

G5 SAHEL ALLIANCE

THE SAHEL'S BIOSAFETY NETWORK IS POISED FOR ACTION

Phase one of the G5 Sahel biosafety network capacity-building project was finalized in 2018, with the handover of a mobile laboratory for the diagnosis of highly pathogenic agents, the delivery of training to a multinational response team, and a field deployment exercise. The Muraz Center (Burkina Faso), the Charles Mérieux Center for Infectious Disease (Mali), the National Institute of Public Health Research (Mauritania), the Medical and Health Research Center (Niger), and Chad's Ministry of Health all contributed to these advances.

The project, funded by the German Federal Enterprise for International Cooperation (GIZ), launched following the 2014 Ebola virus disease outbreak. Over time, the initiative has expanded to all the G5 Sahel countries—first participating as observers and, from 2017, with fully engaged teams.

The project focuses on three areas:

- Providing a **mobile laboratory for the diagnosis of highly pathogenic agents**, delivered to the network on March 1, 2018. This vital piece of equipment will allow its members to diagnose the viruses responsible for hemorrhagic fevers and bacterial agents, and to prevent new disease outbreaks.
- Setting up a trained **rapid response team within the network**, consisting of healthcare professionals from the five countries, to intervene quickly whenever a biological risk appears (training in molecular biology, rapid identification of dangerous pathogens, international biosafety and biosecurity standards, etc.).
- Conducting a **deployment exercise** in which the mobile laboratory, hosted at the Charles Mérieux Center for Infectious Disease in Bamako, Mali, is deployed to neighboring Kati to simulate a rapid response in real-life conditions.

The G5 Sahel biosafety network is in the process of gaining official recognition by the G5 Sahel Permanent Secretariat, and operational procedures are being drawn up so the mobile laboratory can be deployed in the event of a suspected epidemic or potential bioterrorism attack.

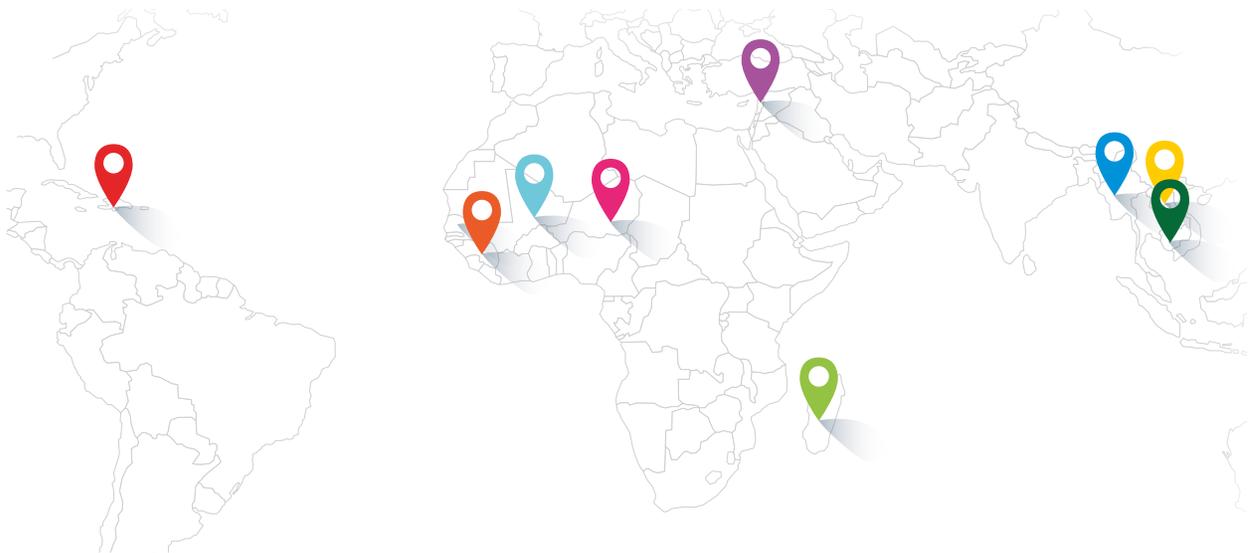
PARTNERS

The project is run by the Mérieux Foundation, the Charles Mérieux Center for Infectious Disease of Mali, the GIZ (German Federal Enterprise for International Cooperation), and the Bundeswehr Institute of Microbiology as part of the German Partnership Program for Excellence in Biological and Health Security. It is supported by the ministries of health of the G5 Sahel countries, and receives technical assistance from the World Health Organization (WHO), the West African Health Organisation (WAHO), and the G5 Sahel Permanent Secretariat, principally via its network of national focal points.



COUNTRY INITIATIVES

Guinea | Madagascar | Mali | Niger | Cambodia | Laos | Myanmar | Haiti | Lebanon



GUINEA

COMPLETING THE LABORATORY SUPPORT PROJECT

The final phase of LAB-NET, a **laboratory capacity mapping and strengthening project** in Guinea, was deployed in 2018. Activities included new training sessions (on biosafety, referencing samples and laboratory management), supplying equipment, and migrating the mapping system over to DHIS2 (District Health Information Software 2), the free platform recommended by the World Health Organization. Funded by the French Ministry of Europe and Foreign Affairs and coordinated by Expertise France, LAB-NET is run in partnership with the Institut Pasteur and Ministry of Health of Guinea, and receives technical assistance from the private firm Savics.

ROLLING-OUT THE MEDICAL BIOLOGY POLICY

Since 2017, the Mérieux Foundation and Institut Pasteur of Guinea have been supporting the Guinean Ministry of Health in implementing a national medical biology policy. Funded by Agence Française de Développement, the **LABOGUI project focuses on renovating regional and prefectural hospital laboratories and improving medical biology practices**. Efforts to establish improvement and strengthening plans (quality control and external quality assessment) intensified in 2018 with new training and coaching sessions, as well as support to the Ministry of Health's Infrastructure, Equipment and Maintenance Division (DIEM) for approving renovation, drinking-water supply and solar power projects.

► OFFICIAL OPENING OF THE NATIONAL LABORATORY DIRECTORATE

As part of institutional strengthening of the Ministry of Health, the Guinean government, with support from the Mérieux Foundation, has created a new National Laboratory Directorate. The directorate is tasked with coordinating implementation of the new national medical biology policy. The new premises, which house the National Laboratory Directorate and the Institute of Professional Development in Health (IPPS), were handed over to Guinea's health authorities and officially opened on March 2, 2018 by Professor Alpha Condé, President of Guinea, at a ceremony also attended by Alain Mérieux and Dr. Bernard Kouchner. Funded as part of the West African Network of Clinical Laboratories (RESAOLAB) project, the **structures will help to build a skilled medical biology workforce.**

Since RESAOLAB was launched in 2009, six laboratory directorates have been established or have received additional infrastructure and equipment in West Africa.



MADAGASCAR

RESAMAD, MADAGASCAR'S LABORATORY NETWORK

The Mérieux Foundation, working with Madagascar's Ministry of Public Health, set up a network of 24 laboratories, 10 of which have specially strengthened capacities in microbiology. The network is now fully operational and plays a key role in addressing health system needs. It is recognized by the Directorate for Health Monitoring and Epidemiological Surveillance for its role in shaping the **National Action Plan for Antimicrobial Resistance**. The project partners published a paper on this major issue in *AMR Control*, a review for healthcare stakeholders. RESAMAD is funded by the Mérieux Foundation. In 2018, it received support from the United States Agency for International Development (USAID) to purchase personal protective equipment and sample transport equipment to respond to epidemics such as plague and measles.



► ANTIMICROBIAL RESISTANCE

The World Health Organization called antimicrobial resistance one of the most serious threats to global health. It is responsible for **700,000 deaths each year**, mostly in developing countries such as Madagascar.

MALI

ACCESS TO DIAGNOSIS
IN RURAL AREAS

The second phase of the LABOMEDCAMP project was launched in 2017. The aim is to **set up eight new laboratories in community health centers** in four regions of Mali (Kayes, Ségou, Sikasso and Koulikoro) to improve the standard of care in rural areas, especially for pregnant women and children under five. In 2018, several new laboratories were opened, mentoring took place at several sites, and training sessions on laboratory best practices and waste management were held at the Charles Mérieux Center for Infectious Disease of Mali and at regional locations. Funded by the Prince's Government of Monaco and the Mérieux Foundation, the project is run in partnership with the Malian Ministry of Health and Public Hygiene, the NGO Santé Sud, the Association des Médecins de Campagne (country doctors association), the Charles Mérieux Center for Infectious Disease of Mali, and the Mérieux Foundation.



NIGER

▶ OFFICIAL OPENING
OF THE DIRECTORATE OF HEALTH
LABORATORIES

The Directorate of Health Laboratories of Niger, which is funded by the **RESAOLAB** (West African Network of Clinical Laboratories) project, was officially opened on March 13, 2018. The premises, located in Zinder in southern Niger, house the External Quality Assessment Laboratory and the Continuing Training Center.

MAPPING LABORATORIES

The laboratory mapping project in Niger comes under the global partnership between the African Society for Laboratory Medicine (ASLM) and the Mérieux Foundation. The aim of the project is to **assess biomedical capacity throughout the country and to input this data into the national health information system (DHIS2)** to inform decision-making at the Ministry of Public Health. The Mérieux Foundation's role involves coordinating activities, training staff and collecting data. All of the surveys were completed in 2018 (450 laboratories visited and 330 mapped), and the findings were presented at a workshop on November 30, 2018. The project is implemented in partnership with Niger's Ministry of Public Health, the organization Innovative Support to Emergencies Diseases and Disasters (InSTEDD) and ASLM, and is funded by the Bill & Melinda Gates Foundation (via ASLM).



WEST AFRICA

STRATEGIC PARTNERSHIP WITH PENN STATE UNIVERSITY

On November 30, 2018, the Mériex Foundation, the Mériex Foundation USA and the Applied Biological and Biosecurity Research Laboratory (ABRL) of Penn State University (Pennsylvania, USA) signed a memorandum of understanding on a new global strategic partnership for public health. The three organizations agreed to design and implement **integrated interdisciplinary strategies to improve health and biosafety conditions**, while reducing the burden of disease on local economies. The partners kicked off their collaboration with a joint mission in West Africa (Guinea, Senegal, Burkina Faso and Mali), where they met with the West African Health Organisation's (WAHO) Director of Epidemics and Disease Control.



CAMBODIA

STRENGTHENING MEDICAL BIOLOGY LABORATORIES

The Mériex Foundation supports the CamLab project, a network of hospital laboratories set up by the Cambodian Ministry of Health's Bureau of Medical Laboratory Services as part of its 2015-2020 strategic plan. In 2018, renovation work continued and 44 laboratories took part in the external quality assessment program. **A continuing education plan was also drawn up and finalized in 2018 to improve the skills of laboratory technicians.** CamLab operates as part of a collaboration with Cambodia's Ministry of Health. The World Health Organization, Naval Medical Research Unit Two (NAMRU-2) and the US Centers for Disease Control and Prevention (CDC) contribute to the initiative.



➔ INAUGURATION OF TAKEO HOSPITAL LABORATORY

The medical biology laboratory at Takeo provincial hospital, in southern Cambodia, was officially opened in 2018. The laboratory was built by the United States Pacific Command (USPACOM), part of the US Army. The Mériex Foundation **drew up the plans and supplied equipment.**

LAOS

SUPPORTING THE
BOLIKHAMXAY HOSPITAL LAB

At Bolikhamxay provincial hospital, the Mérieux Foundation is helping to get a new medical testing laboratory up and running. It was built with funding from the Luxembourg Agency for Development Cooperation (LuxDev). The new laboratory marks the first stage of the **Boli-Lab project, which aims to strengthen healthcare capabilities in the Bolikhamxay province**. In 2018, the Mérieux Foundation delivered training to staff on new analysis techniques. The Boli-Lab project is coordinated by the Mérieux Foundation's Laos office, in collaboration with Laos' National Center for Laboratory and Epidemiology and LuxDev.

MYANMAR

ACCESS TO VIRAL LOAD TESTING
FOR PEOPLE LIVING WITH HIV

The Mérieux Foundation has established the LabMyNet project to support Myanmar's National AIDS Program in attaining the UNAIDS 90-90-90 target. The project aims to **bring access to viral load testing to at least 80% of people living with HIV in Myanmar by 2020** (compared with 20% at present). The Mérieux Foundation's main area of focus is setting up a number of molecular biology platforms and running capacity-building activities. LabMyNet is funded by Expertise France (via the 5% Initiative) and the Mérieux Foundation, in partnership with the National AIDS Program, the NGOs Doctors Without Borders (MSF), The Union, the US Centers for Disease Control and Prevention (CDC), and WHO.

► THE UNAIDS 90-90-90
PROGRAM SETS
THREE TARGETS FOR 2020

90% of all people living with HIV
know their HIV status

90% of all people with diagnosed HIV infection
receive antiretroviral therapy

90% of all people receiving antiretroviral therapy
have viral suppression

► REBUILDING THE
NATIONAL HEALTH LABORATORY

Agence Française de Développement, Institut Pasteur and the Mérieux Foundation have signed partnership agreements to rebuild the National Health Laboratory in Yangon. The total project cost stands at €27 million (€22 million loan from Agence Française de Développement and €5 million grant from the European Union). It will **strengthen diagnostic and epidemic prevention capabilities** in Myanmar. The Mérieux Foundation has been involved since the feasibility study stage and will provide technical expertise throughout the National Health Laboratory's reconstruction.

HAITI

▶ LAUNCH OF HAITI'S NATIONAL LABORATORY POLICY AS PART OF THE SPHAITILAB PROJECT

– see page 9



▶ 7TH AND FINAL BAMS GRADUATING CLASS BEFORE INTEGRATION IN THE STATE UNIVERSITY OF HAITI'S CURRICULUM

– see page 8

LEBANON

TRAINING ON TUBERCULOSIS DIAGNOSIS

The Mérieux Foundation teamed up with the National Tuberculosis Program at Saint Joseph University's Faculty of Pharmacy (Beirut) to run three training sessions at the Rodolphe Mérieux Laboratory of Beirut in 2018. The first covered **microbiological diagnosis of tuberculosis in BSL3 zones**, leading to laboratory staff gaining accreditation to handle samples for comprehensive testing in optimal biosafety and biosecurity conditions. The second, in June 2018, focused on pulmonary and extra-pulmonary tuberculosis diagnosis tools. The third and final session, held in December with support from the International Organization for Migration (IOM), concerned standard laboratory procedures and the standardized data input method.

The Rodolphe Mérieux Laboratory is the reference laboratory for Lebanon's Ministry of Health and the country's National Tuberculosis Program, and provides advanced capabilities for tuberculosis-related research projects.





02 APPLIED RESEARCH

In many low-income countries, priority is given to public health interventions that meet the most basic needs of the population. Often, research programs cannot be developed due to lack of resources. However, conducting research in the field is essential for establishing robust, well-adapted public health interventions.

This is why the Mérieux Foundation works to facilitate and promote applied research in developing countries. It runs a network of laboratories of excellence located in infectious disease hotspots and coordinates research on priority diseases. It brings together local and international researchers, from the public and private sectors, to share the know-how, tools and knowledge needed to perform high-level applied research at a local level.

The Mérieux Foundation is committed to three priorities:

- Developing and implementing **collaborative research programs** to identify new diagnostic solutions and new therapeutic approaches,
- Helping young researchers build **careers in science** and strengthening local research teams,
- Engaging GABRIEL network members in **collaborative clinical studies** that impact public health in developing countries.

AN INTEGRATED APPROACH

The Mérieux Foundation teams work closely with all of the competent local stakeholders to make a meaningful contribution to developing effective public health policies. Its aim, at all times, is to develop **autonomy and local initiative** to ensure that the organizations and projects it supports can continue to operate over the long term.

EMERGING PATHOGENS LABORATORY

CONNECTING RESEARCH UNITS IN THE FIELD

The Emerging Pathogens Laboratory is a founding member of the GABRIEL network, which it supports in its dual role as reference laboratory and applied research unit. The laboratory, situated on the Charles Mérieux campus in Lyon, has BSL2 and BSL3 biosecurity level zones. The team is also qualified to access the BSL4 Jean Mérieux-Inserm Laboratory.

The Emerging Pathogens Laboratory is dedicated to applied research on infectious diseases that affect vulnerable populations. It focuses on three priorities:

- Acute respiratory infections,
- Tuberculosis,
- Antimicrobial resistance.

SUPPORTING YOUNG SCIENTISTS

The Emerging Pathogens Laboratory provides career support to young researchers and PhD students. In 2018, the Mérieux Foundation supported a PhD research project at the laboratory that led to the discovery of new typhoid strains (page 28). The research was conducted as part of a doctoral thesis project supported by the Mérieux Foundation and the Emerging Pathogens Laboratory.



GABRIEL NETWORK



STRENGTHENING RESEARCH CAPABILITIES, WHERE IT MATTERS MOST

The GABRIEL network of research laboratories, founded in 2008, conducts projects coordinated by the Mérieux Foundation. Its purpose is to build a “Global Approach to Biological Research, Infectious diseases and Epidemics in Low-income countries”.

The network has 20 members in 16 countries across four continents: seven Rodolphe Mérieux Laboratories (set up by the Mérieux Foundation with support from Fondation Christophe et Rodolphe Mérieux), plus research laboratories at public and private universities and hospitals. Through the foundation's Quality Initiative, two GABRIEL network laboratories became the first to receive accreditation in 2018: the GHESKIO Centers' laboratories in Haiti, and the Instituto de Investigaciones en Ciencias de la Salud (IICS) in Paraguay (see page 10).

In 2018, the GABRIEL network organized a number of **training sessions** for laboratory personnel. These included seven sessions delivered by the Emerging Pathogens Laboratory team for 50 scientists, in Lyon, Paraguay, Lebanon, Bangladesh, Georgia and Madagascar. Several working groups were also set up, covering fevers, tuberculosis and pneumonia, the latter of which gave rise to a new global pneumonia surveillance project to assess the impact of the pneumococcal vaccine.

GABRIEL NETWORK SCIENTIFIC CONTRIBUTIONS IN 2018

- 80 publications in international peer-reviewed scientific journals
- 2 talks given at the International Center for Infectiology Research (CIRI)
- 11 oral presentations and 8 scientific posters at international conferences and symposia



Symposium at the ASTMH conference

► Four research projects conducted by GABRIEL network members were presented at the 67th annual meeting of the American Society of Tropical Medicine & Hygiene (ASTMH) in New Orleans between October 28 and November 1, 2018. The symposium explored the role

of new diagnostic tests in research into infectious diseases affecting vulnerable populations. The presentations covered studies in Haiti (cholera), Bangladesh (tuberculosis in prisons), Madagascar (leprosy control) and Lebanon (etiology of pneumonia among Syrian refugees).



IN MEMORY OF PROFESSOR OGOBARA DOUMBO, RECIPIENT OF THE FIRST CHRISTOPHE MÉRIEUX PRIZE

Director of the Malaria Research and Training Center at the Faculty of Medicine of the University of Bamako in Mali, Professor Ogobara Doumbo was the first recipient of the Christophe Mérieux Prize, which he was awarded in 2007 for his malaria research. Professor Doumbo, who passed away on June 9, 2018, led one of the biggest malaria research and training teams in Africa. His Malaria Research and Training Center, which focuses on local research in collaboration with the international scientific community, is considered a model for research capacity building in low-income countries.

A member of the Mérieux Foundation's Scientific Advisory Board and Chairman of the Board of the Charles Mérieux Center for Infectious Disease of Mali (CICM), Professor Doumbo played a pivotal role in shaping the Mérieux Foundation's work and development. He remains a role model for generations of scientists in Africa and around the world.

CHRISTOPHE MÉRIEUX PRIZE

The 2018 Christophe Mérieux Prize was awarded to Dr. Patricia Brasil of the Febrile Disease Research Clinic in Rio de Janeiro for her study on pregnant women infected with the Zika virus and neonatal complications.



Dr. Patricia Brasil is a researcher and professor of Tropical Medicine and Clinical Research at the Oswaldo Cruz Foundation (Fiocruz) in Brazil, where she created the Febrile Disease Research Clinic at the Evandro Chagas Institute of Clinical Research. Her research concentrates on emerging and re-emerging infectious diseases. Her career has focused on scientific research, diagnostics and clinical practice, driven by an interest in public service to address the public health challenges facing her country.

Every year since 2007, Fondation Christophe et Rodolphe Mérieux of the Institut de France has awarded the Christophe Mérieux Prize to a researcher or a research team studying infectious diseases in developing countries. The winner is chosen by a jury at the Institut de France from a range of candidates working in the field, identified by the Mérieux Foundation. The prize is worth €500,000.

RESEARCH PROJECTS

ACUTE RESPIRATORY INFECTIONS



LARI-RMN STUDY: EXPLORING THE ETIOLOGY OF ACUTE RESPIRATORY INFECTIONS IN ROHINGYA REFUGEE CAMPS IN BANGLADESH

The study, which is designed and led by the Mérieux Foundation, aims to identify the pathogens responsible for pneumonia infections among Rohingya populations living in refugee camps in Bangladesh. The research will inform more effective treatment in humanitarian crises and will support the development of prevention plans in areas hosting displaced populations.

The multi-center study is being run in collaboration with the Institute for Developing Science and Health initiatives (IdeSHi), Bangladesh, and the Bangladesh Institute of Tropical and Infectious Diseases (BITID), with support from the Rodolphe

Mérieux Laboratory in Chittagong. The case-control study, based on 600 patient samples plus 600 control samples (from participants ranging from two months to over 50 years of age), has multiple objectives: to identify viral and bacterial pathogens, to measure the efficacy of a rapid diagnostic test, to provide emergency support, and to assess risk factors. The first participants were recruited in 2018 and the study will run until end-2019.

▶ A HUMANITARIAN CRISIS

In Bangladesh, the Rohingyas who fled Myanmar, and other vulnerable communities, make up 1.2 million people, 60% of whom are children. These people are highly vulnerable to infectious diseases because of high population density, malnutrition, low immunization rates and unsanitary conditions. Pneumonia is especially prevalent and one of the leading causes of death of children under five.

UNDERSTANDING PNEUMONIA ETIOLOGY IN LEBANON

In 2018, the results of the **PEARL study**, examining the etiology of pneumonia among refugees and the Lebanese population, were presented at the annual meeting of the American Society of Tropical Medicine & Hygiene (ASTMH) and at the annual conference of the French Society for Microbiology. The results, which **give unprecedented insights**

into the causes of respiratory infections among a refugee population, will give rise to a series of prevention and treatment recommendations. The study, funded by the Mérieux Foundation and the Bill & Melinda Gates Foundation, is supported by a consortium of partners from the worlds of academia (Saint Joseph University of Beirut and Lebanese University in Tripoli), the humanitarian sector (NGOs Al-Bashaer and Amel), the private sector (Bioteck) and experts in biology (Chtoura Hospital in Lebanon, the University of Lyon and the Nationwide Children's Hospital of Ohio in the United States).



PREVALENCE STUDY IN LAOS

The initial findings of the **LaCoRIS study**, which looks at the prevalence of pathogens responsible for pneumonia, were presented in 2018 at the annual meeting of the American Society of Tropical Medicine & Hygiene (ASTMH). The results call for **active surveillance of respiratory infections in urban and peri-urban areas of Laos**. The research, carried out in 25 villages in and around Vientiane, is funded by Naval Medical Research Unit Two (NAMRU-2) as part of a partnership between the Center of Infectiology Lao Christophe Mérieux, the LOMWRU of Vientiane (Lao-Oxford-Mahosot Hospital-Wellcome Trust Research Unit), the National Center for Laboratory and Epidemiology, and the Emerging Pathogens Laboratory.

PNEUMOCOCCAL SURVEILLANCE PLAN

The GABRIEL network laboratories are launching a wide-ranging surveillance plan to track pneumococcal colonization rates among adults and children under five. The aim of the study is to **build a biobank of samples, which can be used to assess the impact of the pneumococcal conjugate vaccine (PCV)**. A surveillance protocol to facilitate monitoring in hospital consultation departments has already been drawn up and, in 2018, the protocol was submitted to ethics committees for approval in three countries, Cambodia, Paraguay and India, where the first group of participants was recruited towards the end of the year.

TUBERCULOSIS

HINTT PROJECT: MULTI-CENTER STUDY ON TUBERCULOSIS DRUG EFFICACY

The **HINTT (HBHA-IGRA New Tool for Tuberculosis) project, launched in late 2017, aims to address the rise in the number of people refusing tuberculosis treatment** because of the severe side effects of the four-drug combination recommended by WHO. These drop-outs are causing the epidemic to spread—especially multidrug-resistant strains that require lengthy and particularly harsh treatments.

The multi-center study, designed by the GABRIEL network, aims to identify biomarkers that can predict treatment efficacy in order to anticipate how patients will respond

and to provide effective support (encouraging them to continue their course of treatment despite the side effects, or changing the treatment regimen). The research will help to improve the cure rate and reduce the acquisition of multidrug-resistant forms of the disease. In 2018, the GABRIEL network implemented the project, which is coordinated by the Emerging Pathogens Laboratory, in five member countries (Madagascar, Bangladesh, Paraguay, Georgia and Lebanon).*

MULTIDRUG- RESISTANT TUBERCULOSIS

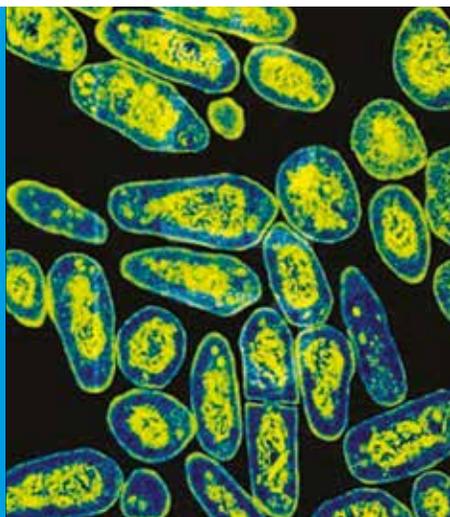
Multidrug-resistant tuberculosis is a form of the disease that is resistant to the two most powerful tuberculosis drugs: isoniazid and rifampicin.

ASSESSING PEDIATRIC TUBERCULOSIS IN MALI

Pediatric tuberculosis accounts for 10-15% of infections worldwide, but it is extremely difficult to diagnose. To address this problem, the Charles Mérieux Center for Infectious Disease of Mali (in Bamako) has launched a prospective study to describe the clinical, biological, functional and radiological characteristics of tuberculosis in children aged 0-15 years. The study, which forms part of the National Tuberculosis Control Program, **will assess the prevalence of the disease among children and will support the surveillance of multidrug-resistant *Mycobacterium* strains.**



*With support from Fondation Christophe et Rodolphe Mérieux



MOLECULAR EPIDEMIOLOGY IN SOUTHEAST ASIA

The project for genotyping active tuberculosis strains in Laos was launched in 2015 as part of PhD research conducted by Silaphet Sompavong, a researcher at the Center of Infectiology Lao Christophe Mérieux. The findings were presented in November 2018. The research was carried out with the International Mixed Laboratory (an organization allowing several institutions to work together on antimicrobial resistance). The project stakeholders include the French National Research Institute for Development of Montpellier, the National Institute of Hygiene and Epidemiology of Vietnam, Institut Pasteur of Cambodia, the Center of Infectiology Lao Christophe Mérieux, and the Mérieux Foundation's Emerging Pathogens Laboratory.

ANTIMICROBIAL RESISTANCE

TRICYCLE PROJECT: MULTISECTORAL SURVEILLANCE OF EXTENDED-SPECTRUM BETA-LACTAMASE (ESBL)-PRODUCING *ESCHERICHIA COLI* IN MADAGASCAR

In 2018, the Mérieux Foundation launched the Tricycle project in Madagascar to study the resistance of ESBL-producing *E. coli* by monitoring the bacterium in humans, in the environment, and in the food chain. The study, supported by Madagascar's Ministry of Public Health, is carried out as part of a collaboration between the Charles Mérieux Center for Infectious Disease in Antananarivo, the RESAMAD laboratory network, WHO, and Bichat-Claude Bernard Hospital in Paris.

The first phase of the project involves seven hospital laboratories in Madagascar (analyzing clinical isolates) and the Charles Mérieux Center for Infectious Disease (detecting the bacterium in poultry samples destined for human consumption and in surface water samples taken upstream and downstream of Antananarivo). The research will help to determine the prevalence of drug-resistant *E. coli* strains, identify propagation risk factors, and explore the link between antibiotic use and the presence of the bacteria, which is responsible for a number of serious diseases in humans.



▶▶ TRICYCLE

The Tricycle project is devised by the Advisory Group on Integrated Surveillance on Antimicrobial Resistance (AGISAR) and the WHO Department of Food Safety and Zoonoses. It involves monitoring a single indicator: *Escherichia coli* bacteria that produce extended-spectrum beta-lactamase (ESBL), enzymes that make the bacterium resistant to beta-lactam antibiotics.



DISCOVERING NEW STRAINS OF *S. TYPHI* IN BANGLADESH

Teams at the Mérieux Foundation have contributed to the discovery of **two previously unknown, highly resistant strains of *Salmonella Typhi* in Bangladesh**. The research was conducted within the framework of the COMPARE* project, funded by the EU Horizon 2020 program. The new strains of antibiotic-resistant bacteria, which are responsible for typhoid fever — a potentially fatal disease that is endemic in certain parts of Asia and Africa — could pose a new epidemic threat. The conclusions were published in scientific journal *mBio* in 2018. The paper's lead author, Arif M. Tanmoy from the Child Health Research Foundation in Bangladesh, carried out his research at the Emerging Pathogens Laboratory, working with teams from Applied Maths and bioMérieux on data analysis.



OTHER THEMES

ZIKA VIRUS AND GUILLAIN-BARRÉ SYNDROME IN BANGLADESH

The ZIKAGEIS study, launched in 2016, examines the role of Zika virus in the onset of Guillain-Barré Syndrome in Bangladesh. Funded by the Global Emerging Infectious Disease Surveillance (GEIS) program of the United States Defense Department, the project is coordinated by the Mérieux Foundation in conjunction with Rotterdam Erasmus University and the International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b). The initial results, published in 2018, confirm that the clinical presentation of patients with Zika virus differs from other dominant forms of Guillain-Barré Syndrome.

LEPROSY DRUG RESISTANCE SURVEILLANCE IN MADAGASCAR

Leprosy, a major public health issue in Madagascar, is the subject of a program to monitor the resistance of the bacterium *M. leprae* to leprosy drugs. As the National Reference Laboratory for leprosy in the country, the Charles Mérieux Center for Infectious Disease of Madagascar is carrying out the study in partnership with the dermatology department of the Joseph Raseta Befelatanana University Hospital Center, the École Polytechnique Fédérale of Lausanne, Fondation AnBer, the Raoul Follereau Foundation, the National Leprosy Control Program, the French National Reference Center for Mycobacteria and Mycobacterial Resistance to Tuberculosis Drugs (CNR-MyRMA) and the WHO Country Office in Madagascar.

EPIDEMIOLOGY OF TROPICAL MYCOSES IN MADAGASCAR

This project examines the **incidence of, and contamination sources for, two endemic mycoses in Madagascar**: chromomycosis and sporotrichosis. The work was carried out as part of Rasamoelina Tahinamandranto's PhD thesis research, with a grant from the Mérieux Foundation. The results were presented on October 29, 2018. A new molecular diagnostic test is being developed, based on this work, along with a patient treatment network. The research was conducted in partnership with the dermatology department of the Joseph Raseta Befelatanana University Hospital Center, with support from Grenoble-Alpes University and Antananarivo University.

*The COMPARE project (grant agreement no. 643476) aims to accelerate the detection of and response to disease outbreaks among humans and animals worldwide through the use of new genome sequencing technologies.

SCREENING HEPATITIS B IN PREGNANT WOMEN IN LAOS

The Mérieux Foundation is supporting research into the prevalence of hepatitis B among pregnant women in Laos by Dr. Vatthanaphone, as part of his doctoral thesis. Mother-to-baby *in utero* transmission is the main source of infection. **Screening will be offered during pregnancy to ensure that proper care is provided for at-risk births** in a facility where newborns can be vaccinated at birth. The study is receiving operational support from Mahosot Hospital, the Mother-Child Hospital of Vientiane and the Center of Infectiology Lao Christophe Mérieux.

➔ HEPATITIS B AND NEWBORNS

An estimated 90% of children who contract the hepatitis B virus at birth will be chronic carriers, with a high risk of developing liver complications (cirrhosis and primary liver cancer).

HEPATITIS PREVALENCE IN CAMBODIA

The Mérieux Foundation, WHO and the University of Health Sciences, Cambodia, have launched a research program to determine the prevalence of the hepatitis B and C viruses among healthcare professionals in Cambodia—an at-risk population for which there is, as yet, no immunization policy. The study, which is expected to involve over 700 participants, will **address a shortage of data and will allow the Cambodian authorities to draw up a prevention plan.**

RAPID TESTS

ASSESSING ZIKA VIRUS DIAGNOSTIC TESTS

As part of the Zika Preparedness Latin American Network (ZikaPLAN) project, funded by the EU Horizon 2020* program, **two prototype Zika virus diagnostic tests** developed by the Mérieux Foundation were assessed in partnership with Institut Pasteur of Dakar. The results of the assessment were promising. The Mérieux Foundation also delivered training on test development to two researchers and two quality experts at Institut Pasteur of Dakar. The tests could be used before and after immunization campaigns in Brazil.

TYPHOID SCREENING TEST VALIDATION

Developed by the Mérieux Foundation's Emerging Pathogens Laboratory, based on research conducted in Bangladesh, the new typhoid test was validated for use in an African context (Burkina Faso, Ghana and Malawi). **The databases are currently being consolidated so that the clinical performance of the test can be evaluated on a larger scale.** The study, which is funded by the Bill & Melinda Gates Foundation, receives support from the International Vaccine Institute, the Malawi-Liverpool-Wellcome Trust, the Kumasi Center for Collaborative Research in Tropical Medicine at Kwame Nkrumah University of Science and Technology (Ghana), and the Higher Institute of Population Sciences (Burkina Faso).

DIAGNOSING NEGLECTED TROPICAL DISEASES

The **diaTROPiX project**, launched in 2018, is a collaborative initiative between Institut Pasteur of Dakar, the French National Research Institute for Development (IRD), and the Mérieux Foundation. The aim of the project is to **set up a unit to produce diagnostic tests and monitor neglected tropical diseases in Senegal.** The rationale behind the project is two-fold: there is a shortage of locally available, affordable, reliable diagnostic tests, and there is a need for more local diagnostic test production expertise and capability in West Africa.



*Grant agreement 734584

03 KNOWLEDGE-SHARING



Because progress cannot happen without exchange, the Mérieux Foundation encourages the sharing of expertise, transmission of knowledge, and creation of new ideas, so that innovation in the field of health benefits the greatest number. Knowledge-sharing between disciplines and across borders is a driving force behind everything the foundation does.

The foundation holds conferences and training sessions in the field, closely aligned with local needs. It arranges interdisciplinary exchanges through partnerships, and hosts international events at Les Pensières Center for Global Health near Annecy in France - a globally renowned center of public health expertise, belonging to the foundation.

LES PENSIÈRES CENTER FOR GLOBAL HEALTH

Open to nature, and to the world, Les Pensières is a special place to work with a 40-plus-year track record of dialog and engagement, bringing together scientists from every corner of the globe. Hosting **150 events** dedicated to public health and the greater good, **the center attracted more than 5,000 people in 2018**. The center played host to advanced training sessions, symposia and international seminars organized by the Mérieux Foundation and leading global health partners such as WHO, Institut Pasteur, Inserm, UNICEF, GAVI, the Global Fund, IRD, and more.

SCIENTIFIC CONFERENCES

CONFERENCES HELD AT LES PENSIÈRES IN 2018

Forum Espace Humanitaire (FEH)

→ January 2018 / 102 participants

In partnership with the French Red Cross and Fondation de France, with contributions from NGOs ACTED, Action Against Hunger, Humanitarian Alternatives, CARE France, Handicap International, ICVA, Oxfam France, Première Urgence Internationale, Secours Catholique – Caritas France, Secours Islamique France, Solidarités International, and SOS Villages d'Enfants France.

This retreat for French humanitarian leaders has been held every 18 months since 2009. In 2018, for the first time, the event included representatives of NGOs from France, Europe, America, and West and Central Africa.

6th Better Foods for Better Health Conference

→ March 2018 / 94 participants

In partnership with Mérieux Nutrisciences

The theme for the 2018 edition was "Childhood nutrition: building a healthy life". The event brought together scientists, industry leaders and decision-makers to discuss and debate the latest nutrition research and to highlight the impact of good nutrition on health and well-being.

4th Middle East, Eastern Europe, Central Asia and North Africa Rabies Expert Bureau (MEEREB) Meeting

→ April 2018 / 40 participants

In partnership with WHO, OIE and GARC

The meeting brought together members of the regional network of rabies experts for two and a half days, allowing them to interact and share ideas about how to improve rabies control and prevention in their respective countries.

5th Annual Meeting of the Global Task Force on Cholera Control (GTFCC)

→ June 2018 / 91 participants

In partnership with the GTFCC

Following the launch of Ending Cholera - A Global Roadmap to 2030, this meeting - supported by the Mérieux Foundation, the Bill & Melinda Gates Foundation, and NGO WaterAid - explored the latest progress and looked at what support countries could be given to implement the roadmap (which aims to reduce the number of cholera-related deaths by 90% by 2030).



Four GTFCC working group meetings

→ February, April, November and December 2018

In partnership with WHO's GTFCC

Meetings of the GTFCC's WASH (Water, Sanitation and Hygiene), Surveillance, Case Management and Oral Cholera Vaccine working groups, covering their respective contributions to the 2030 roadmap.

Arboviruses: A Global Public Health Threat

→ June 2018 / 58 participants

In partnership with Sanofi Pasteur

This meeting explored arboviral epidemic control and prevention strategies, covering issues such as vector control, personal protection, case detection and management, surveillance, and vaccination.

Global Challenges in Vaccine Acceptance Science and Programs

→ September 2018 / 70 participants

In partnership with Sanofi Pasteur

This year's 6th edition of the conference focused on current challenges and how to address them. The discussions and debates covered a range of questions, such as how to measure vaccine hesitancy, how to restore confidence in vaccines, and what role social media play.

Global Virus Network (GVN) International Meeting

→ November 2018 / 95 participants

In partnership with the GVN and the University of Veterinary Medicine Hanover

This year's GVN international meeting, which was attended by leading virology experts from around the world, focused on controlling and eradicating emerging and re-emerging viruses.

INTERNATIONAL CONFERENCES

3rd Asia Dengue Summit

→ Malaysia,

July 2018 / 110 participants

In partnership with the ADVA (Asian Dengue Vaccine Advocacy) working group, the DVI (Dengue Vaccine Initiative) and the NGO SEAMEO.

8th and 9th "MENA Influenza Stakeholders Meetings"

→ Egypt and Denmark, April and October 2018 / 50 participants

In partnership with Sanofi Pasteur

These conferences aim to strengthen collaboration between member countries in the Middle East and North Africa, as well as international partners, to optimize influenza control, including the use of the new quadrivalent influenza vaccine.

Partners for Rabies' Prevention

→ Switzerland,

June 2018 / 45 participants

In partnership with the GARC (Global Coalition for Rabies Control)

Rabies experts came together to share experience and leverage the latest scientific advances in an effort to improve rabies prevention.

Vaccinology 2018 Conference: 11th International Symposium for Latin American Experts

→ Panama,

October 2018 / 90 participants

In partnership with Sanofi Pasteur

Held alternately in Latin America and Asia-Pacific, these events provide an update on vaccination practices and aim to encourage the sharing of experiences to establish new vaccination strategies.

First Regional Symposium on Viral Hepatitis

→ Laos,

October 2018 / 80 participants

With support from the French Ministry of Foreign Affairs, the Center of Infectiology Lao Christophe Mérieux, the Chiang Mai Faculty of Medical Sciences and the French National Research Institute for Sustainable Development (IRD)

Health professionals and researchers from Laos, Myanmar, Cambodia, Thailand, Vietnam, Nepal, Mongolia and France laid the foundation for a regional network on chronic hepatitis.

► Arboviruses

Arboviruses are viruses transmitted by arthropod vectors such as mosquitoes and ticks. These viruses account for the vast majority of vector-borne diseases, which make up over 17% of all infectious diseases (including malaria, dengue fever, yellow fever, and Japanese encephalitis). Arboviruses are responsible for more than one billion cases and one million deaths annually. Globalization, urbanization and climate change are causing these viruses to spread to new parts of the world (source: WHO).

TRAINING

In collaboration with its partners, the Mériex Foundation provides training to meet skills development needs in developing countries. Formats vary from intensive courses to qualifying and trainer training programs, plus practical workshops and e-learning modules - in particular as part of projects such as the GABRIEL network, the RESAOLAB program, and the Quality Initiative.

ADVANCED COURSE OF VACCINOLOGY

– ADVAC (Advanced Course of Vaccinology)

ADVAC, run by the Mériex Foundation and the University of Geneva, is a two-week course for academics, the private sector and governmental and nongovernmental organizations involved in vaccine development and vaccination programs. It covers all aspects of vaccination: new vaccine development, clinical trials, vaccination policy and strategy, vaccine-specific challenges, as well as ethical considerations around clinical trials, regulatory issues, immunization program funding and implementation, and communication.

In 2018, **71 students from 36 countries** including 21 scholarship students from developing countries completed the ADVAC course, earning 68 European CME credits (awarded by the European Accreditation Council for Continuing Medical Education).

ADVAC PARTNERS

- Bill & Melinda Gates Foundation
- European Commission (EDCTP)
- European Centre for Disease Prevention and Control (ECDC)
- European Society for Paediatric Infectious Diseases (ESPID)
- Johns Hopkins Bloomberg School of Public Health
- Mériex Foundation
- National Foundation for Infectious Diseases (NFID)
- National Institutes of Health (NIH/NIAID) and Fogarty International Center
- National Vaccine Program Office (NVPO)
- University of Geneva
- U.S. Centers for Disease Control and Prevention (CDC)
- World Health Organization (WHO)

Education grants were provided by GlaxoSmithKline, Janssen Vaccines & Prevention, Merck, Pfizer, Sanofi Pasteur, Serum Institute of India and Takeda.

A DYNAMIC NETWORK

The ADVAC alumni network (more than 1,100 people from 110 countries) organizes meetings at major scientific conferences. In 2018, alumni met in Geneva, following the two SAGE meetings (WHO group of experts on vaccination), in Malmö, during the conference of the European Society for Paediatric Infectious Diseases (ESPID), and in San Francisco, following the Infectious Disease Society of America (IDSA) conference.





ADVAC

(Advanced Course of Vaccinology)

- 19th course
 - 71 students from 36 countries
 - May 7-18, 2018 at Les Pensières Center for Global Health
- In partnership with the University of Geneva

ACDx

(Advanced Course on Diagnostics)

- 9th edition
- 44 students from 24 countries
- September 16-21, 2018 at Les Pensières Center for Global Health

In partnership with the London School of Hygiene & Tropical Medicine

ADVANCED COURSE ON DIAGNOSTICS

– ACDx (Advanced Course on Diagnostics)

ACDx, run by the Mériex Foundation and the London School of Hygiene & Tropical Medicine, is a one-week course that promotes the value of clinical diagnostics and highlights the vital role that it plays in improving public health worldwide. The program is intended for decision-makers and scientists involved in developing diagnostic tools and implementing infectious disease control policy.

In 2018, the course covered access to high-quality diagnostic tests, with a particular emphasis on combating antimicrobial resistance and improving epidemic preparedness. More than 40 speakers contributed to the course, which was attended by **44 students from 24 countries**. In 2018, ACDx was supported by the Africa Centers for Disease Control (Africa CDC), the Defense Threat Reduction Agency (DTRA), the Foundation for Innovative New Diagnostics (FINN), the WHO Special Program for Research and Training in Tropical Diseases (TDR), BD, bioMérieux, CNine Biosolutions, and Micobiomed.



GLOBAL VACCINOLOGY TRAINING WORKSHOP

November 7-8, 2018, the Mériex Foundation and the University of Geneva, co-organizers of the ADVAC course, held a special event for **the heads of 26 vaccinology courses**. The workshop, which took place at the Les Pensières Center for Global Health, provided an update on vaccinology training worldwide. The wide range of topics discussed included: program objectives, target audiences and funding, potential areas of collaboration and unmet needs. The workshop also stressed the importance of hands-on practice and interactivity to improve teaching efficiency and update knowledge. A list of vaccinology training programs will be published on the ADVAC website (www.advac.org).

PUBLIC HEALTH PARTNERSHIPS

The Mérieux Foundation also contributes to several collaborative initiatives that take a synergistic approach to effectively fight against infectious diseases, pooling expertise and resources across the public and private sectors and in different parts of the world.

FIGHTING DENGUE FEVER

PDC: Partnership for Dengue Control

PDC is an alliance of international organizations and scientific experts that aims to contribute to the elimination of dengue fever and other arboviral diseases. It adopts a comprehensive approach integrating different prevention tools: vaccines, antiviral treatments, diagnostics, mosquito control, etc. These activities are carried out in collaboration with the Global Dengue & *Aedes*-Transmitted Diseases Consortium (GDAC) and various international academic and institutional partners, including WHO.

Since it was set up in 2013, PDC has held eight scientific workshops, which have led to the establishment of an operational research agenda plus the publication of open-access reports, including several in scientific journals. In 2018, the alliance made preparations for a workshop on rapid diagnostic tests and pre-vaccination screening strategies, to be held at Les Pensières Center for Global Health in January 2019.

RESPONDING TO EPIDEMIC OUTBREAKS

GloPID-R: Global Research Collaboration for Infectious Disease Preparedness

GloPID-R is a global network of research funding bodies for infectious diseases with pandemic potential. Its objective is to prepare and activate a rapid, coordinated and effective response during major outbreaks of new or re-emerging infectious diseases. The Mérieux Foundation is responsible for coordinating the GloPID-R Secretariat, in partnership with the University of Oxford. The Secretariat is funded by the European Union's Horizon 2020 research and innovation program under grant agreement n°643434.

In 2018, new members joined the network, bringing the total membership to 27. A new Social Science Research working group was set up to foster greater international cooperation. The network sprang into action following the Lassa fever outbreak in Nigeria in April 2018, sending teams out into the field to assess research priorities. GloPID-R was heavily involved in the WHO-coordinated response to the two Ebola virus outbreaks in the Democratic Republic of the Congo in May and August, supporting *in situ* clinical trials and helping to develop a vaccine.

The network also held an international workshop on clinical research preparedness for epidemic outbreaks of other infectious diseases.

GL  **PID-R**



CONTROLLING CHOLERA

GTFCC: Global Task Force on Cholera Control



The **GTFCC** is a **global multisectoral partnership** of more than 50 organizations committed to implementing “Ending Cholera - A Global Roadmap to 2030”. Some 2.9 million people worldwide contract cholera every year. The disease kills 95,000 people annually. The aim of the roadmap is to cut the number of deaths by 90% by 2030. The GTFCC operates as a series of interdisciplinary working groups, each focusing on a specific theme. The groups are tasked with propelling actions that fall within their respective areas of focus.

In 2018, the Mériex Foundation’s Les Pensières Center for Global Health hosted the GTFCC’s annual meeting, as well as four working group sessions, as part of efforts to update and deploy the 2030 roadmap (see page 32).

CONTROLLING RABIES

MEEREB: Middle East, Eastern Europe, Central Asia and North Africa Rabies Expert Bureau

MEEREB is a regional network comprising countries with diverse cultures and at different stages in the process of eliminating rabies.

Since its fourth meeting (see page 32), MEEREB became a **network federating rabies control networks in the Middle East, Eastern Europe, Central Asia and North Africa**, under a new name, MERACON. The new network is coordinated by the Global Coalition for Rabies Control (GARC), with support from the Mériex Foundation. MERACON joins the other GARC regional networks: PARACON (sub-Saharan Africa) and ARACON (Asia).

The regional networks play a prominent role in implementing the country-focused Global Strategic Plan, which aims to end deaths from dog-mediated rabies by 2030. The plan, which was launched in April 2018 by United Against Rabies in collaboration with WHO, FAO, OIE and GARC, will support country-led efforts to eliminate rabies.

04 MOTHERS & CHILDREN



Particularly vulnerable to infectious disease, women and children are often the first to suffer in situations of crisis. In response to the suffering it sees, the Mérieux Foundation has gradually expanded its work to improve living conditions and access to care for refugee, displaced and vulnerable populations in the countries where it operates.

The foundation embraces new dynamics in capacity building, working side by side with local authorities and associations. From conception to implementation, its projects are carried out with and for the women and men of the countries concerned. It supports a range of health, hygiene, education and socio-economic inclusion projects for the poorest members of society. By driving progress in these areas, the foundation aids in preventing the spread of infectious diseases, which remains closely correlated to living conditions and information provided.

These activities are funded by Fondation Christophe et Rodolphe Mérieux as part of the close partnership between the two family foundations.

FONDATION CHRISTOPHE ET RODOLPHE MERIEUX

An independent family foundation under the aegis of the Institut de France, founded in 2001, Fondation Christophe et Rodolphe Mérieux devotes most of its resources to funding projects in the field. It relies on the expertise and human resources of the Mérieux Foundation to implement its projects on the ground.

IMPROVING ACCESS TO MEDICAL CARE FOR REFUGEE, DISPLACED AND VULNERABLE POPULATIONS

LEBANON: A NEW COMMUNITY MEDICAL CENTER

The Mérieux Foundation, with the support of the Prince's Government of Monaco's Department of International Cooperation, is building a new **mother-and-child primary care center for vulnerable Lebanese and refugee populations** in Lebanon's Bekaa Valley. The center will provide ongoing medical care for women and children, health education services for families, and will refer patients to appropriate health and social care facilities.

In 2018, the Mérieux Foundation, the project's coordinator, signed a new tripartite agreement with the Duris Municipal Council, which provided the land on which the center is being built, and the NGO Amel Association, which will manage the center. The foundation stone-laying ceremony was held under the auspices of the Ministry of Public Health and Baalbek-Hermel Governorate. Construction work began in November 2018.



BANGLADESH: TWO NEW HEALTHCARE FACILITIES

The Mérieux Foundation, in partnership with Friendship, an NGO working with isolated communities in Bangladesh, **contributed to funding a new laboratory at Shyamnagar Hospital** in the south of the country. In addition, the foundation helped get activities up and running at the laboratory, which included delivering hematology and biochemistry training to laboratory technicians.

A new care center for disabled children on Maheshkhali Island also opened in 2018. The center is funded through a partnership with Bangladesh's Ministry of Health, French NGO Aide Médicale au Développement (AMD), and Bangladeshi NGO Social Assistance and Rehabilitation for the Physically Vulnerable (SARPV). It specializes in combating rickets, as well as treating childhood diseases and congenital disorders.

EGYPT: OPENING OF A NEW LABORATORY AND DISPENSARY

With the support of the Auvergne-Rhône-Alpes Region and in collaboration with two Egyptian NGOs, Anaphora and Mahaba, **the Mérieux Foundation helped to fit out two new healthcare facilities that opened to the public in 2018**: a health center in Al Qusiyah, Upper Egypt, which receives around 40 patients each day, and a medical testing laboratory in Asyut, Lower Egypt, which analyzes around 400 samples per month.

GUINEA: SUPPORTING THE BERNARD KOUCHNER WOMEN AND CHILDREN'S HEALTH CENTER IN CORONTHIE

The Bernard Kouchner Women and Children's Health Center opened in 2014. The Mérieux Foundation has been supporting the center, which is situated in Coronthie, one of Conakry's poorest neighborhoods, for a number of years. In 2018, the Mérieux Foundation contributed €40,000 to allow the center to **purchase drugs and equipment**.

IRAQ: CARING FOR YAZIDI WOMEN AND CHILDREN

At the request of the Yazidi Supreme Spiritual Council (which represents the main Iraqi Kurd group persecuted by Daesh), the Mérieux Foundation and its partners have begun **building a new community medical center for displaced Yazidi women and children in Dohuk Governorate**. The center will include psychological care units, as well as hosting sesame paste production workshops, a workshop with 20 sewing machines, a hair salon, and play facilities for children. The construction work is supported by Fonds Pour Eux, Fondation AnBer, Fondation Saint-Irénée, and the Auvergne-Rhône-Alpes Region.



PAULINE-MARIE JARICOT MOTHER AND CHILD CENTER IN ERBIL

In 2018, a new gynecology unit opened at the Pauline-Marie Jaricot Mother and Child Center, built by the Mérieux Foundation and its partners on the outskirts of Erbil, the capital of Iraqi Kurdistan. The center, which is intended for displaced populations, is run entirely by local doctors and administrative staff.

SUPPORTING EDUCATION AND SOCIO-ECONOMIC DEVELOPMENT

MADAGASCAR: RAISING AWARENESS ABOUT DISEASE PREVENTION

Through its close working relationship with local stakeholders, the Mérieux Foundation is developing **awareness-raising material to teach children in Madagascar about hygiene and disease prevention**. In 2018, it produced a new Water, Sanitation and Hygiene (WASH) educational kit, which was distributed in around 100 schools. The kit, which includes activities for children, a teacher's guide and a poster for families, uses the latest technologies and is designed to give the child an active role. The Mérieux Foundation is also finalizing two other kits—one on Nutrition and the other on Sex Education and Sexually Transmitted Infections. Like the WASH kit, they place a strong emphasis on learning through play, with appealing content and easy-to-follow advice. The local partners for the project are the NGOs Graines de Bitume and Akamasoa, the Ministry of Public Health, the Ministry of National Education, Technical and Professional Training, and the Ministry of Water, Sanitation and Hydrocarbons.

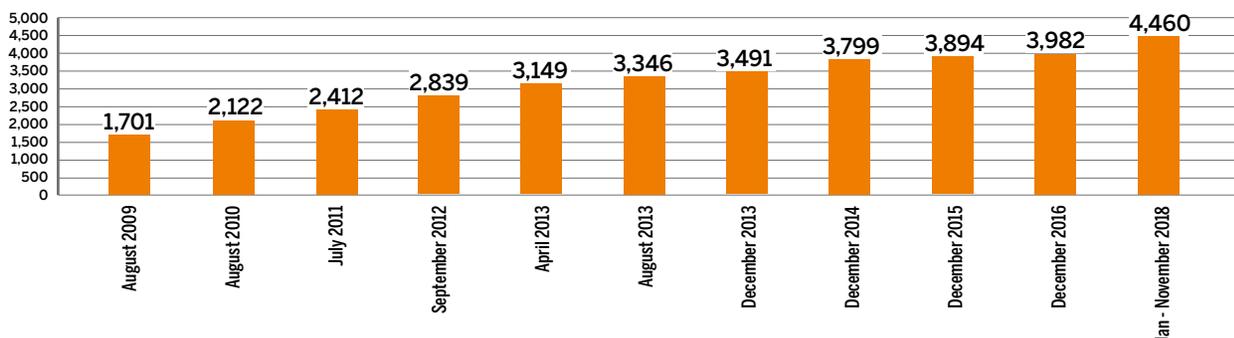


CAMBODIA: HELPING STUDENTS AND POOR FAMILIES

In partnership with the NGO Enfants du Mékong, the Mérieux Foundation supports the Doctor Christophe Mérieux Center of Phnom Penh, which offers students from disadvantaged backgrounds the opportunity to pursue higher education. The center hosts nearly 300 students as well as around 20 kindergarten children from the slums of Phnom Penh. Poor families receive support to improve their homes, access food, and obtain education for their children.

HAITI: PROMOTING ENTREPRENEURSHIP

Number of beneficiaries (running total)



The Mérieux Foundation is a partner of the Association for Cooperation with Micro Companies (ACME), a Haitian NGO that offers micro-credit services to micro-entrepreneurs who don't have access to bank loans to develop their business. Fondation Christophe et Rodolphe Mérieux covers the cost of training sessions, as well as the operating costs of the support centers that monitor the program's beneficiaries.

In 2005, GHESKIO—with support from the Mérieux Foundation—set up an economic development program to improve the living conditions of vulnerable families visiting its clinics. GHESKIO has partnered with ACME and the Mérieux Foundation via the “Micro-credit Program for Women Affected by HIV in Haiti”, which provides **loans to vulnerable women from neighborhoods where 65% of people live below the poverty line, so that they can access income-generating activities**. Various projects are run as part of the program since 2012, including vocational training and programs designed to help beneficiaries learn skills and gain employment in areas such as cosmetics, hospitality, cooking, childcare, cabinet-making, silkscreen printing, papier-mâché-making, sewing and painting. GHESKIO monitors the profile of its beneficiary population at regular intervals to assess developments and to measure the impact of the activity on their quality of life and their ability to meet their basic needs (feed themselves, pay their rent, and earn an income).

MALI: DELIVERING SCIENCE AND HEALTH EDUCATION

In 2015, the foundation joined forces with the La Main à la Pâte foundation to launch a science and health education scheme in primary schools in Mali. The aim of the program was to **make children aware of health risks by using inquiry-based learning** that stimulates scientific curiosity and the capacity for self-expression. In 2018, the project participants responsible for training teachers took part in further training sessions. Teaching resources were produced, covering infectious diseases in relation to the air, water, and the human body. Eight training sessions on scientific investigation methods have been delivered since the project was launched, attended by 190 primary and secondary school teachers, plus senior managers from national education authorities.

PARTNERSHIP WITH SAMUSOCIAL

Since 2017, the Mérieux Foundation has helped Samusocial International implement a **prevention program for children and young people living on the streets** in three West African cities (Dakar, Senegal; Bamako, Mali; and Pointe-Noire, Republic of the Congo). The project is implemented by Samusocial International's local branches and their partners as part of Expertise France's 5% Initiative. In 2018, the Mérieux Foundation's education and medical team delivered medical training to field staff and provided support and advice on the development of educational materials.

ADDRESSING BASIC NEEDS



MADAGASCAR: IMPROVING ACCESS TO HYGIENE AND HEALTHCARE

The Mérieux Foundation supports Akamasoa (which means “good friends”), a charity founded by Father Pedro Opeka that works to combat poverty and improve living conditions for poor communities on the outskirts of Madagascar’s capital, Antananarivo. In 2018, its donation was used to build a medical testing laboratory and accommodation for patients from Mangarivotra, a disadvantaged neighborhood of the city. The Mérieux Foundation also covered treatment and hospitalization costs for another year.



IRAQ: DELIVERING EMERGENCY AID

In June 2018, the Mérieux Foundation, in collaboration with the Auvergne-Rhône-Alpes Region, conducted a needs assessment mission in Mosul, Iraq, as part of efforts to rebuild the city. Having observed the harsh reality of life for families living in West Mosul, the old part of the city, the Mérieux Foundation arranged for **emergency food aid to address people’s immediate needs**. As a result of the distribution campaign, conducted with support from local charities, 600 families received staple foods such as rice, lentils, oil and sugar.

HAITI: SUPPORTING THE LÉOGÂNE ORPHANAGE

In the aftermath of the 2010 earthquake, the Mérieux Foundation built the Village of Nazareth, an orphanage for 68 children in the town of Léogâne, a 90-minute drive from Haiti's capital, Port-au-Prince. The Mérieux Foundation is helping the orphanage **meet its running costs, equip its facilities and set up income-generating activities**. In 2018, new dry toilets were installed, all the buildings were repainted, and four classrooms were renovated.



SMALL GRANTS

The Mérieux Foundation's Small Grants program is a €50,000-a-year fund that disburses grants of up to €5,000 to charities and organizations running projects that make a real difference locally. Applications are assessed twice a year.

In 2018, the program disbursed grants to thirteen projects, including:

- Cantal au Cœur de l'Afrique, to build a **diagnostic testing laboratory** in the Republic of the Congo (160 patients per month),
- A team of doctors from the Entomological Society of Côte d'Ivoire, for research on **Aedes mosquitoes**, which carry dengue and yellow fever,
- Pakistani NGO Society for Development and Research, for a project to **raise awareness about sexually transmitted diseases among young people** in Pakistan.

05 THE MÉRIEUX FOUNDATION WORLDWIDE



BENIN

BURKINA FASO

GUINEA

MADAGASCAR

MALI



NIGER

SENEGAL

TOGO



BRAZIL

HAITI

BANGLADESH



CAMBODIA

CHINA

LAOS

MYANMAR



EGYPT

IRAQ

LEBANON



AFRICA

BENIN

- **1 Beninese employee¹**
- **RESAOLAB network member since 2013:**
 - Construction of the National Laboratories Directorate and the Continuing Training Center in 2017
 - Development of biomedical equipment maintenance training at the Ecole Polytechnique of Abomey-Calavi

IN 2018

RESAOLAB PROJECT ACTIONS

- **Monitoring** of the sites provided with equipment and the computerized Laboratory Information Management System, LabBook
- **IT equipment for LabBook** in 7 new laboratories
- **Drafting** of the National Laboratory Policy, the Strategic Development Plan, the mapping and the National Laboratory Quality Plan

REDISSE PROJECT ACTIONS

- **Funding** an intensive bilingual training session in biomedical equipment maintenance in Cotonou for the REDISSE country members as part of the Mériex Foundation mandate (Guinea, Guinea Bissau, Liberia, Sierra Leone and Togo)

BURKINA FASO

- **Mériex Foundation office: 1 Burkinabe employee**
- **RESAOLAB network member since 2009:**
 - Construction of the Continuing Training Center and the External Quality Control Unit in Ouagadougou, within the General Directorate of Pharmacy, Drugs and Laboratories, inaugurated in 2013
 - Renovation and equipping of 3 other continuing training centers in 2011-2012: Bobo-Dioulasso (DRS), Ouahigouya (Lazaret Medical Center) and Fada N'Gourma (Regional Hospital)
 - Renovation of the laboratory and practical workrooms of the Faculty of Pharmacy of Ouagadougou in 2014
 - Funding of scholarships for the Diploma of Specialized Studies (DES) in Medical Biology and for the Interuniversity Diploma in Antibiology and Antibiotherapy at the University of Ouagadougou (2014-2018)

IN 2018

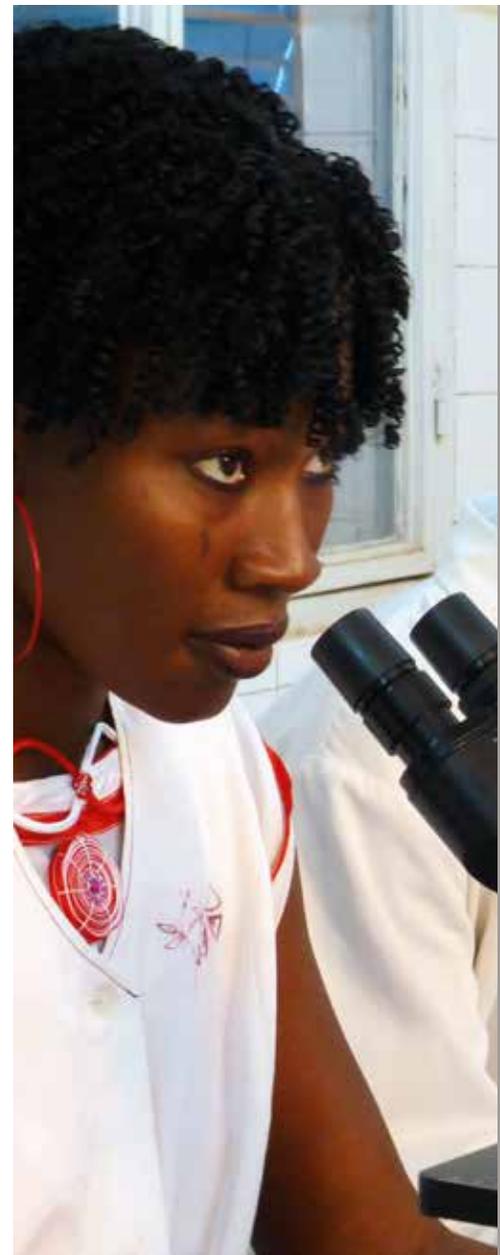
SUPPORT FOR CLINICAL BIOLOGY LABORATORIES

- **Continuation** of the G5 Sahel biosecurity network project to strengthen capacities for response to biological threats in 5 countries (Burkina Faso, Chad, Mali, Mauritania and Niger), in partnership with the German Program "Enable and Enhance Initiative" (E2I)

ENHANCING RESEARCH CAPABILITIES

- **Ongoing validation** of a new typhoid screening test in Burkina Faso, Ghana and Malawi, based on research conducted in Bangladesh, in partnership with Schiphra laboratory and the International

Vaccine Institute (IVI); 4 people (technicians and directors) trained in molecular diagnostic techniques in Lyon, 1,100 patients included and 220 controls



¹ until May 2018

AFRICA

GUINEA

- **First Mérieux Foundation mission in 2010**
- **Mérieux Foundation office: 2 Burkinabe expatriates 15 Guinean employees**
- **RESAOLAB network member since 2013**

IN 2018

SUPPORT FOR CLINICAL BIOLOGY LABORATORIES

- **Continuation** as part of the REDISSE project, of the technical support in diagnostics, confirmation of test results and data management in 10 district laboratories to reinforce epidemiological surveillance and response capabilities of the selected laboratories (training, supervision and external quality assessment)
- **Continuation** and finalization of the LAB-NET project with the following achievements: mapping of more than 105 laboratories - now run by the Ministry of Health, provision of 41 laboratories with personal protective equipment, secure transport boxes and small laboratory equipment, nearly a hundred people trained in biosafety and laboratory management, in partnership with Institut Pasteur of Guinea
- **Acceleration** of the LABOGUI project aiming at supporting the implementation of the national medical biology policy through the strengthening of prefectural and regional laboratories and the improvement of laboratory professionals' practices: appointment of 8 national technical assistants in the regional health directorates, definition of

improvement plans for the 33 supported laboratories, organization of training sessions, implementation of the computerized Laboratory Information Management System, LabBook, creation of an external quality assessment program, launch of the first purchasing processes

RESAOLAB PROJECT ACTIONS

- **Inauguration** of the National Laboratories Directorate and the Continuing Training Center for laboratory technicians, funded as part of the RESAOLAB project, at a ceremony with Mr. Alain Mérieux and Mr. Alpha Condé, President of the Republic of Guinea
- **Equipping** of the Kindia National Health School

PROJECTS FOR MOTHERS AND CHILDREN

- **Support** to the Bernard Kouchner Women and Children's Health Center in Coronthie, inaugurated in 2014, for the purchase of laboratory reagents and equipment, and setting up the medicine storage area*

MADAGASCAR

- **First Mérieux Foundation mission in 2006**
- **Mérieux Foundation office: 6 Malagasy employees**
- **Charles Mérieux Center for Infectious Disease and Rodolphe Mérieux Laboratory* at the University of Antananarivo (2010)**
- **One GABRIEL network member: University of Antananarivo**
- **Renovation of 9 clinical biology laboratories since 2007**

Rodolphe Mérieux Laboratory Research Focus:

- Leprosy
- Chromomycosis and sporotrichosis
- Multidrug-resistant bacteria
- Bacterial meningitis
- Schistosomiasis

IN 2018

SUPPORT FOR CLINICAL BIOLOGY LABORATORIES

- 2018 RESAMAD project achievements*:
- **24 network member laboratories**, among which 10 strengthened in **microbiology testing**
- **Antimicrobial resistance surveillance** (AMR): active participation of the network in the national plan drafting with WHO and the Ministry of Public Health
- Organization of two **workshops in quality and microbiology** at the Charles Merieux Center for Infectious Disease with the 24 laboratories
- Financial **support from USAID** to provide personal protective equipment and sample transportation tools to address possible outbreaks of plague or other diseases

*With support from the Fondation Christophe et Rodolphe Mérieux

- Equipping and provision of reagents and consumables needed to start **new bacteriology testing** for 3 laboratories (Ambohimandra Women's and Children's Hospital, Tanambao Diégo University Hospital Center and Anosiala University Hospital Center)
- Implementation of the 80/20 and 60/40 **cost recovery** management system in 3 hospitals
- Continuation and monitoring of **external quality control** in laboratories and integration of new laboratories
- Contribution to the **epidemiological surveillance** of diseases in Madagascar due to the quality of the testing performed
- **Standardized data** made available for each RESAMAD laboratory
- Quality assurance **training** for RESAMAD technicians and biologists
- Provision of **personal protective equipment** for the network's 24 laboratories
- Participation in developing the Madagascar **AMR national action plan**
- Contribution to data for the **GLASS platform** (Global Laboratory Antimicrobial Resistance Surveillance System) of the World Health Organization for global action against AMR
- **Recruitment** of a RESAMAD facilitator
- Participation of 7 laboratories in the **Tricycle project**
- Charles Mérieux Center for Infectious Disease's activities focused on **neglected tropical diseases**: shistosomiasis, chromoblastomycosis and leprosy

- Response to the **plague epidemic** by providing personal protective equipment
- HIV-1 viral load measurement: more than **800 viral load** tests performed
- **Support for pharmacy studies**: raising awareness among high school students to encourage pharmacy studies after graduation and starting the **Faculty of Pharmacy's construction***
- **Construction of a laboratory** in Akamasoa (Father Pedro's village)*

ENHANCING RESEARCH CAPABILITIES

- Surveillance of *Mycobacterium leprae* **resistance to leprosy drugs**: the Charles Mérieux Center for Infectious Disease becomes the National Reference Laboratory for Leprosy
- **Chromomycosis and sporotrichosis** in Madagascar: epidemiology, mycological and molecular diagnosis and characterization of environmental factors
- Monitoring of pediatric and **adult bacterial meningitis** in Antananarivo*
- Strengthening of the **cooperation with BioFire**, with the pursuit of platform donations for GABRIEL laboratories, in particular for the Charles Mérieux Center for Infectious Disease of Madagascar
- Launch of the **Tricycle project**: monitoring the prevalence of *Escherichia coli* strains producing extended-spectrum beta-lactamase as part of the GABRIEL network
- Madagascar **leprosy project** preparation; surveillance of the resistance of *Mycobacterium leprae* to leprosy drugs

- Launch of the study of **post-exposure prophylaxis for leprosy** in the Comoros and Madagascar
- Launch of the pilot-project for **hepatitis B viral load** measurement*

PROJECTS FOR MOTHERS AND CHILDREN

- Access to **improved sanitary conditions** for vulnerable populations in Madagascar with the Akamasoa association: construction of a home for contagious patients in Mangarivotra, and of a new building for the Manantenasa laboratory, and funding of hospitalization and care expenses for the poor*
- Deployment of **educational "WASH" kits** on water, hygiene and sanitation for 5,000 people and creation of new educational kits on nutrition*
- **Solidarity fund** to cover hospitalization and examination costs for poor women and children*



AFRICA

MALI

- **First Mérieux Foundation mission in 2003**
- **Mérieux Foundation office: 1 expatriate 4 Malian employees**
- **Charles Mérieux Center for Infectious Disease and Rodolphe Mérieux Laboratory* in Bamako (2005), member of the GABRIEL network**
- **RESAOLAB network member since 2009; renovation and equipping of training sites (in 2010)**

Rodolphe Mérieux Laboratory Research Focus:

- Tuberculosis
- Emerging and re-emerging pathogens
- Antimicrobial resistance



IN 2018

SUPPORT FOR CLINICAL BIOLOGY LABORATORIES

- Continuation of **technical capacity building** at the Charles Mérieux Center for Infectious Disease: training, equipment and continuation of activities in the BSL3 level laboratory dedicated to tuberculosis, including pediatric tuberculosis, diagnosis and research, with funding from the Global Fund and US CDC-GHSA via Catholic Relief Services*
- Continuation of the **ISO 15189 standard accreditation** process at the clinical biology laboratory: quality management training for the whole Rodolphe Mérieux Laboratory team, 3 externalized internal audits and submission of the application to the accreditation agency in Morocco*
- Finalization of the **G5 Sahel biosecurity network** project to strengthen capacities for response to biological threats in 5 countries (Burkina Faso, Chad, Mali, Mauritania and Niger), in partnership with the German Program "Enable and Enhance Initiative" (E2I)

LABOMEDCAMP PROJECT ACHIEVEMENTS:

- Organization of **training on good laboratory practices** at the Charles Mérieux Center for Infectious Disease for the practitioners and technicians from the 8 new community health centers included in the project
- **Training on biomedical waste management** for 56 health center professionals

- **Installation of 8 new laboratories** and mentoring sessions in the project's 17 laboratories by the partner Santé Sud
- Second steering committee for the **phase 2 of the project**, at the Directorate of Pharmacy and Drugs

ENHANCING RESEARCH CAPABILITIES

- Surveillance of etiologies of acute or prolonged **febrile syndromes** to improve their diagnosis, treatment, and prevention
- Evaluation of **hepatitis B viral load** in blood donors in Bamako
- Study on pediatric tuberculosis*
- Study on the **spectrum of viruses in the respiratory tract**, their epidemiological characteristics and immune response in children, adults and pregnant women, as part of a collaboration between the Mérieux Foundation, the Charles Mérieux Center for Infectious Disease of Mali and the Chinese Academy of Medical Sciences
- Epidemiological surveillance of emerging and re-emerging pathogens through a training course on **Crimean-Congo hemorrhagic fever virus detection** using a molecular diagnostics technique, delivered by the Emerging Pathogens Laboratory team from Lyon
- Study on the emergence, origins and prevention of **antimicrobial resistance** in West Africa, looking at resistant genes circulating among humans, animals and the environment, in collaboration with the Faculty of Medicine of the University of Helsinki, Finland

*With support from Fondation Christophe et Rodolphe Mérieux

KNOWLEDGE-SHARING

- Bachelor of Science in Biological and Applied Medical Sciences (BAMS) Mali: in 2018, BAMS became a **Master's degree in Medical Biology**, through a partnership between the Faculty of Pharmacy of the USTTB (University of Technical Sciences and Technologies of Bamako), the Charles Mérieux Center for Infectious Disease, the Mérieux Foundation and the ESTBB (Graduate School of Biology - Biochemistry – Biotechnology) of UCLy*

PROJECTS FOR MOTHERS AND CHILDREN

- Partnership with **Samusocial International*** which provides assistance to children and youth living in the streets of Bamako: result restitution of the KAP survey on knowledge, attitudes and practices of street children and young people, regarding HIV/AIDS, tuberculosis and malaria, organization and facilitation of seminars on the results, workshops to create educational tools on prevention and therapeutic education, and creation of the tools
- Launch of the phase 2 of the pilot program for **science and health education** for primary schools in Mali, in collaboration with the foundation La Main à la Pâte: 3 teacher training sessions, production of new educational and scientific resources on infectious diseases in relation with the air, water and human body, organization of professional development activities for teachers, organization of awareness activities in the beneficiary schools'

surroundings, participation in the 2nd edition of the Science Festival in Mali

- Partnership with the SMARA association: **specialized medical missions** (pediatrics, dermatology and ophthalmology), training for general practitioners, support to health centers in 3 Timbuktu districts, in the north of Mali, and support to medical students*
- Evaluation mission for the construction of the **Youssof Issabré maternity**: the site has been chosen in accordance with late Professor Ogobara Doumbo's wish, in the health area of Sirakoro Meguetana, on the outskirts of Bamako



*With support from Fondation Christophe et Rodolphe Mérieux

AFRICA

NIGER

- **First Mériex Foundation mission in 2012**
- **Mériex Foundation office: 1 Nigerian employee and 1 expatriate (non-resident)**
- **RESAOLAB network member since 2013**

IN 2018

SUPPORT FOR CLINICAL BIOLOGY LABORATORIES

- Finalization of the **G5 Sahel biosecurity network** project to strengthen capacities for response to biological threats in 5 countries (Burkina Faso, Chad, Mali, Mauritania and Niger), in partnership with the German Program “Enable and Enhance Initiative” (E2I)
- Continuation of **data collection** on clinical laboratory capacity in Niger and development of a map, in partnership with the African Society for Laboratory Medicine

RESAOLAB PROJECT ACTIONS

- **Inauguration of the Laboratories Directorate** in Niamey (which houses the External Quality Assessment Laboratory) and the Continuing Training Center in Zinder
- Post-training **supervision in laboratories** provided with equipment and the computerized Laboratory Information Management System, LabBook

SENEGAL

- **First Mériex Foundation mission in 2008**
- **Mériex Foundation office with national and regional scope: 2 expatriates and 3 Senegalese employees, 1 VSI contract**
- **RESAOLAB network member since 2009:**
 - Support for the creation of a National Laboratories Directorate (2012)
 - Renovation of the Continuing Training Center in Kaolack (2012)
 - Support to the National Public Health Laboratory of Thiès (2009)
- **I-Lab project development (2015) and deployment of the computerized Laboratory Information Management System, LabBook**
- **Contribution to the Global Health Security Agenda's (GHSA) activities**

IN 2018

SUPPORT FOR CLINICAL BIOLOGY LABORATORIES

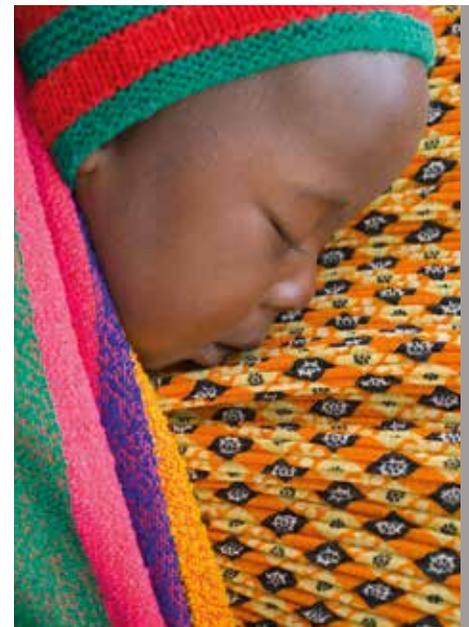
- Extension of the I-Lab project to develop a tool dedicated to **automating the collection of epidemiological data** from laboratories, developed in partnership with the NGO PATH and the Senegalese Laboratories Directorate: 133 laboratories equipped and trained in the use of the DHIS2 platform for reporting on reportable diseases, drafting of a scientific article
- Continuation of the development of a **laboratory mapping tool** in collaboration with PATH and with support from the Global Health Security Agenda/Centers for Disease Control and Prevention (GHSA/CDC)
- Continuation of the development of the computerized Laboratory Information Management System,

LabBook in Senegal: 50 laboratories equipped and their teams trained, supervision and assessment related to the GHSA/CDC program and drafting of specifications for LabBook and DHIS2 interoperability for automated data transmission

- Launch of **diaTROPiX project**, to transfer skills and technologies to Institut Pasteur of Dakar for the production of rapid diagnostic tests

PROJECTS FOR MOTHERS AND CHILDREN

- Partnership with **Samusocial International***, which provides assistance to the children and youth living in the streets of Dakar: restitution of results from the KAP survey on knowledge, attitudes and practices of street children and young people, regarding HIV/AIDS, tuberculosis and malaria



TOGO

- **First Mérieux Foundation mission in 2012**
- **Mérieux Foundation office: 2 Togolese employees**
- **RESAOLAB network member since 2013**

IN 2018

SUPPORT FOR CLINICAL BIOLOGY LABORATORIES

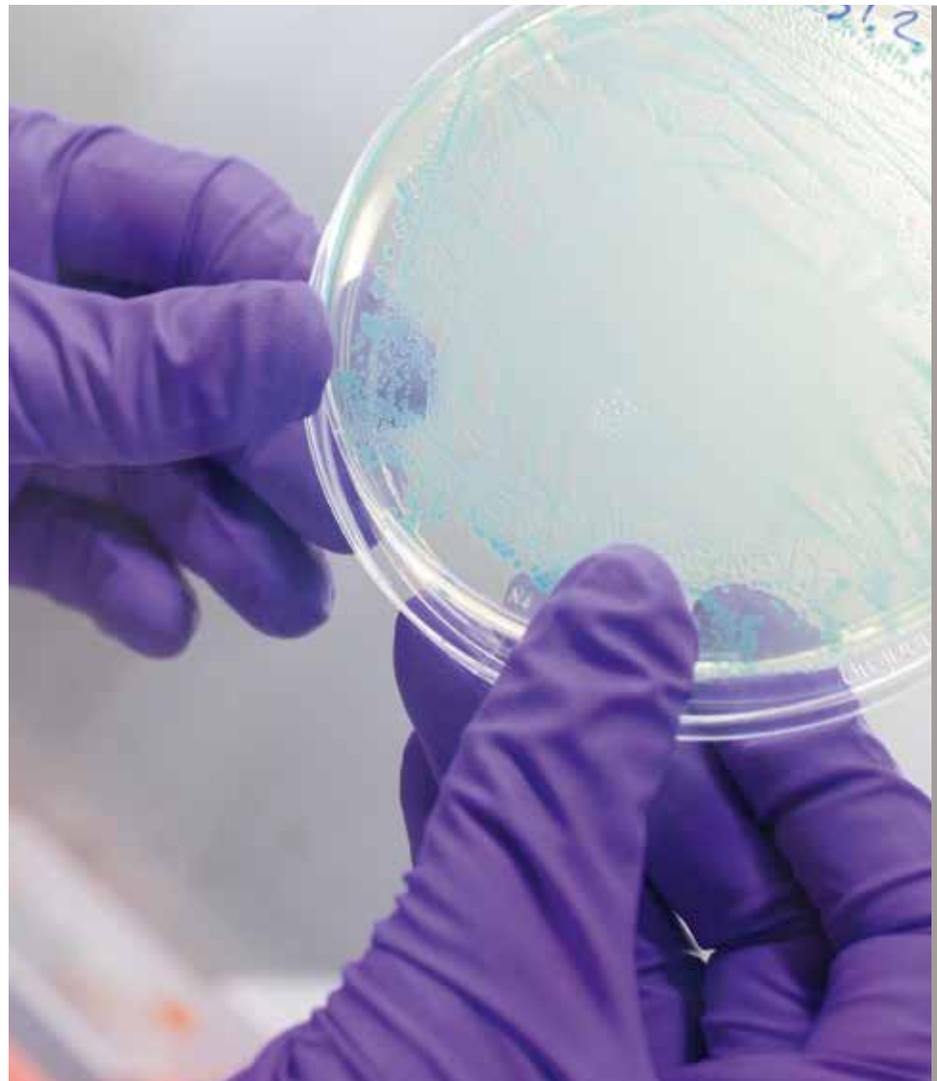
- Continuation, as part of the **REDISSE project**, of the technical support in diagnostic, biological confirmation and data management in 7 district laboratories in order to reinforce epidemiologic surveillance and response capabilities of the selected district laboratories (training, supervision and external quality assessment)

RESAOLAB PROJECT ACTIONS

- **Mentoring** of 14 laboratories
- **Drafting** and validation of the National Laboratory Quality Policy in Togo
- **Validation** of the National Medical Biology Development Policy and Plan
- **Training** on the computerized Laboratory Information Management System, LabBook
- **Laboratory equipment** purchase of microscopes, other equipment and qualification

ENHANCING RESEARCH CAPABILITIES

- Finalization of the **DREPATEST study**: diagnostic performance and feasibility of use of the rapid diagnostic test (RDT) for Sickle cell disease, Sickle SCAN™, from Biomedomics, in infants under 6 months in Bamako (Mali), Lomé (Togo) and Kinshasa (DRC)



AMERICAS

BRAZIL

- **First Mérieux Foundation mission 2011**
- **Charles Mérieux Center for Infectious Disease and Rodolphe Mérieux Laboratory* in the Fundhacre Hospital in Rio Branco (2016)**
- **2 GABRIEL network members: the Oswaldo Cruz Foundation and the Laboratório Nacional de Computação Científica (National Laboratory for Scientific Computing)**

Rodolphe Mérieux Laboratory Research Focus:

- Tuberculosis
- Viral hepatitis
- Dengue, Zika and chikungunya

IN 2018

SUPPORT FOR CLINICAL BIOLOGY LABORATORIES

- Introduction of testing techniques for monitoring **hepatitis viral load** in patients
- Training on tuberculosis culture for **antibiotic susceptibility testing** in a BSL3 level laboratory in Salvador

ENHANCING RESEARCH CAPABILITIES

- Collaboration with the Laboratório Nacional de Computação Científica within the framework of the **COMPARE project** (Collaborative Management Platform for detection and Analyses of (Re)emerging and foodborne outbreaks)

PROJECTS FOR MOTHERS AND CHILDREN

- Continuation of the partnership with Chief Almir of the Surui tribe to support them in their efforts to integrate themselves into society through the preservation and promotion of their heritage and knowledge in medical botany: construction of the **Health Training Center***



*With support from Fondation Christophe et Rodolphe Mérieux

HAITI

- **First Mérieux Foundation mission in 2002**
- **Rodolphe Mérieux Laboratory*: BSL3 level lab within the Institute of Infectious Diseases and Reproductive Health (IMIS), part of the GHESKIO Centers (Haitian Group for the Study of Kaposi's Sarcoma and Opportunistic Infections) in Port-au-Prince (2009)**
- **Member of the GABRIEL network: the GHESKIO Centers**
- **Bachelor of Science in Biological and Applied Medical Sciences - BAMS (2011-2018)**
- **Public health project for the development of laboratories - SPHAITILAB (2015-2019)**

Rodolphe Mérieux Laboratory Research Focus:

- Tuberculosis
- HIV/AIDS
- Microbiology and antimicrobial resistance

IN 2018

SUPPORT FOR CLINICAL BIOLOGY LABORATORIES

- Continuation of the **SPHAITILAB project** for strengthening the country's laboratory network
 - Finalization of the **pilot study** on the prevalence of multidrug-resistant tuberculosis in five sites across the country by the GHESKIO Centers
 - Validation and official **launch of the National Laboratory Policy**, development of the National Health Research Policy
 - Development of the National Laboratory Network's **Five-Year Strategic Plan 2019-2023**
 - **14 training courses** conducted on several themes ranging from biosafety to fundraising for a total of 418 participants

- Support to the IMIS laboratory (GHESKIO): training, review of processes and procedures, upgrading of the hematology department and revision of the bacteriology sector's computer system to make it compatible with the **World Health Organization's GLASS system** (Global Laboratory Antimicrobial Resistance Surveillance System)*
- **Renovation** at the IMIS laboratory (GHESKIO Centers) following damage caused by flooding*
- 7th and final year of BAMS Haiti (14 participants) before integration as a 4th year of the **Bachelor of Medical Biology at the State University of Haiti***

ENHANCING RESEARCH CAPABILITIES

- **Accreditation of GHESKIO Centers'** laboratories (IMIS and INRL) by the Accreditation Canada agency*

PROJECTS FOR MOTHERS AND CHILDREN

- Continued support for the **Cap-Haitien children's home**: rental of the living quarters, payment of the center's operating costs, food and health assistance*
- Continued support for the Village of Nazareth **orphanage of Léogâne**: development of income-generating activities, construction of sanitary facilities, partitions, refurbishment of the library and expansion of the kitchen*
- Support to the **association Klib Timoun Kè Kontan**: rehabilitation of the boarding school and

development of a new income-generating activity*

- 13th year of the **microcredit program** (set up in collaboration with the Association pour la coopération avec la micro-entreprise) for Haitians living with HIV and vulnerable women: since 2005, more than 4,500 women have benefited from 9,000 loans and the repayment rate is over 90%; the Mérieux Foundation's support makes it possible to sustain training, project staff and the guarantee fund*

*With support from Fondation Christophe et Rodolphe Mérieux

ASIA

BANGLADESH

- **First Mérieux Foundation mission in 2009**
- **Rodolphe Mérieux Laboratory* in Chittagong, within the Bangladesh Institute of Tropical and Infectious Diseases - BITID (2015)**
- **3 GABRIEL network members: the BITID, icddr,b (International Center for Diarrhoeal Disease Research) and ideSHi (Institute for developing Science and Health initiatives)**

Rodolphe Mérieux Laboratory Research Focus:

- Respiratory infections
- Tuberculosis
- Typhoid

IN 2018

SUPPORT FOR CLINICAL BIOLOGY LABORATORIES

- Continuation of the **Quality Initiative** to implement a quality management system in laboratories in developing countries*
- Equipment of the medical laboratory of the land-based **Shyamnagar Friendship Hospital**, in partnership with the NGO Friendship*

ENHANCING RESEARCH CAPABILITIES

- Collaboration with the International Center for Diarrhoeal Disease Research, Bangladesh (icddr,b) in the **COMPARE project**
- Launch of the study on the **etiology of lower acute respiratory infections** in displaced Rohingya populations
- GABRIEL network multi-center study:
 - **HINTT** (HBHA-IGRA New Tool for Tuberculosis) project: validation of the study protocol, obtaining the agreement of the ethics committee, drafting the collaboration contract, sending reagents, training scientific and medical personnel, inclusion/monitoring of tuberculosis patients*

PROJECTS FOR MOTHERS AND CHILDREN

- Finalization of the construction, equipment and inauguration of a **mother-child health center on the Maheshkhali island**, specialized in the fight against rickets, to address the limited access to healthcare*
- Support to Friendship*:
 - Support for **emergency actions** in the Rohingya refugee camp near Cox's Bazar in the Ukhia region
 - **Medical care** provided for infectious diseases in Balukhali and Gumdhum camps

CAMBODIA



- **First Mérieux Foundation mission in 2001**
- **Mérieux Foundation office: 2 Cambodian employees**
- **Rodolphe Mérieux Laboratory* within the Faculty of Pharmacy of Phnom Penh (opened in 2005 and renovated in 2017)**
- **New regional platform for research on infectious diseases on the Institut Pasteur campus in Phnom Penh in 2014 (part of the Mérieux Foundation's membership in the Aviesan Sud scientific network)**
- **Reconstruction of the Faculty of Pharmacy in Phnom Penh, in partnership with the Pierre Fabre Foundation in 2003**
- **9 clinical biology laboratories renovated since 2007**
- **One GABRIEL network member: the University of Health Sciences (UHS) in Phnom Penh**

Rodolphe Mérieux Laboratory Research Focus:

- Respiratory infections
- Hepatitis
- Environmental pathogens

IN 2018

SUPPORT FOR CLINICAL BIOLOGY LABORATORIES

- **Maintenance** of the Rodolphe Mérieux Laboratory: replacement of filters and installation of the roof and new laboratory equipment*
- Inauguration of the **new clinical biology laboratory** at the Takeo Provincial Hospital built by the United States Pacific Command (USPACOM): the Mérieux Foundation drew up the laboratory's blueprint and donated equipment
- Continuation of the CamLab project: strengthening of the **continuing training plan** for laboratory technicians* and continuation of the national **external quality assessment program for 44 laboratories**
- Elaboration of a **national training plan** for laboratory professionals in Cambodia
- Organization of the 8th meeting of the **Strategic Advisory Board** for the Rodolphe Mérieux Laboratory

ENHANCING RESEARCH CAPABILITIES

- Study on the **prevalence of hepatitis C** virus (HCV) infection in people living with HIV and in pregnant women in 4 Cambodian provinces
- Development of a study on hepatitis B (HBV) **vaccination coverage and seroprevalence** of HBV and HCV infections among health professionals in Cambodia
- Publication of study research results on the **distribution of *Streptococcus pneumoniae***

serotypes circulating in Cambodia before the introduction of the PCV13 vaccine

- Study on the development of a **new MALDI-TOF technology** to analyze the diversity of *S. pneumoniae* serotypes*
- Further **characterization of influenza viruses** responsible for severe pneumonia, subject of a doctoral thesis of a Cambodian at the University of Lyon I*
- Initiation of prospective multi-country research on **pneumococcal colonization** in children and adults

PROJECTS FOR MOTHERS AND CHILDREN

- Support for the NGO 1001 Fontaines for its research project on **pesticides in drinking water** in Cambodia*
- Support for **homeless children** and poor families with the NGO Enfants du Mékong*
- Continued support for the **Dr. Christophe Mérieux Center** for student training in partnership with Enfants du Mékong*

CHINA

- **First Mérieux Foundation mission in 2006**
- **Mérieux Foundation office: 3 Chinese employees**
- **Christophe Mérieux Laboratory* within the Institute of Pathogen Biology at the Chinese Academy of Medical Sciences (CAMS) in Beijing (2008)**
- **One GABRIEL network member: the Institute of Pathogen Biology at the Chinese Academy of Medical Sciences (CAMS)**
- **3rd international foundation to be officially recognized by the Chinese Ministry of Health in 2014**

Christophe Mérieux Laboratory Research Focus

- Pneumonia
- Tuberculosis

IN 2018

SUPPORT FOR CLINICAL BIOLOGY LABORATORIES

- Conclusion of the second phase of the program to **decentralize tuberculosis diagnosis** and screening for drug resistance, through a partnership between the Mérieux Foundation and the Chinese Ministry of Health*
- Continuation of the **CARE project** (China Against Drug REsistance) which strengthens the rational use of antibiotics and the control of healthcare-associated infections
- Participation in the G4 Committee, a **research group on class 4 pathogens** that has access to the BSL4 level laboratory in Wuhan, in partnership with the Chinese Academy of Sciences, Institut Pasteur of Shanghai and Institut Pasteur of Paris*

*With support from Fondation Christophe et Rodolphe Mérieux

ASIA

ENHANCING RESEARCH CAPABILITIES

- Continuation of **bioinformatics development** at the Christophe Mérieux Laboratory*
- Scientific collaboration and training for the GABRIEL network by the Christophe Mérieux Laboratory*:
- **Training of 4 scientists** from the Charles Mérieux Center for Infectious Disease of Mali at the Christophe Mérieux Laboratory
- Implementation of a **research project** to identify the spectrum of respiratory viruses in Mali, in collaboration with the Charles Mérieux Center for Infectious Disease of Mali with patient recruitment carried out in two hospitals, Yirimadio Health Center and the Mali Hospital

LAOS

- **First Mérieux Foundation mission in 2005**
- **Mérieux Foundation office: 2 Laotian employees and 1 local contract**
- **Center of Infectiology Lao Christophe Mérieux and Rodolphe Mérieux Laboratory* (opened in 2009 and extended in 2017*), located on the Ministry of Health's scientific campus**
- **16 clinical biology laboratories rehabilitated, including 10 in the Khammouane province in 2013 and 6 in the Bolikhamxay province (in collaboration with LuxDev)**
- **Food Safety Laboratory* (2017)**
- **One GABRIEL network member: the Ministry of Health**

Rodolphe Mérieux Laboratory Research Focus:

- HIV/AIDS
- Chronic viral hepatitis
- Viral respiratory infections and tuberculosis
- Human papillomavirus (HPV)

IN 2018

SUPPORT FOR CLINICAL BIOLOGY LABORATORIES

- Work towards the autonomy of the **Lab Kham project**: training provided to all laboratory technicians and prescribing physicians in hospitals in the Khammouane province and local management for greater autonomy*
- Continuation and end of the **Preparedness & Response project** for the creation and hosting of a "One Health" platform bringing together actors in human, animal and environmental health in Laos
- Launch of the **Boli-Lab project** on capacity building for laboratories in the Bolikhamxay province, in partnership with LuxDev
- Launch of a partnership with the **National Center for Laboratory and Epidemiology (NCLE)** of Laos to strengthen human resources in the laboratory
- Ongoing installation of a biosafety level 3 laboratory (BSL3) for the **diagnosis of multidrug-resistant tuberculosis** and other advanced testing, at the request of the Ministry of Health of Laos*
- Adaptation of the **Antibioguide** with LOMWRU teams
- Initiation of the steps to participate in the **Fleming Fund project** on AMR



*With support from Fondation Christophe et Rodolphe Mérieux

ENHANCING RESEARCH CAPABILITIES

- The **Quality Initiative** to implement a quality management system in laboratories for the entire Rodolphe Mérieux Laboratory team in Vientiane and submission of the accreditation file to the Thai agency*
- Continuation and finalization of the international ID-Bio/International Joint Laboratory Research Group project: **molecular epidemiology of tuberculosis** in Southeast Asia*
- Continuation and finalization (February 2019) of the **LaCoRIS project** for monitoring symptoms of acute respiratory infections in Vientiane
- Evaluation of the effectiveness of **rapid tests for hepatitis B diagnosis** and publication in progress as part of the TDR vs ELISA project
- Study on the **prevalence of hepatitis B** among pregnant women in Vientiane
- Launch of the Coclican project in Laos, on the **early detection of liver cancer** in patients with hepatitis, in partnership with IRD (French National Research Institute for Sustainable Development)
- **Doctoral theses presented** and obtained by 3 Lao doctors
- Start of a new **thesis project**

TRAINING AND KNOWLEDGE-SHARING

- Organization of the **11th national workshop** on the management of HIV patients
- Organization of the **hepatitis symposium**, Long Walk to Hepatitis Elimination: How to Start?

MYANMAR



- **First Mérieux Foundation mission in 2010**
- **3 Burmese employees, 1 office in Yangon and 1 office in Mandalay**
- **Renovation of 3 units at the Public Health Laboratory (PHL) in Mandalay and the Yangon National Health Laboratory (NHL), between 2011 and 2014 (the molecular biology, bacteriology and virology laboratories)***
- **Ongoing reconstruction of the National Health Laboratory**

IN 2018

SUPPORT FOR CLINICAL BIOLOGY LABORATORIES

- Continued **training of laboratory staff** in the microbiology department of the Public Health Laboratory (PHL) by a microbiology expert, in partnership with the NGO Diagnostic Microbiology Development Program (DMDP)*
- Support for **HIV viral load testing** at the National Health Laboratory (NHL) in Yangon, the PHL in

Mandalay and Dawey: 42,200 HIV viral load tests conducted since 2012; these three platforms perform over 95% of all viral load testing in the country*

- Launch of the **LabMyNet project** to significantly increase the capacity of Burmese laboratories to perform HIV viral load testing, in partnership with the Ministry of Health
- Opening of a new **foundation office in Yangon** near the NHL and recruitment of a project team
- Signature of an **agreement with Agence Française de Développement (AFD)** to support the reconstruction of the National Health Laboratory, in partnership with Institut Pasteur: start of design and engineering work

*With support from Fondation Christophe et Rodolphe Mérieux

MIDDLE EAST

EGYPT

- **First Mérieux Foundation mission in 2017**

IN 2018

ENHANCING RESEARCH CAPABILITIES

- Organization of the 8th Middle East North Africa (MENA) **Influenza Stakeholders Networks (ISN) meeting** in Cairo, April 10-11

PROJECTS FOR MOTHERS AND CHILDREN

- **Purchase and installation of medical equipment** for the Anaphora Center dispensary, in Upper Egypt, and equipment for the Mahaba Association's clinical laboratory in Ballout, Assiut Governorate, thanks to funding from the Auvergne-Rhône-Alpes Region

IRAQ

- **First Mérieux Foundation mission in 2014**

IN 2018

PROJECTS FOR MOTHERS AND CHILDREN

- Finalization of the construction and development of the **Pauline-Marie Jaricot Mother and Child Medical Center** in Erbil with a floor dedicated to the gynecology unit*
- Continuation of the construction of a medical and social **center for Yazidi women and children** who are victims of Daesh*
- Evaluation missions for the Qaraqosh **school reconstruction** project*
- **Scholarships for 75 young girls** from Kirkuk, medical students at the Faculty of Nineveh*

LEBANON

- **First Mérieux Foundation mission in 2008**
- **Mérieux Foundation office: 2 expatriates and 2 Lebanese employees**
- **Rodolphe Mérieux Laboratory* within the Innovation and Sports Campus of Saint-Joseph University in Beirut (inaugurated in 2011)**
- **Two GABRIEL network members: Saint Joseph University and Lebanese University**

Rodolphe Mérieux Laboratory Research Focus:

- Respiratory infections



IN 2018

SUPPORT FOR CLINICAL BIOLOGY LABORATORIES

▪ **Upgrading and maintenance** of the Rodolphe Mérieux Laboratory infrastructure*

▪ Development of expertise for **mycobacteria screening** and support to the National Tuberculosis Program (NTP) of the Ministry of Public Health*

▪ Organization of several **training courses** related to the microbiological diagnosis of TB, in collaboration with the Faculty of Pharmacy of Saint-Joseph University in Beirut:

- In March, on microbiology diagnostics for tuberculosis in a BSL3 containment laboratory
- In June, on diagnostic equipment for pulmonary and extra-pulmonary tuberculosis with the National Tuberculosis Program
- In December, on Standard Operating Procedures (SOP) and data entry in the National Tuberculosis Program with the support of the International Organization for Migration (IOM)

▪ Continuation of the **ISO 15189 accreditation process** as part of the Rodolphe Mérieux Laboratory Quality Initiative*: monthly monitoring of the quality management system and external audit

ENHANCING RESEARCH CAPABILITIES

▪ Extension and conclusion of the PEARL study (Pneumonias' Etiology Among Refugees and Lebanese population): study on the etiology of respiratory infections among vulnerable populations (local and refugees) to improve patient care*

▪ **GABRIEL network** multi-center study:

- Initiation of the HINTT project (HBHA-IGRA New Test for Tuberculosis): evaluation of biomarkers for monitoring the effectiveness of anti-tuberculosis treatment*
- Identification of the centers participating in the study and adaptation of the protocol
- Training of the local team on protocol techniques in July

TRAINING AND KNOWLEDGE-SHARING

▪ **7th International Congress** of the Faculty of Pharmacy of Saint-Joseph University of Beirut, "The pharmacist at the heart of therapeutic and humanitarian challenges", in April, under the patronage of the Ministry of Health and in partnership with the Mérieux Foundation

PROJECTS FOR MOTHERS AND CHILDREN

▪ The Duris health center* project:

- Beginning of the construction of a primary health center dedicated to mothers and children for the vulnerable Lebanese population and for refugees in the Bekaa plain, created in partnership with the NGO Amel Association and the municipality of Duris with the support of the Baalbek-Hermel Governorate and the Ministry of Health
- Finalization of studies and calls for tenders, laying of the foundation stone in April

GOVERNANCE

BOARD OF DIRECTORS

REPRESENTATIVES OF THE FOUNDING MEMBERS

- **Alain MÉRIEUX**
President
- **Claudine FRIEH**
- **Karine MEHLER**
- **Alexandre MÉRIEUX**
- **Sophie MÉRIEUX**

QUALIFIED PERSONS

- **Didier CHERPITEL**
- **Prof. Jean-François DELFRAISSY**
- **Prof. François GROS**
- **Prof. David L. HEYMANN**
- **Prof. Dominique PEYRAMOND**
- **Prof. Didier RAOULT**
- **Dr. Robert SEBBAG**

GOVERNMENT REPRESENTATIVE

The Prefect of the Auvergne-Rhône-Alpes Region

MANAGEMENT COMMITTEE

- **Benoît MIRIBEL¹**
Director General
- **Dr. François-Xavier BABIN**
Diagnostics and Health Systems Director
- **Prof. Hubert ENDTZ**
Applied Research Director
- **Emmanuel de GUIBERT**
Secretary General
- **Bénédicte PANSIER²**
Director of Knowledge Sharing
- **Dr. Pascal VINCELOT²**
Operations Director
- **Koren WOLMAN-TARDY**
Communication Director

SCIENTIFIC ADVISORY BOARD

- **Prof. Albert OSTERHAUS**
Chairman
University of Veterinary Medicine of Hannover (Germany)
- **Prof. Antoine ANDREMONT**
Faculté de Médecine de l'Université Paris-Diderot (France)
- **Prof. Françoise BARRÉ-SINOUSI**
Institut Pasteur (France)
- **Prof. Abdullah BROOKS**
Johns Hopkins Bloomberg School of Public Health, Baltimore (United States)
- **Prof. Stewart COLE³**
Institut Pasteur (France)
- **Dr. Kevin DE COCK⁴**
Center for Global Health, U.S. Centers for Disease Control and Prevention (United States)
- **Prof. Ogobara DOUMBO¹**
Centre de Recherche et de Formation sur le Paludisme de Bamako, Université de Bamako (Mali)
- **Prof. David L. HEYMANN**
Centre on Global Health Security, Chatham House (United Kingdom)
- **Dr. Warren JOHNSON⁴**
Center for Global Health, Weill Cornell Medical College (United States)
- **Prof. Xavier de LAMBALLERIE**
Université d'Aix-Marseille (France)
- **Prof. Johan NEYTS**
Faculté de Médecine de l'Université de Louvain (Belgium)
- **Prof. Jean-William PAPE**
GHESKIO Centers (Haiti) and Cornell University (United States)
- **Prof. Fabien ZOULIM⁵**
InsERM - Lyon and Université Claude Bernard Lyon 1 (France)

MÉRIEUX FOUNDATION USA

BOARD OF DIRECTORS

- **Prof. David L. HEYMANN**
President
Centre on Global Health Security, Chatham House (United Kingdom)
- **Dr. Jon ANDRUS**
University of Colorado's Center for Global Health (United States)
- **Stéphane BANCEL**
Moderna (United States)
- **Didier CHERPITEL**
Mérieux Foundation Board of Directors (France)
- **Dr. Kevin DE COCK**
Center for Global Health, U.S. Centers for Disease Control and Prevention (United States)
- **Dr. Warren JOHNSON**
Center for Global Health, Weill Cornell Medical College (United States)
- **Karine MEHLER**
Mérieux Foundation Board of Directors
- **Clare O'BRIEN**
Shearman & Sterling (United States)

MANAGEMENT TEAM

- **Dr. Guy VERNET²**
CEO
- **Emily PENROSE**
Program and Operations Director

¹ Until April 2019

² Since March 2018

³ Until September 2018

⁴ Since September 2018

⁵ Deceased in June 2018



FUNDING PARTNERS

To successfully carry out its development and research projects in emerging countries and ensure they produce sustainable results, the Mérieux Foundation brings together national and international public and private partners with local organizations.

The trust and commitment of nearly 80 partners have made it possible for the foundation to help local stakeholders in their fight against infectious diseases. The Mérieux Foundation thanks them warmly for their support.



“Building on our expertise in biology, we are working closely with international and local partners as part of multidisciplinary, complementary and, above all, concerted approaches with a long-term perspective.”

Alain Mérieux



REGIONAL, NATIONAL & INTERNATIONAL INSTITUTIONS

- African Society for Laboratory Medicine (ASLM)
- Agence Française de Développement (AFD)
- Auvergne-Rhône-Alpes Region
- Coalition for Epidemic Preparedness Innovations (CEPI)
- Defense Threat Reduction Agency (DTRA)
- Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
- ECHO (European Civil Protection and Humanitarian Aid Operations)
- European Commission
- European and Developing Countries Clinical Trials Partnership (EDCTP)
- Expertise France
- Fleming Fund
- Initiative 5% / Expertise France
- Kreditanstalt für Wiederaufbau (KfW)
- Luxembourg Government Aid and Development Agency (LuxDev)
- Ministère de l'Europe et des Affaires étrangères – via Expertise France
- Prince's Government of Monaco
- U.K. Department for International Development (DFID)
- U.S. Agency for International Development (USAID)
- U.S. Centers for Disease Control and Prevention (CDC)
- World Bank – via the West African Health Organisation (WAHO)
- World Health Organization (WHO)

FOUNDATIONS & NGOS

- Agence de Médecine Préventive (AMP)
- Bill & Melinda Gates Foundation
- CDC Foundation – via Catholic Relief Services
- FINDdx*
- Fondation AnBer
- Fondation APAC
- Fondation Christophe et Rodolphe Mérieux
- Fondation Croix-Rouge française
- Fondation de France
- Fondation Pierre Fabre
- Fondation Raoul Follereau
- Fondation Saint-Irénée
- Fonds Decitre
- Fonds Pour Eux
- Gilead Foundation
- Global Alliance for Rabies Control
- OEuvres Pontificales Missionnaires
- PATH
- Skoll Global Threats Fund
- Tulipe

UNIVERSITIES & RESEARCH INSTITUTES

- Agence France Recherche Nord & Sud Sida-HIV Hépatites (ANRS)
- Agence nationale de la recherche (ANR)
- The African Field Epidemiology Network (AFENET)
- Bioaster
- Centre International de Recherche en Infectiologie (CIRI)
- Institut de recherche biomédicale des armées (IRBA)
- Institut de Recherche pour le Développement (IRD)
- LabEx ECOFECT (Dynamiques éco-évolutives des maladies infectieuses)
- Lyonbiopôle
- Naval Health Research Center (NAMRU-2)
- Penn State University (PSU)
- University of Geneva

INDUSTRY

- ACS Publications
- BD
- Biocentric
- Bioneer
- bioMérieux
- Bioniz
- Cepheid
- Chembio*
- CNINE Biosolutions
- GlaxoSmithKline Biologicals (GSK)
- Gilead
- Institut Mérieux
- Janssen Research & Development
- Luminex
- Merck
- Mérieux NutriSciences
- Microbiomed
- Pfizer
- Qiagen
- Roche
- Sanofi Pasteur
- Sanofi USA
- Serum Institute of India
- Sorrento
- Takeda

*From 2019

2018 ACCOUNTS & KEY FIGURES

BALANCE SHEET

ASSETS (K€)	NET DEC. 31, 2018	NET DEC. 31, 2017
FIXED ASSETS		
Intangible fixed assets	48	7
Property, plant and equipment	1,335	1,572
Investments and other financial assets	25,200	28,056
TOTAL	26,583	29,635
CURRENT ASSETS		
Inventories	0	0,0
Payments on account	0,0	0,0
Accounts receivable	1,680	949
Other receivables	10,544	11,256
Marketable securities	47,096	51,208
Cash and cash equivalents	10,166	7,684
Prepaid expenses	1,176	1,804
Unrealized exchange losses	23	56
TOTAL	70,686	72,958
TOTAL ASSETS	97,269	102,593
LIABILITIES AND FUND BALANCE (K€)		
FUND BALANCE		
True endowment	64,916	64,916
Reserves	884	884
Retained earnings	16,415	17,810
Net income / loss for the period	(3,047)	(1,395)
TOTAL	79,168	82,215
QUASI ENDOWMENT		
Allowances for contingencies	120	153
Funds reserved for future engagements	2,666	2,545
TOTAL	2,786	2,698
LIABILITIES		
Loans	2,264	0
Accounts payable	2,487	2,017
Investment payable	244	250
Other payable	2,734	3,123
Deferred income	7,578	12,277
Unrealized exchange gains	8	12
TOTAL	15,316	17,679
TOTAL LIABILITIES AND FUND BALANCE	97,269	102,593

INCOME STATEMENT

(K€)	ACTUAL 2018	ACTUAL 2017
INCOME		
Services revenue	1,129	337
Grants	54	70
Reverse on operating allowances	14,650	14,258
Expenses refund	1,462	1,342
Other operating income	1	12
TOTAL INCOME	17,297	16,020
EXPENSES		
External purchases and expenses	10,995	9,626
Taxes and duties	861	905
Salaries and social contributions	5,012	4,607
Depreciations	551	471
Donations and subsidies received	7,027	8,043
Grants awarded	-	-
Net book value of sold assets	-	-
Other operating income	9	37
TOTAL EXPENSES	24,455	23,689
CURRENT INCOME	-7,158	-7,669
FINANCIAL INCOME		
Dividends	1,105	1,004
Other financial income	331	1,334
Reverse on financial allowances	292	385
Net income from marketable securities	2,731	4,042
TOTAL FINANCIAL INCOME	4,458	6,766
FINANCIAL EXPENSES		
Financial allowances	615	160
Other financial expenses	435	437
TOTAL FINANCIAL EXPENSES	1,050	598
FINANCIAL RESULT	3,408	6,168
EXCEPTIONAL INCOME		
Exceptional income	912	30
Exceptional reverse on allowances	-	-
TOTAL EXCEPTIONAL INCOME	912	30
EXCEPTIONAL COSTS		
Exceptional expenses	-	-
Exceptional allowances for contingencies	89	46
TOTAL EXCEPTIONAL COSTS	89	46
EXCEPTIONAL RESULT	823	-16
Income tax	-	-
TOTAL INCOME	22,667	22,816
TOTAL EXPENSES	25,594	24,332
INTERMEDIATE BALANCE	-2,926	-1,516
Prior funds carried forward	2,545	2,666
Funds reserved for future engagements	2,666	2,545
NET INCOME / LOSS FOR THE PERIOD	-3,047	-1,395

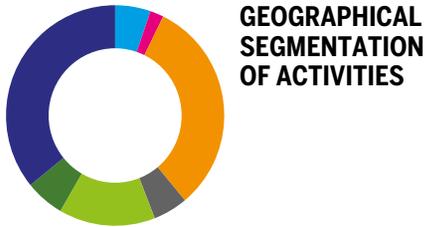
2018 ACCOUNTS & KEY FIGURES



Missions	76%
Administration	20%
International support	4%



Increasing vulnerable populations' access to diagnosis	46%
Enhancing local applied research capabilities	27%
Encouraging knowledge-sharing	14%
Improving conditions for mothers and children	13%



Europe ⁽¹⁾	36%
Africa	32%
Asia	14%
Middle East	6%
Caribbean	5%
Indian Ocean	5%
South America	2%

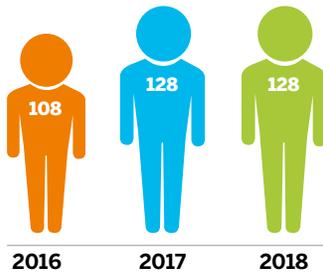
⁽¹⁾ Activities carried out by teams based in Europe, in or for the other countries (including coordination)



Fondation Christophe et Rodolphe Mérieux	31%
Endowment income & investment	24%
Private partnerships	23%
Public partnerships	10%
Other income	7%
Real estate income	5%

CHANGES IN HEADCOUNT* AS AT DECEMBER 31st

128 employees worldwide **

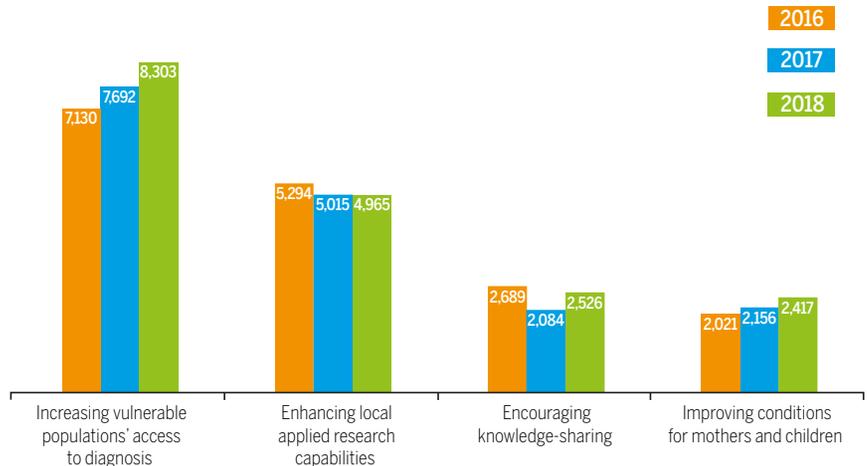


* Full-time equivalents

** Excluding interns, temporary employees and local research and training center staff

EVOLUTION OF EXPENSES BY STRATEGIC AREA OF FOCUS

• In K€, excluding depreciation, provisions, financial expenses and future engagements



FONDATION MÉRÉUX

Fondation reconnue d'utilité publique
17 rue Bourguet
69002 LYON

Statutory auditor' report on the financial statements

For the year ended 31 December 2018

This is a translation into English of the statutory auditor' report on the financial statements of the Company issued in French and it is intended solely for the convenience of English speaking users.

This statutory auditor' report includes information required by French law, such as information about the appointment of the statutory auditor or verification of the management report and other documents provided to shareholders.

This report should be read in conjunction with, and construed in accordance with, French law and professional auditing standards applicable in France.

Deloitte.

Deloitte & Associés
Société par Actions
au capital de 100 000 000 €
RCS Lyon 338 623 123
N° SIREN 338 623 123
N° SIRET 338 623 123 0001
N° de TVA intracommunautaire : FR15338623123
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FONDATION MÉRÉUX

Fondation reconnue d'utilité publique
17 rue Bourguet
69002 LYON

Statutory auditor' report on the financial statements

For the year ended 31 December 2018

To the Board of FONDATION MÉRÉUX,

Opinion

In compliance with the engagement entrusted to us by your Board of Directors, we have audited the accompanying financial statements of FONDATION MÉRÉUX for the year ended 31 December 2018.

In our opinion, the financial statements give a true and fair view of the assets and liabilities and of the financial position of the Foundation as at 31 December 2018 and of the results of its operations for the year then ended in accordance with French accounting principles.

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Basis for Opinion

Audit Framework

We conducted our audit in accordance with professional standards applicable in France. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Our responsibilities under those standards are further described in the "Statutory Auditor' Responsibilities for the Audit of the Financial Statements" section of our report.

Independence

We conducted our audit engagement in compliance with independence rules applicable to us, for the period from 1 January 2018 to the date of our report and specifically we did not provide any prohibited non-audit services referred to in the French Code of ethics (code de déontologie) for statutory auditors.

Justification of Assessments

In accordance with the requirements of Articles L.823-9 and R.823-7 of the French Commercial Code (code de commerce) relating to the justification of our assessments, we inform you of the key audit matters relating to risks of material misstatement that, in our professional judgment, were of most significance in our audit of the consolidated financial statements of the current period, as well as how we addressed those risks.

These matters were addressed in the context of our audit of the financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on specific items of the financial statements.

The net amount in the balance sheet on 31 December 2018 of equity securities amounted to 15 282 257 euros. These are valued at acquisition price and depreciated on the basis of their fair value as described in the note "Investments" of the notes to the financial statements. Based on the information made available to us, our work has consisted in assessing the data underlying these values in use and checking the consistency of assumptions.

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Specific verifications

We have also performed, in accordance with professional standards applicable in France, the specific verifications required by French law and regulations.

We have no matters to report as to the fair presentation and the consistency with the financial statements of the information with respect to the financial position and the financial statements given in the management report and in the other documents provided to the Board members.

Responsibilities of Management and Those Charged with Governance for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with French accounting principles, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Foundation's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless it is expected to liquidate the Foundation or to cease operations.

The financial statements were approved by the committee (Comité).

Statutory Auditor's Responsibilities for the Audit of the Financial Statements

Our role is to issue a report on the financial statements. Our objective is to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with professional standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

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As specified in Article L. 823-10-1 of the French Commercial Code (code de commerce), our statutory audit does not include assurance on the viability of the Foundation or the quality of management of the affairs of the Foundation.

As part of an audit conducted in accordance with professional standards applicable in France, the statutory auditor expresses professional judgment throughout the audit and furthermore:

- Identifies and assesses the risks of material misstatement of the financial statements, whether due to fraud or error, designs and performs audit procedures responsive to those risks, and obtains audit evidence considered to be sufficient and appropriate to provide a basis for his opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtains an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the internal control.
- Evaluates the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management in the financial statements.
- Assesses the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Foundation's ability to continue as a going concern. This assessment is based on the audit evidence obtained up to the date of his audit report. However, future events or conditions may cause the Company to cease to continue as a going concern. If the statutory auditor concludes that a material uncertainty exists, there is a requirement to draw attention in the audit report to the related disclosures in the financial statements or, if such disclosures are not provided or inadequate, to modify the opinion expressed therein.

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- Evaluates the overall presentation of the financial statements and assesses whether these statements represent the underlying transactions and events in a manner that achieves fair presentation.

Lyon, 5 June 2019
The statutory auditor
French original signed by
DELOITTE & ASSOCIES

Vincent GROS

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2018 KEY FIGURES

18 countries where we work

26 biology training centers built or renovated

A network of **20 applied research units**

Over **25 collaborative research programs**

17 laboratories built including 9 Rodolphe Mérieux Laboratories

37 laboratories renovated

16 conferences

14 training courses and programs

128 employees in 13 countries

An annual budget of close to **25 million euros**

PHOTOS

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July 2019



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