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ANNUAL
REPORT

Baobab, a sacred African tree, planted by Alain Mérieux in 2005 for the inauguration of the Rodolphe Mérieux Laboratory at the Charles Mérieux Center for Infectious Disease in Mali.



ROOTS FOR LIFE



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Mobilized in the fight against infectious diseases since 1967

The world is undergoing profound changes, leading to crises, which impact and multiply in all regions. Whether political, demographic, economic and 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 resource-limited countries for over 50 years.

Operating directly in more than 25 countries, it is committed to strengthening local capacities, particularly in clinical biology, in order to improve care, surveillance and response to epidemics.

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.

It is particularly involved in the public health issues that have the greatest impact in the countries where it operates, such as **antimicrobial resistance, tuberculosis, acute respiratory infections** and **HIV**.

Committed to a **global health approach**, the Mérieux Foundation goes beyond medical care to include all the health and socio-economic issues that influence the well-being of the populations in the countries where it operates.

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.



60 %
OF CHILD DEATHS
IN DEVELOPING COUNTRIES
ARE DUE
TO **INFECTIOUS DISEASE**

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

1

INCREASING

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

2

ENHANCING

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

3

ENCOURAGING

knowledge-sharing and public health initiatives working with Les Pen-sières Center for Global Health;

4

IMPROVING

conditions for mothers and children taking a global health approach.

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.

THE MÉRIEUX FOUNDATION WORLDWIDE

One of the main pillars of the Mériex Foundation lies in its capacity for direct intervention in the field, from the network of 18 laboratories of excellence built at the source of outbreak-prone regions, to the presence of local teams in 15 countries. To carry out its mission, the Mériex Foundation can rely on its great experience in the field and its local partners.



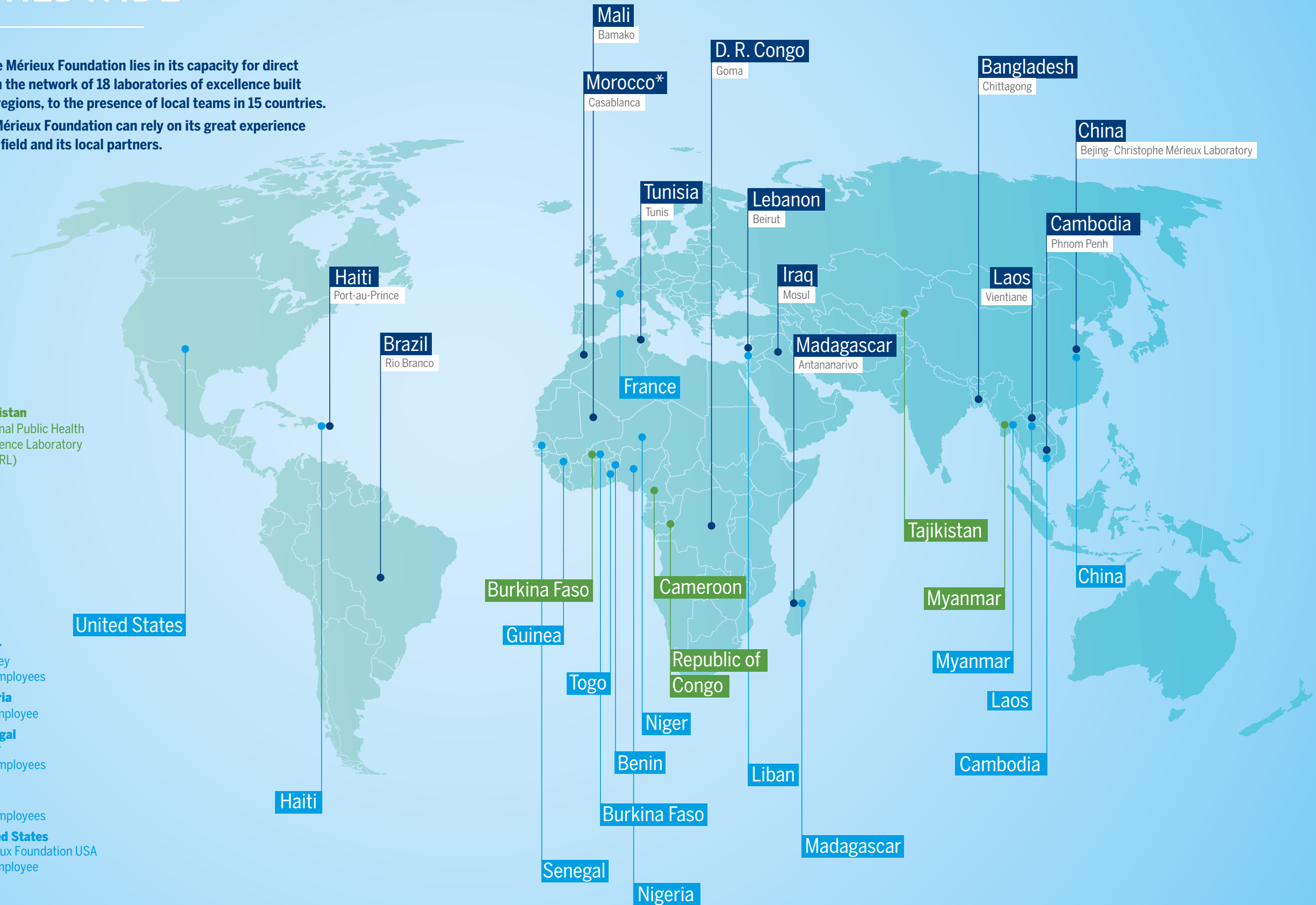
Rodolphe Mériex Laboratories

Partner laboratories

- **Burkina Faso***
Microbiology laboratory at the University Hospital of Bobo-Dioulasso
- **Cameroon***
Hygiene and Environment Laboratory at the Centre Pasteur du Cameroun, Yaoundé
- **Republic of Congo**
Christophe Mériex Infectious Disease Research Center, Brazzaville
- **Myanmar**
Public Health Laboratory, Mandalay

Mériex Foundation offices

- **Burkina Faso**
Bobo-Dioulasso
→ 2 employees
- **Cambodia**
Phnom Penh
→ 5 employees
- **China**
Beijing
→ 1 employee
- **France**
Headquarters, Lyon,
→ 70 employees
Les Pensières Center for Global Health, Annecy
→ 14 employees
- **Guinea**
Conakry
→ 14 employees
- **Haiti**
→ 1 consultant
- **Laos**
Vientiane
→ 10 employees
- **Lebanon**
Beirut
→ 3 employees
- **Madagascar**
Antananarivo
→ 10 employees
- **Mali**
Bamako
→ 6 employees
- **Myanmar**
Mandalay
→ 15 employees
- **Niger**
Niamey
→ 5 employees
- **Nigeria**
→ 1 employee
- **Senegal**
Dakar
→ 8 employees
- **Togo**
Lomé
→ 3 employees
- **United States**
Mériex Foundation USA
→ 1 employee



* Projects under construction



Alain Mérieux,
President

« 2021 highlighted our Foundation's emergency response system and our reactivity as we dealt with an ever-increasing number of emergency situations. »

In a world faced with a serious threat of infection and major geopolitical instability, our Foundation is now fully operational and ready to take on its public health role and support vulnerable populations in Asia, Africa, the Middle East, Latin America, and Haiti. We carry out this role as part of a global healthcare approach, which goes beyond providing medical care to include nutrition, the quality of water and the environment, and education.

We are able to do this thanks to our local knowledge, the strength of our network of outpost Rodolphe Mérieux laboratories (now present in ten or so countries) and the mutual trust we have been able to establish over time with our partners in these regions. Our laboratories are now all managed by local biologists and health workers, who are perfectly familiar and in tune with the current situation in their countries.

This strategy has enabled us to reinforce our presence in our main area of expertise, clinical biology, in West Africa, and in particular in Burkina Faso, a country with which we have been working since 2009. We have decided to set up a new Rodolphe Mérieux Laboratory in Ouagadougou, work on which is set to commence soon. This new laboratory will be integrated in the epidemiological surveillance and research networks that we are setting up with our partners in this region of Africa: ResaoLab, G5 Sahel, and GABRIEL.

This new project mirrors the sending of two P2/P3 container laboratories to the Democratic Republic of the Congo in 2019, in response to the Ebola crisis. A few months later, during the Covid pandemic, these diagnosis units in Goma became reference laboratories.

The same kind of reactivity allowed us to intervene rapidly in Madagascar to support the most vulnerable groups: mothers and their children. We were able to provide a targeted response to the malnutrition crisis affecting this country, and continue our actions to support education, an essential cornerstone in our global healthcare approach.

Following our initial contact in October 2019 with the President of Madagascar, who warned us about the food crisis affecting the southern part of the country, it took just a few months, in partnership with Nutrisud, for us to send a container plant to Tolagnaro to produce nutritional supplements. This plant is now fully operational and, buoyed by its success, we are planning to roll out the project on a larger scale while giving the local economy a boost by using local farmers to produce raw materials.

At the same time, we stepped up the support we have been giving Father Pedro for several years now in order to set up a language university for young people, supported by the Akamasoa association.

Our Foundation has many reasons to be proud of our achievements and believe in the future. These include making diagnosis accessible to as many people as possible in Africa, ensuring better nutrition for many children in Madagascar, and providing education for younger generations.





Jean Pierre Bosser,
Director General

Many consequences of the 2020 pandemic continued to be felt in 2021. Once again, it was an extraordinary year for the activities led by the Mérieux Foundation.

Month after month and in one country after another, the deployment of our projects was hampered by various obstacles relating to health, security, or the climate. The environments we now find ourselves working in are becoming increasingly complex and are forcing us to redouble our efforts and ensure greater flexibility, adaptability and even innovation to meet the growing needs of our beneficiary populations.

All this disruption has only served to confirm the importance of biological diagnosis and the need to strengthen overall health systems even further, particularly in developing countries. The historic work of the Mérieux Foundation, based on developing and supporting infrastructures to give populations access to high-quality diagnosis, has therefore naturally been reinforced.

Some of the key achievements of the past year include the inauguration of the Rodolphe Mérieux Laboratory in Tunis and the laying of the foundation stone for the future Rodolphe Mérieux Laboratory in Casablanca. Other construction and extension projects have been launched, with the same goal of tackling infectious diseases over the long term.

At the same time, the Foundation's expertise in dealing with antimicrobial resistance, a key public health issue, was reflected in the development of the second edition of the international course on antimicrobial resistance (AMR course) organized at the Les Pensières Center, as well as in the growing number of projects and partnerships in 2021, particularly in Madagascar, Laos, and Senegal.

The recent crises that have shaken the entire world and the significant deterioration in the economic and social situation of the countries in which we operate have shown us the extent to which healthcare is intrinsically linked with other areas, such as nutrition, education, and the environment. It is this global healthcare vision, cherished by the Mérieux family, that has led us to step up our Mother & Child programs this year.

Despite these difficulties, the efforts and commitment of the people working for the Mérieux Foundation have led to some major achievements, which are presented in this annual report. I would like to thank all our employees and underline the importance of forging links between head office and our work in the field, which are essential for the smooth operation of our Foundation.

The progress we make is only possible thanks to the renewed confidence of our partners and we are honored to receive their support. This allows us to pursue our mission to serve populations in our "historic" countries. Their support also encourages us to intervene in other areas with growing needs, always adapting every day to local priorities.

HIGH LIGHTS

MARCH



MOROCCO

➔ **Laying of the foundation stone of the Rodolphe Mérieux Laboratory** at the Institut Pasteur du Maroc, Casablanca

APRIL



CAMEROON

➔ **APRECIT project kick-off**
project on the improvement of the management of latent tuberculosis

MAY



GLOBAL

➔ **21st Edition of the Advanced Course in Vaccinology (ADVAC)** in hybrid format

HAITI

➔ **Launch of the C19-HaitiLab project** for the reinforcement of laboratories

JUNE



WEST AFRICA

➔ **Workshops of the 3rd phase of RESAOLAB**, the West African network of medical biology laboratories

OCTOBER



MADAGASCAR

➔ **Inauguration of Nutrisud**, production unit of nutritional supplements in the south of the island

MADAGASCAR

➔ **Organization of RESAMAD**, the network of laboratories in Madagascar

TUNISIA

➔ **Inauguration of the Rodolphe Mérieux Laboratory** at the Institut Pasteur de Tunis

NOVEMBER



GLOBAL

➔ **2nd Edition of the Antimicrobial Resistance Course (AMR)**

GLOBAL

➔ **11th meeting of the GABRIEL research network** at Les Pensières Center for Global Health

MALI

➔ **Inauguration of the Youssouf Issabré Maternity Hospital** in Bamako

GLOBAL

➔ **Mérieux Foundation's membership to the international coalition Every Breath Counts** to reduce pneumonia in low-resource countries

SENEGAL

➔ **1st edition of the Afro-ACDx** course on diagnostics in Africa

DECEMBER



MYANMAR

➔ **Strengthening HIV Viral Load Surveillance and monitoring** through the LabMyNet project

INFRASTRUCTURE AND TRAINING

TWO CORNERSTONES FOR THE REINFORCEMENT OF LABORATORIES

Improving access to biological diagnosis has always been one of the Mérieux Foundation's key objectives and this is an essential requirement for making progress in healthcare.

How can the right care be provided without testing?

How can an epidemic be brought under control without knowing which pathogenic agent is responsible?

Reliable health data based on high-quality biological tests are essential for defining health policies to meet the requirements of each territory.

These data are also key when it comes to monitoring diseases and providing evidence of the evolution of epidemics, as COVID-19 and its variants have so forcefully reminded us.

Support for laboratories and for training health professionals is therefore proving to be an essential aspect of our actions in the field.

The Foundation's projects made a great deal of progress in 2021. They all rely on a collaborative mindset to support the efforts of people working in local healthcare and on a long-term perspective to increase the autonomy of facilities.

RENOVATION, CONSTRUCTION AND EQUIPMENT OF INFRASTRUCTURE

The renovation of hospital laboratories and the building of state-of-the-art facilities constitute an initial step towards strengthening local health systems and lies at the heart of the projects supported by the Foundation. The quality of diagnosis and research activities, as well as the fulfilment of biosecurity standards and international recommendations, depend on the renovation of facilities.

In 2021, several key milestones were reached: On October 27, the **Rodolphe Mérieux Laboratory in Tunis** was opened and presented to the Institut Pasteur de Tunis and to Tunisia. As the only level 3 biosecurity facility in the country, this laboratory will enhance the means of controlling epidemics in the region, such as rabies and tuberculosis, and emerging or re-emerging viruses, such as West Nile and Ebola. The laboratory in Tunis is the 10th Rodolphe Mérieux Laboratory. The 11th laboratory will be in Casablanca, where construction work began in March 2021. Situated on the site of the Institut Pasteur du Maroc, it is set to become a **key center for the diagnosis, monitoring, and surveillance of tuberculosis and mycobacteria**.

The **Rodolphe Mérieux Laboratory in Casablanca** is one of the projects funded by the **exceptional donation by bioMérieux shareholders** in 2020 as a response to the health crisis. This funding, amounting to a total of 12 million euros, **also enabled work to begin on a Hygiene and Environment laboratory** at the Centre Pasteur du Cameroun, in Yaoundé, and the start of the reconstruction of the microbiology laboratory at the Bobo-Dioulasso University Hospital in Burkina Faso.



As well as these new constructions, the donation also aims to reinforce existing infrastructure: the **Charles Mérieux Center for Infectious Disease (CICM) in Madagascar**, operated within the framework of a close partnership with Madagascar's ministry of public health and the University of Antananarivo, celebrated its 10th anniversary in 2021 and presented its plans for expansion. This support for laboratories also extends to identifying **requirements for specific equipment within each of our partner laboratories**.

Ten countries received and installed new laboratory equipment in 2020 and 2021, allowing them to reinforce their activities or modernize their technical platforms.

RODOLPHE MÉRIEUX LABORATORIES

► Funded by the Fondation Christophe et Rodolphe Mérieux, the Rodolphe Mérieux laboratories of excellence are the cornerstones of the GABRIEL network, set up by the Foundation in 2008. Handed over to local healthcare entities to reinforce their applied research and diagnosis activities in a sustainable way, these laboratories meet the most stringent international standards. Ten Rodolphe Mérieux laboratories have been set up since 2005 in Mali, Cambodia, Haiti, Laos, Madagascar, Lebanon, Bangladesh, Brazil, the Democratic Republic of the Congo, and Tunisia.

TRAINING LABORATORY STAFF

Going hand in hand with the reinforcement of infrastructure, training health professionals guarantees the smooth running of a laboratory, while also ensuring its continuity and autonomy. The training courses supplied by the Foundation go beyond fundamental laboratory science to cover quality management, data management, and continuous improvement.

REINFORCING THE SKILLS OF LABORATORY MANAGERS

Since 2019, the Foundation has been an **operational partner of the GLLP** (Global Laboratory Leadership Program) consortium, set up by six major international organizations. The GLLP program was selected by the Global Fund as a training program for laboratory managers. Based on local mentoring schemes, it is supervised by the Mérieux Foundation in Mali, Guinea, and Chad.

The leadership module of the GLLP program also provided the basis for the first edition of **the Advanced Course on Diagnostics for French-speaking African Countries (Afro ACDx)**, organized jointly by the Mérieux Foundation and the Institut Pasteur de Dakar in November in Senegal (see p.36).



The **LABOGUI project** (see p. 23) in Guinea allows the Foundation to help develop the skills of laboratory technicians in local and regional hospitals, with the financial support of the AFD (Agence française de développement, or French Development Agency) and Biologie Sans Frontières (BSF). This involves providing initial training for teachers at the École Nationale de Santé (National Health School) and ongoing training through coaching activities and training in bench techniques.

The Foundation is involved in issues concerning **antimicrobial resistance (AMR)** in Cambodia and Laos through **the QWArS program** (see p. 18). With the support of the Fleming Fund, QWArS offers an exhaustive and in-depth training program, part of a genuine One Health approach for laboratory technicians in human and veterinary healthcare, to gain a deeper understanding and learn how to tackle AMR.

In Senegal and Myanmar, the Foundation is also involved **in other projects financed by the Fleming Fund** (see p. 19 & 33), whose training activities form part of a mentoring scheme for young managers in the human and animal healthcare system. Several training workshops have been organized by the Foundation and six Senegalese interns took part in the **AMR (Antimicrobial Resistance) course** that was held at the Les Pensières Center (see p. 37).

MOOC IN QUALITY MANAGEMENT

Set up by the Mérieux Foundation in partnership with AFNOR and the Institut Pasteur, the third MOOC session on quality management in laboratories was attended by almost 4,000 participants from 97 countries in 2021. The course is based on eight weeks of interactive training accessible online to students and all professionals working in biomedical analysis laboratories or involved in an accreditation project. The MOOC has recorded more than 11,500 registrations since 2019.



SUPPORTING YOUNG RESEARCHERS

The assistance provided for laboratory staff by the Mérieux Foundation also involves **supporting the careers of researchers**. The Foundation encourages scientific research and rewards the work of researchers in tackling infectious diseases in countries with limited resources through various initiatives. Since 2019, **the Foundation has been organizing an annual call for funding applications for PhD research grants within the GABRIEL network**. Two Young Researcher prizes are also awarded each year to promising scientists from the network (see p.29).

In 2021, **two-year grants were allocated to two Bengali students**, enabling them to expand their theoretical knowledge of infections and immunity and to develop their capacity to set up and lead a research program as part of an International Master's in Research at the Erasmus University in Rotterdam.

Specialists working for the Mérieux Foundation include postgraduate students who are writing their theses on research projects. They may also have the opportunity to present their work and participate in renowned scientific conferences. This was the case for four of them in 2021, at the European Congress of Clinical Microbiology & Infectious Diseases (ECCMID), the 52nd Union World Conference on Lung Health, and the International Conference on Prevention and Infection Control (ICPIC).

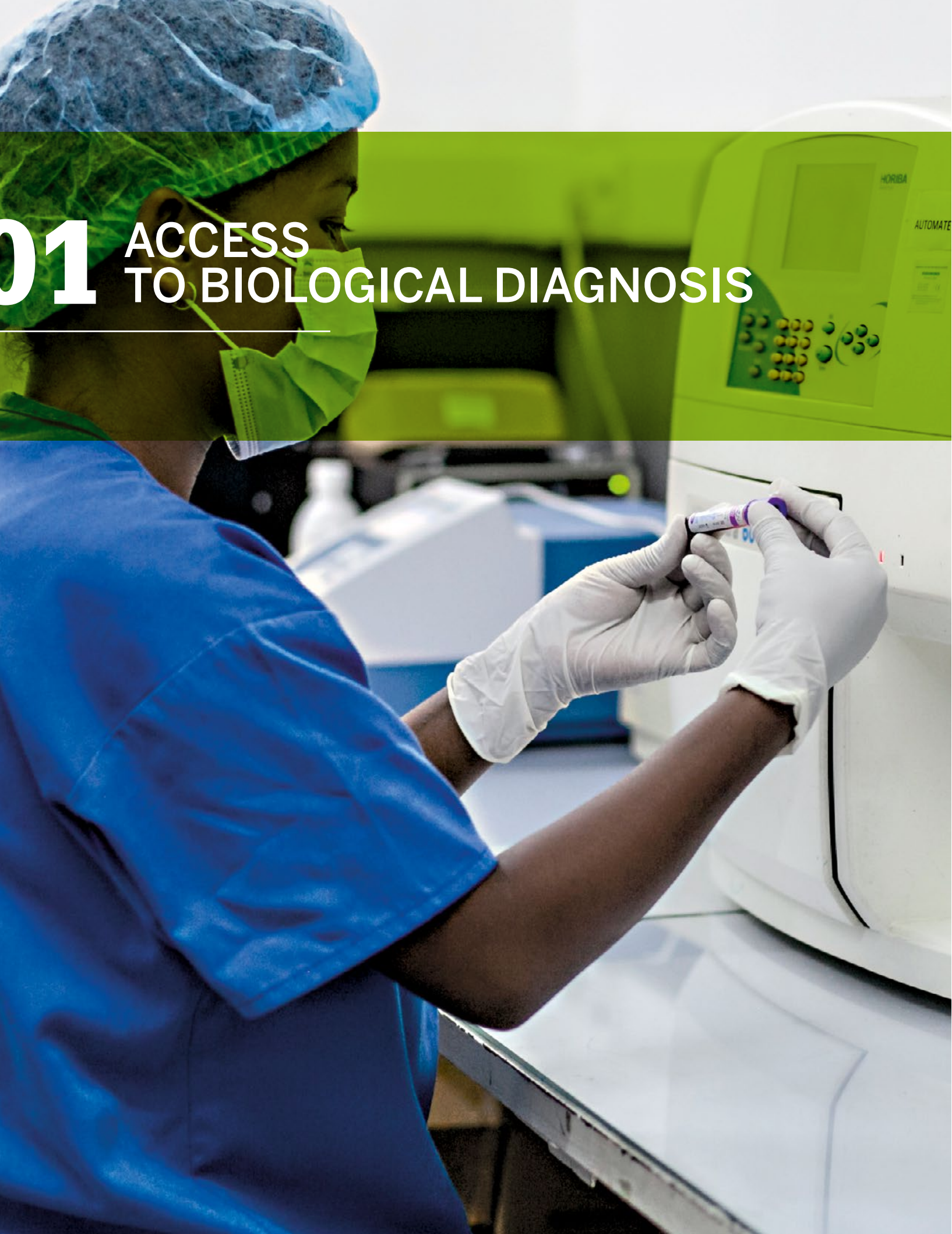
SUPPORTING STUDENTS ON DEGREE PROGRAMS

In terms of degree programs, the Foundation is the co-initiator of the **Bachelor's degree in Applied Medical Biology (BAMS)** alongside the École Supérieure de Biochimie-Biologie-Biotechnologies (ESTBB), launched in Mali in 2007 and in Haiti in 2011, before being integrated into the university courses offered by both these countries in 2019. The Mérieux Foundation and the ESTBB in Lyon continue to provide support for local partners. Based on these experiences, a **new eBAMS format** has been developed. This is a blended learning program based on theoretical modules taught online and periods of practical work in the classroom. The project could be rolled out in Madagascar, which has a considerable need to train laboratory technicians.

The Foundation has also awarded four study grants **to pharmacy students in West Africa** to allow them to complete the Medical Biology internship thanks to a donation from the association Ipharmex. In Madagascar, the Foundation has also been **providing assistance for pharmacy degree courses** since 2011, with the support of several operational and financial partners.



01 ACCESS TO BIOLOGICAL DIAGNOSIS



For almost 20 years now, the Mérieux Foundation has been supporting clinical biology laboratories, helping them to reinforce their capacities for biological diagnosis and surveillance in countries with limited resources, which are particularly exposed to infectious diseases and threats of epidemics.

Access to biological diagnosis for vulnerable groups of people is the main focus of the Mérieux Foundation's work and involves setting up high-quality laboratories, which are involved in monitoring infectious diseases and in tackling antimicrobial resistance. Since 2020, the laboratories supported by the Mérieux Foundation have been actively supporting the efforts required for the diagnosis, monitoring, and control of the Covid-19 pandemic.

FROM THE DESIGN OF STRUCTURES TO THE INTRODUCTION OF LABORATORY SYSTEMS

Known for its expertise in the field of biological diagnosis, the Mérieux Foundation works with national and international organizations, both in the private and public sector, to design high-level laboratories that fulfil international biosecurity standards. As well as setting up infrastructure and developing skills, the Foundation also provides management consultancy with the aim of improving the laboratories' financial autonomy. It also works alongside national health authorities to contribute towards the construction of laboratory systems to maximize the impact of laboratory activities on public health.

Since 2020, significant emergency funds for dealing with Covid-19 allocated by many of the Foundation's partners have led to the general reinforcement of diagnosis capacities.

2021 was a year marked by health restrictions and the deteriorating political situation in many of the countries in which the Foundation operates, including Myanmar, Lebanon, Guinea, and Haiti. Teams working for the Foundation demonstrated a high level of responsiveness, allowing them to adapt their actions in the field and continue to support local players in contexts that had deteriorated considerably.

QUALITY INITIATIVE, 9 LABORATORY MEMBERS IN 2021

Launched in 2014, the Mérieux Foundation's Quality Initiative is a program providing support for Rodolphe Mérieux Laboratories that are members of the GABRIEL network to adopt a quality management system (international ISO 15189:2012 standard). In 2021, the third quality management MOOC edition (Massive Open Online Course) organized by the Mérieux Foundation in partnership with AFNOR and the Institut Pasteur brought together more than 4,000 participants from 97 countries.

THE ACTIONS OF THE MÉRIEUX FOUNDATION OVER THE PAST 20 YEARS

- 86 laboratories, 4 health centers and 23 training centers built or renovated
- 4 mobile laboratories made available
- 40 consultancy assignments for partners including the WHO, the UNDP (United Nations Development Program) and the Global Fund to fight AIDS, TB, and malaria.

QWARS LAOS AND CAMBODIA



MONITORING ANTIMICROBIAL RESISTANCE

Since April 2021, the Mériéux Foundation has been a stakeholder in the QWArS project (Qualifying the Workforce for AMR Surveillance in Africa & Asia), financed by the Fleming Fund for the benefit of 17 countries in Africa and Asia. **The objective is to improve the monitoring of antimicrobial resistance** via a training program for laboratory professionals and epidemiologists, who then become trainers themselves and share their knowledge. The project includes a component targeting the promotion of the One Health approach, which involves collaboration and direct exchange between the veterinary and human health sectors.

The Mériéux Foundation is jointly responsible for the **development of three training modules** (microscopy, maintenance, and the laboratory diagnosis of sensitivity to antibiotics) and the operational deployment of the program in Laos and Cambodia. The training course is provided online and in the classroom over a period of six months for about twenty participants in each country and will enable them to obtain a post-graduate qualification.

The project relies on the expertise of several partners: African Society for Laboratory Medicine (ASLM), Africa Center for Disease Control, American Society for Microbiology, the international Pasteur network, the IRESSEF (Institute for Health Research, Epidemiological Surveillance, and Training) and the National Food Institute of the Technical University of Denmark.



FLEMING FUND LAOS



FIGHTING ANTIMICROBIAL RESISTANCE

Delayed because of lockdown and the closure of national borders, the **Fleming Fund Laos project was launched in 2021 with the aim of boosting the detection and surveillance capacities of ten laboratories in the country**. The project operates in two areas: introducing bacteriology to provincial laboratories to reinforce diagnosis and surveillance and strengthening the National Center for Laboratory and Epidemiology as a reference laboratory for resistance to antibiotics. The project fully integrates the One Health dimension with support from the National Veterinary Laboratory and the introduction of projects for the active monitoring of AMR in animal health.

In 2021, following on from a test phase in Vientiane and in the regions, the first support measures were introduced: supply of equipment and reagents, launch of training sessions, help with carrying out quality controls and susceptibility testing, etc. Ten laboratory technicians also benefited from a six-month training course in microbiology at Chulalongkorn University in Thailand.



ABOUT THE FLEMING FUND

The Fleming Fund UK aid program supports countries with limited resources all over the world as they tackle antimicrobial resistance. The Fund is managed by the Department of Health and Social Care in the UK, in partnership with Mott MacDonald, the company managing the Fleming Fund grants.



LABMYNET MYANMAR

IMPROVING HIV DIAGNOSIS

Continuing the measures introduced in Myanmar more than 20 years ago to structure national laboratory networks, the Mérieux Foundation has been supporting the National HIV/AIDS Program since 2018. **The LabMyNet project consists of deploying HIV viral load testing to reach an 90% coverage rate for patients undergoing antiretroviral treatment**, in accordance with the provisions of the UNAIDS program. Going beyond this objective, LabMyNet also contributes towards the overall strengthening of the health system and improving the diagnosis of other diseases such as hepatitis and tuberculosis.

In 2021, in view of the political situation in Myanmar, the project's activities focused on non-profit laboratories in the private sector. The NGO Medical Action laboratory in Myanmar was renovated, with the installation of a new molecular platform for viral load testing. Its capacity for monitoring SARS-CoV-2 was also reinforced.

Supported by the Expertise France Initiative and the Global Fund, LabMyNet operates alongside local entities supporting the fight against HIV/AIDS and in partnership with MSF Switzerland, the NGO The Union, US CDC, the WHO, UNOPS (United Nations Office for Project Services) and the NGO Save the Children.



C19-HAÏTILAB HAITI



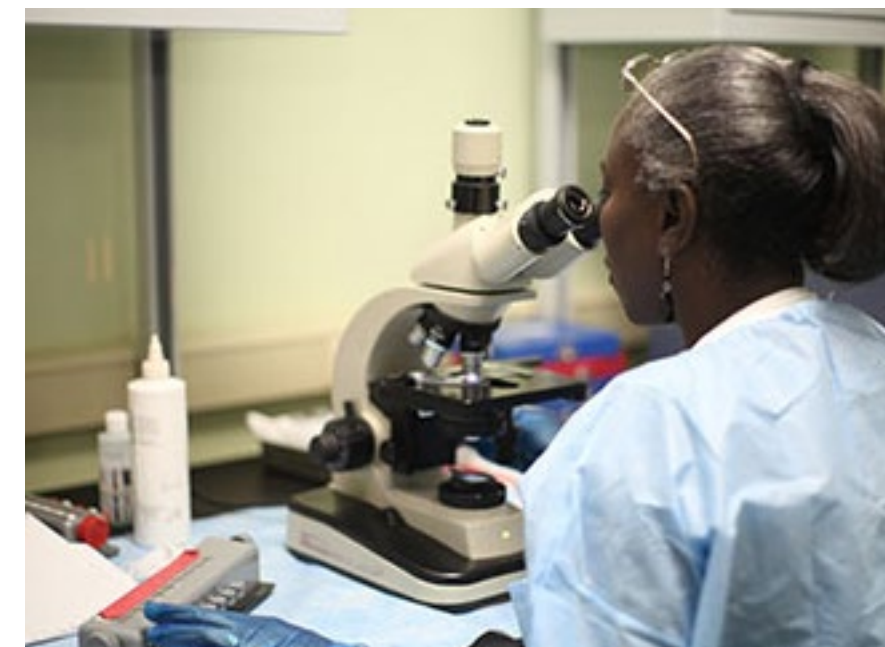
IMPROVING THE RESILIENCE OF LABORATORIES INVOLVED IN DIAGNOSING COVID-19

In response to requirements for the diagnosis of SARS-CoV-2 in Haiti, the Mérieux Foundation has developed the **C19-HaitiLab project to strengthen the overall capacities and resilience of clinical biology laboratories in the country in a sustainable way**.

Launched in January 2021 thanks to financial support from the Agence française de développement, the project will run for three years and should enable the laboratory system in Haiti to cope better with the **Covid-19 epidemic**. C19-HaitiLab also aims to boost resistance capacity to deal with future epidemic threats.

The project covers two main areas:

- The reinforcement of peripheral laboratories in association with the National Public Health Laboratory (LNSP), in particular by increasing levels of biosecurity and biosafety;
- The improvement of energy performance at GHESKIO centers, an historic partner of the Foundation in Haiti (installation of a system of cold air production and solar panels), guaranteeing a more robust system to cope with energy restrictions.



LABOMEDCAMP MALI



CREATING A NETWORK OF RURAL LABORATORIES

Following on from the first two phases, which resulted in the creation of a network of 17 laboratories in rural community health centers in five regions of Mali, the third phase of the LABOMEDCAMP project will allow five new laboratories to be set up by 2023. The objective remains the same: **to help improve care for rural populations, especially mothers and their children, by offering high-quality diagnosis and biological monitoring.** This frontline network of laboratories will have the necessary equipment and skills to provide a “minimum package of activities” corresponding to the main priorities outlined in local public health policies.

At the same time, the Foundation continues to provide support for the first 17 laboratories with follow-up training courses, upgraded equipment, and improvements in biosecurity conditions. New laboratory and IT equipment was installed in 2021. Eleven health centers have also been equipped with systems for keeping computerized medical records, which are important for monitoring patients efficiently.

Financed by the government of the Principality of Monaco and the Mérieux Foundation, with the support of the NGO Santé Sud and the Charles Mérieux Center for Infectious Disease in Mali, LABOMEDCAMP is operated in partnership with the Malian Ministry of Health and Public Hygiene and the Malian Rural Doctors Association (Association des Médecins de Campagne).



LABOGUI GUINEA



DEFINING A NATIONAL MEDICAL BIOLOGY POLICY

Extended by one year following the Covid-19 pandemic, **the LABOGUI project supports the health authorities in Guinea with the implementation of their National Medical Biology Policy.** This support, which covers renovation and skills development at 39 laboratories, was entrusted to the Mérieux Foundation by the Agence Française de Développement.

Progress was made throughout 2021 across all areas of work, with the renovation of infrastructure, harmonization of processes, reinforcement of initial and ongoing training, introduction of an external quality assessment system, etc. Additional funding from the Agence française de Développement (AFD) allowed the Foundation to add a component dedicated to dealing with COVID-19.



ACCESS TO WATER IN KINDIA

Carried out as part of the LABOGUI project, the renovation of the Ecole Nationale de la Santé in Kindia, 85 miles from Conakry, resulted in the re-establishment of free access to water for more than 2,000 people (girls' and boys' boarding schools, accommodation for teaching staff).

OTHER PROJECTS

REDISSE CREATING A NETWORK FOR EPIDEMIOLOGICAL SURVEILLANCE

Launched in March 2020, **the second REDISSE mandate has enabled the creation of 60 new epidemiological surveillance centers in five West African countries:** Benin, Mali, Mauritania, Niger, and Nigeria. It follows on from an initial phase covering Guinea, Guinea-Bissau, Liberia, Sierra Leone, and Togo. Funded by the West African Health Organization (WAHO) via a donation from the International Development Association, REDISSE was entrusted to the Mérieux Foundation and Santé Monde (formerly CCISD), who work in close collaboration with local authorities.

The final presentation of the project was organized in 2021 in the presence of all the stakeholders to ensure the commitment of health institutions and to pass on recommendations guaranteeing the optimal and sustainable operation of the network.



LABBOOK 3.0 LABORATORY DATA MANAGEMENT SOFTWARE

The new version of the laboratory data management software LabBook is currently being rolled out in West Africa and in Madagascar. Developed by the Mérieux Foundation in 2010 to help laboratories in developing countries to transition from paper processes to a computerized solution, **LabBook is an open-source software developed by the company ÆGLÉ with financial support from the AFD.**

In 2021, an initial update phase was carried out and tested in a pilot study in three laboratories in Senegal. Training sessions have been delivered in Benin, Guinea and Madagascar and will be rolled out across all the member countries of RESAOLAB (network of more than 200 laboratories in seven West African countries).

LABBOOK, OPEN SOURCE AND INTEROPERABILITY

- The LabBook 3.0 code is fully available on Github for use, modification and sharing;
- Version 3.0 is faster and more ergonomic and is interfaced with the DHIS2 health information software and the WHONET microbiology data management application.

RESAMAD DEVELOPING THE NATIONAL NETWORK OF LABORATORIES

Within the framework of enhancing access to improved biological diagnosis, the Mérieux Foundation has been operating RESAMAD in Madagascar since 2006, in cooperation with the Ministry of Public Health. **This is a network covering the laboratories in 24 public and private hospitals.** The work is carried out in collaboration with the IDDS project funded by USAID and the Charles Mérieux Center for Infectious Disease in Madagascar.

Three new laboratories joined RESAMAD in 2021. The network was involved in the validation of the National Action Plan for Health Safety and worked with the health monitoring, epidemiology surveillance and response division (DVSSER) to supply data to the WHO's global system for monitoring antimicrobial resistance.



► A WEEK OF RESAMAD WORKSHOPS

Several workshops were organized between 18 and 22 October 2021 with the support of the IDDS project (Infectious Disease Detection and Surveillance) run by the United States Agency for International Development (USAID). Biologists and technicians from the RESAMAD laboratories shared their experiences in the presence of several partners and representatives of local authorities.

BOLILAB IMPROVING HEALTH SERVICES

Mandated by the Coopération Luxembourgeoise to manage the setting up of a medical analysis laboratory at the new hospital in the province of Bolikhamxay, the Mérieux Foundation organized staff training and the deployment of new analysis techniques. In 2021, the project was extended by one year to allow technical support to be provided to all hospital laboratories in the district, including at the new Maria Theresa hospital in the province of Vientiane. These activities, **aimed at improving the quality of diagnosis services in the country**, are carried out under the supervision of the National Center for Laboratory and Epidemiology.

02 APPLIED RESEARCH

The Mériex Foundation supports the upgrading of applied research laboratories, which is essential for implementing public health initiatives to comply with national priorities.

The Mériex Foundation supports and encourages applied research programs in developing countries through collaborations with public and private research institutes on an international or local scale. The Medical and Scientific Department of the Foundation runs the GABRIEL network of outstanding laboratories located in infectious disease hotspots, with many members having been named as reference laboratories in their countries. They have been playing a key role in the control and surveillance of the COVID-19 pandemic since 2020.

With the health crisis still causing significant disruption, the research projects carried out in 2021 address remaining needs and focus on the major public health issues affecting members of the GABRIEL network (antimicrobial resistance, tuberculosis, respiratory infections, and emerging pathogens).

RESEARCH TO BENEFIT THE MOST VULNERABLE PEOPLE

The Mériex Foundation's scientific strategy prioritizes research work in line with continuing its work on improving access to diagnosis and which directly benefits vulnerable populations in developing countries.

These activities are based on two main cornerstones:

- Strengthening research capacities by developing collaborative studies and training programs, supporting young researchers and South/South projects;
- Organizing courses and conferences and encouraging major international players to get involved in public health issues.

The Foundation encourages the development of integrated programs drawing on a wide range of expertise in the field of diagnosis, research, knowledge sharing and community support. In 2021, efforts were focused on the reinforcement of epidemiological surveillance. A project for monitoring variants of the SARS-CoV-2 virus enabled five structures in the GABRIEL network to identify variants circulating in their countries and to provide guidance for decision-makers.

ENHANCED MEDICAL AND SCIENTIFIC MANAGEMENT

ACADEMIC COLLABORATIONS

The Mérioux Foundation has been a partner of three academic research teams since 2020. These collaborations aim to capitalize on synergies in terms of expertise, in order to optimize the relevance of programs and their impact on the health of populations.

■ **Antimicrobial resistance:** team led by Jean-Yves Madec at ANSES (French national agency for food, the environment and work), a reference laboratory for the FAO (UN Food and Agriculture Organization) and the OIE (World Organization for Animal Health);

■ **Tuberculosis:** team led by Oana Dumitrescu and Florence Ader from the Hospices Civils de Lyon, with expertise in basic, translational and clinical research recognized by the international scientific community;

■ **Respiratory infections:** team led by Manuel Rosa-Calatrava and Bruno Lina from the VirPath laboratory (Université Claude Bernard, Lyon), a team linked to the main national center for respiratory viruses with a reputation for its pathophysiological and clinical research into respiratory infections and the analysis of new antivirals research.

In 2021, the Foundation brought in new internal expertise with the appointment of a medical and healthcare adviser, a clinical research officer, and a partnerships and advocacy manager. The collaboration with three outstanding academic laboratories that had begun in 2020 (see box) was further expanded. Several scientists working for these structures were involved in the GABRIEL network in 2021, participating in leadership, training, and planning initiatives to strengthen the expertise and international visibility of the network. Several collaborative projects in the field were also launched with these teams in the areas of tuberculosis and antimicrobial resistance.

At the same time, the Foundation also renewed several partnerships with international research institutions active in French-speaking countries with limited resources:

- Signature of a framework agreement with the **French National Research Institute for Sustainable Development (IRD)** in July 2021 for the introduction of support measures for young researchers and collaborative programs;
- Continuation of the collaboration with the **Pasteur Network** (Réseau International des Instituts Pasteur), including participation by the Centre Pasteur du Cameroun in two GABRIEL network projects and the implementation of the APRECIT project involving the Institut Pasteur in Madagascar, the Centre Pasteur du Cameroun, and the Mérioux Foundation;
- Participation in the **AVIESAN network** (French National Alliance for Life Sciences and Health) with a research project into antimicrobial resistance in partnership with scientists in Cambodia, Ivory coast, Madagascar, and Burkina Faso.

NEW INTERNATIONAL SCIENTIFIC ADVISORY BOARD



The Mérioux Foundation reappointed its Scientific Advisory board in 2021: twelve people were appointed for a three-year term, under the presidency of Dr. Marie-Paule Kieny, a virologist specializing in public health and director of research director at INSERM. The International Scientific Committee supports the Mérioux Foundation's strategy in the pursuit of its public health initiatives. In keeping with its values, the Foundation has appointed an international committee based on equal representation and rich in expertise thanks to its members, who come from various countries and sectors of activity.



GABRIEL NETWORK

THE GABRIEL NETWORK IN FIGURES

- **15 research projects in progress** (4 TB, 3 AMR, 2 ARI, 6 COVID-19)
- **59 collaborative publications** (2012 - 2021)
- **960 scientists trained** (57 training sessions through mentoring schemes and 52 training workshops)
- **10 online training modules** on epidemiology, clinical research, molecular biology, the diagnosis of arboviruses, and biobanks.

EVAG CONSORTIUM

The GABRIEL network is a member of the EVAg (European Virus Archive global) consortium, which collects, characterizes, produces, and distributes viruses and derived products. This platform provides essential resources for the response to epidemics.

FUNDING OF PHD RESEARCH GRANTS

For the third year in succession, the Mérioux Foundation launched a call for funding applications for PhD research grants within the GABRIEL network (€15,000/year for three years). In 2021, the grant was awarded to Fetra Angelot Rakotomalala from the Charles Mérioux Center for Infectious Disease in Antananarivo. His PhD thesis is on HIV/AIDS infection in Madagascar.

The Foundation's scientific and medical activities rely on the international GABRIEL network (Global Approach to Biology Research, Infectious diseases, and Epidemics in Low-income countries), composed of outstanding laboratories in developing countries.

BOOSTING LOCAL FACILITIES AND THE AUTONOMY OF NETWORK MEMBERS

The GABRIEL network helps to improve research into infectious diseases by setting up collaborative studies, introducing training programs and sharing experience and technologies. Since 2020, attention has increasingly been focused on strengthening local facilities and boosting the autonomy and initiatives of member laboratories of the network.

The GABRIEL network has 20 members in 15 countries across four continents: eight Rodolphe Mérioux Laboratories (set up by the Mérioux Foundation with support from the Fondation Christophe et Rodolphe Mérioux and handed over to local entities), plus public and private academic research institutes at universities and hospitals. In 2021, the National Biomedical Research Institute in Goma (Democratic Republic of the Congo) joined the network, bringing in the expertise of its teams in Kinshasa and those of the Rodolphe Mérioux laboratory in Goma, which opened in July 2020. These structures are heavily involved in the diagnosis and surveillance of emerging pathogens.

In 2021, the international meeting of the GABRIEL network was organized at the Les Pensières conference center. More than 50 scientists attended in person and 30 joined the event online. After the first day, which was devoted entirely to the Covid-19 pandemic, the participants presented their research results. The Foundation awarded two "GABRIEL prizes for young researchers", which were introduced in 2017 to help promising young scientists in the network. In 2021, the prizes were awarded to Rim Bayaa (Lebanon) and Tiavina Rasolofoarison (Madagascar).

ENCOURAGING COLLABORATION WITHIN LABORATORY NETWORKS

A call for collaborative projects was launched in 2020 to support the structuring of the GABRIEL network around three priority areas of research (respiratory infections, antimicrobial resistance, and tuberculosis) and to capitalize on the Foundation's research and diagnosis skills. The selection criteria included the involvement of at least three members of the GABRIEL network and of RESAOLAB, the West African network of biomedical analysis laboratories also led by the Mérioux Foundation. The selected projects are awarded seed funding of €60,000.

Five applications were submitted and assessed by a jury of experts. Two projects were approved and launched in 2021:

- The COV-AMR project, a multicentric study on the impact of the Covid-19 pandemic on the spread of antimicrobial resistance through wastewater in Cameroon, Brazil and Madagascar;
- The Phegenhore_BLC project on the characterization of resistant strains of tuberculosis in clinical isolates in Bangladesh, Cameroon and Lebanon.

RESEARCH PROJECTS

TUBERCULOSIS

APRECIT – CAMEROON AND MADAGASCAR SCREENING OF LATENT TUBERCULOSIS

Financed by the Expertise France Initiative, the APRECIT study is coordinated by the Mérieux Foundation, the Centre Pasteur in Cameroon, and the Institut Pasteur in Madagascar. It is based on **the evaluation of community screening strategies for latent tuberculosis infections** (without any clinical signs). It is estimated that latent tuberculosis, which affects almost a quarter of the world's population, develops into the disease TB in 10% of cases, with a higher probability for young children and people living with HIV. The results of the APRECIT study will enable recommendations to be put forward to National Programs for dealing with TB, to enhance the care of these groups of people, who are particularly vulnerable.

The study is based on monitoring contacts within families of active TB cases. A total of 2,500 subjects were identified by community healthcare agents. Initial data indicates that more than half of these are positive for latent tuberculosis, with 8% of positive cases having a higher risk of contracting an active form in Madagascar and 13% in Cameroon.

APRECIT covers two of the strategic focus areas of the Foundation's actions: strengthening health systems through operational research and community intervention to help vulnerable groups of people.

➔ TUBERCULOSIS AND COVID-19

Since 2020, an additional element of APRECIT has been analyzing risk factors linked with TB/Covid-19 co-infection.



TUBERCULOSIS

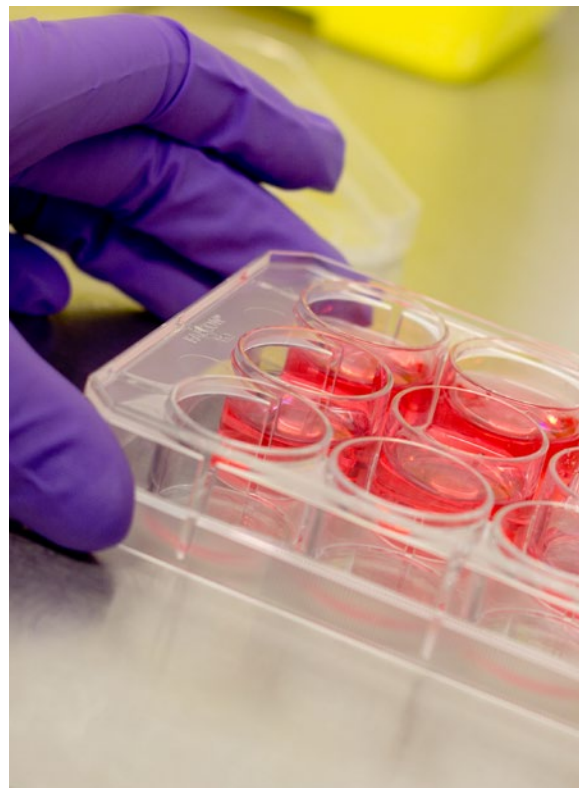
HINTT – MULTIPLE COUNTRIES EVALUATION OF DIAGNOSIS AND MONITORING TOOLS

As the first multicentric study on tuberculosis to be developed within the GABRIEL network, HINTT aims **to enhance research into the disease through the clinical evaluation of several innovative diagnosis tests used for screening and monitoring treatment**. Funded by the Fondation Christophe et Rodolphe Mérieux and the Fondation Anber, these analyses are carried out by laboratories in five countries in the network: Bangladesh, Georgia, Lebanon, Madagascar, and Paraguay. More exploratory aspects are carried out in France at the International Center for Infectiology Research (CIRI) in Lyon.

The project came about as a result of **observations of the high treatment failure rate** among people infected with multidrug-resistant strains. The immunology tools currently being assessed should allow the various stages of tuberculosis – from the active disease to controlled infection – to be identified, thus improving patient outcomes and reducing the spread of resistant forms of the disease.

The analysis results of two blood tests for pulmonary TB were published in 2021. One of them could **improve screening for certain types of the disease, which until now have been difficult to identify, such as pediatric TB**. Three postgraduate students from the Foundation also presented their work at reputable scientific congresses: the European Congress of Clinical Microbiology & Infectious Diseases (ECCMID) and the Union World Conference on Lung Health.





ACUTE RESPIRATORY INFECTIONS

NOSO-COR PROJECT – MULTIPLE COUNTRIES
PREVENTION OF NOSOCOMIAL
TRANSMISSION OF COVID-19

To address the high circulation of COVID-19 within healthcare institutions, the Mériex Foundation and the Hospices Civils de Lyon developed the NOSO-COR research protocol to assess and reduce the risk of nosocomial transmission of this infection. This is a non-interventional prospective study, the results of which should allow policies for the prevention and control of the SARS-CoV-2 virus in hospitals to be put forward.

The project covers seven countries: Mali, Ivory Coast, Guinea, Madagascar, Bangladesh, Brazil, and Lebanon. The Mériex Foundation manages the implementation of the research protocol in the countries with the support of the Bill & Melinda Gates Foundation. In 2021, our staff and local partners doubled their efforts to ensure the implementation of the project despite the difficulties associated with the health crisis and the introduction of lockdown measures in several countries. Recruitment went ahead (around 2,500 cases) and most of the investigating sites uploaded their data to a centralized management platform for sharing.

NOSO-COR IMMUNO –
MADAGASCAR

At the same time, the Mériex Foundation has added an immunology component to the NOSO-COR study with the introduction of a serological study in Madagascar. This involves monitoring the immunity status of healthcare staff who have been exposed to the virus in three university hospitals in Antananarivo over a six-month period. The aim is to define the seroprevalence rate in healthcare establishments.

FDP-COVID19 – BANGLADESH:
STUDY OF SARS-COV-2 TRANSMISSION

FDP-COVID19 is a research program carried out alongside the Institute for Developing Science and Health initiatives (ideSHi) in the Rohingya refugee camp in Bangladesh (Cox's Bazar camp in the Ukhia region). This is a **multicentric observational study of viral transmission of SARS-CoV-2 and the risk factors that accentuate transmission**. The data obtained will enable recommendations to be put forward for prevention, vaccination,

and treatment in view of the dual challenge involved in **managing an epidemic in a humanitarian crisis**.

In 2021, the research protocol was developed in partnership with local entities and a field audit was carried out by the Foundation to validate the launch and conduct of the study. This project is supported by the International Organization for Migration (IOM).

➡ RESPIRATORY VIRUSES IN REFUGEE CAMPS

Living conditions in refugee camps accelerate the spread of infectious diseases, particularly viruses responsible for respiratory infections, one of the main causes of infant mortality.

Despite growing concerns about morbidity in refugee camps, the viral transmission of SARS-CoV-2 has so far been poorly documented.

ANTIMICROBIAL RESISTANCE

FLEMING FUND FELLOWSHIP – SENEGAL
TRAINING AND STUDY OF ANTIMICROBIAL RESISTANCE

The Fleming Fund Fellowship Scheme is part of the UK government's Department of Health and Social Care program tackling antimicrobial resistance (AMR). It is a **mentoring scheme dedicated to the professional development of practitioners from the animal, environmental and human health sectors** in Asia and sub-Saharan Africa. In Senegal, the program targets the strengthening of skills in microbiology and epidemiology in five hospitals, with a high level of involvement from the Ministry of Health and Social Action. The Mériex Foundation is one of three host institutions, alongside the VetAgroSup veterinary college and the Paris-Nord Val-de-Seine University Hospitals. The Foundation is also the coordinator for the five beneficiary institutions.

The program involves the development of a customized 24-month training plan and the implementation of a collaborative One Health research project in compliance with the national and regional AMR surveillance program. The Senegalese project is based on **characterizing the resistance of *Escherichia coli*** strains in the Dakar and Saint-Louis regions.

In 2021, the Mériex Foundation organized three training activities: a biostatistics workshop, a training course on bioinformatics designed alongside ANSES (the French national agency for food, the environment and work) and the integration of six mentees in the international course on antimicrobial resistance organized at the Les Pensières Center. The research project was approved by the ethics committee in Senegal and the collection of samples has already begun.

TRIUMPH - MADAGASCAR
MONITORING
ANTIMICROBIAL
RESISTANCE

The TRIuMPH project is underway in three countries, which have already adopted the WHO TRICYCLE protocol: Malaysia, Pakistan, and Madagascar. TRIuMPH is a **One Health AMR surveillance program targeting two Enterobacteriaceae declared a critical priority by the WHO** for their ability to render certain classes of antibiotics inactive. These are Enterobacteriaceae-producing extended-spectrum beta-lactamases (ESBL) and Carbapenemase-producing Enterobacteriaceae (CPE), which can be found in the human body, in the environment and in the food chain.

The Mériex Foundation is supporting the team in Madagascar with training, quality control and bioinformatics. The project is being conducted in seven hospital laboratories in the RESAMAD network and the Charles Mériex Center for Infectious Disease in Antananarivo. It benefits from financial support from the European JPI-AMR initiative (Joint Programming Initiative on Antimicrobial Resistance) and the Swedish agency for development and cooperation.

03 KNOWLEDGE SHARING



LES PENSIÈRES CENTER FOR GLOBAL HEALTH

Les Pensières is an international public health center situated beside Lake Annecy, with expertise based on over 40 years' experience in dialog and a commitment to tackle infectious diseases, and in global health and public interest more broadly.

Designed as a space for sharing and reviewing knowledge, it provides the ideal working environment for health organizations, associations and institutions sharing the same values as the Mérieux Foundation (with conference and seminar rooms, catering facilities, and accommodation).

Since the COVID-19 crisis, the Center has been equipped with the latest technology and a high-performance video conferencing system so that conferences can be held in-person or in a hybrid or digital format.

Sharing knowledge across national borders and disciplines has always been a cornerstone of the Foundation's commitment to developing countries, allowing scientific progress and advancements in public health to benefit as many people as possible.

Knowledge sharing is part of the Mérieux Foundation's DNA and is a principle that governs all its activities. The Foundation is committed to developing skills and collaboration between countries and disciplines through advanced training courses, themed training sessions, international conferences, and public health initiatives. These cover several strategic priorities, including vaccinology, diagnosis, infectious diseases, antimicrobial resistance, cholera, and rabies.

Since 2020, the health crisis has led to the emergence of new forms of remote communication, which have allowed the Foundation to maintain high-quality relations using digital solutions. This dialog is more essential than ever in a period of epidemic alert, with an increased requirement for coordination between the parties involved in healthcare.

In 2021, in-person events at the Les Pensières Conference Center were hampered by the health crisis and activities only started up again in May, with the organization of hybrid events combining on-site presence with the possibility of joining meetings online. Throughout the second half of the year, the Center recovered its international influence, with a total of **more than 4,000 people attending 130 events at Les Pensières**. These included advanced ADVAC and AMR courses, the ICARe course on resistance to antibiotics organized by McMaster University in Canada, the course on infectious diseases organized by the Société de Pathologie Infectieuse de Langue Française (French Infectious Diseases Society), a meeting of the young Inserm prize winners, and the 17th Aspen Institute Europe-Africa summit.

Knowledge sharing has therefore undergone a profound change, reflecting the advantages of digital events, as well as the need to maintain meetings held in person.



ADVANCED TRAINING COURSES

The three advanced training courses offered by the Mérioux Foundation, on vaccinology (ADVAC), diagnostics (ACDx), and resistance to antibiotics (AMR), were cancelled in 2020 and postponed to 2021. In the end, it was not possible to reorganize all of them in 2021. However, in each case, events were organized to maintain the connection and support networks of international experts. The Foundation and its partners capitalized even more this year on the opportunities provided by technology to make up for the lack of in-person meetings due to the health crisis.

ACDx COURSE

— Advanced course on diagnostics

Since it proved impossible to organize an ACDx course in person, two remote events took place instead in 2021 to enable interdisciplinary exchanges to continue. In March, a **special COVID-19 edition was held over three days, with 622 people joining the event from 85 countries**. The speakers at this event underlined the importance of making available high-quality tests capable of controlling the epidemic and detecting new variants, as an essential condition for the introduction of effective vaccines. This event was supported by bioMérioux and Cepheid.

On September 15, the global diagnostics community was invited to a conference on the importance of the evolution of the diagnostic tests available on the market, the various means of facilitating access to high-quality tests, and the key role played by genomic surveillance in the control of SARS-CoV-2. 119 participants from 37 countries in Asia, Africa, Europe, and Latin America attended this event, which was led by Dr. Alexandre Costa from UNICEF and Professor Rosanna Peeling from the London School of Hygiene and Tropical Medicine (LSHTM).

ACDx

Organized by the Mérioux Foundation and the London School of Hygiene & Tropical Medicine since 2009, ACDx aims to promote the value and role of diagnostics in patient care.

AFRO ACDx

— Advanced course on diagnostics for french-speaking african countries

In collaboration with the Institut Pasteur in Dakar, the Mérioux Foundation organized the **first edition of the Afro-ACDx course in 2021**. Afro-ACDx is the French-language version adapted to the needs of West and Central African countries and pursues **the following objectives: providing leadership training, reinforcing the capacities of laboratories, and encouraging feedback as part of a One Health approach without any boundaries between human and animal health.**

Afro-ACDx relies on international ACDx courses, the Global Laboratory Leadership Program (GLLP), and on the expertise of a scientific committee of the main institutions involved in diagnostics in Africa. The first Afro-ACDx class included 29 participants from 15 African countries and took place in Saly, Senegal, from November 21 to 26, 2021.



ADVAC, A BENCHMARK IN VACCINOLOGY

Acknowledged as the most prestigious course in its field, ADVAC was set up by the Mérioux Foundation and the University of Geneva in 2009. Aimed at managers responsible for making health decisions at a local, national, and international level, it offers a comprehensive approach covering all aspects, from immunology to the development of vaccines and including the social, economic, political, and ethical issues linked with vaccination.

ADVAC benefits from grants from the Bill & Melinda Gates Foundation, GlaxoSmithKline, Janssen, Merck, Pfizer, Sanofi Pasteur, Serum Institute of India, and Takeda. In 2021, the Coalition for Epidemic Preparedness Innovations (CEPI) joined the group of joint sponsors.

AMR DURING A PANDEMIC

On May 28, 2021, the AMR course offered a webinar on **the impact of the Covid-19 pandemic on AMR**. The developments presented by the five experts included **the increased prescription of antibiotics due to numerous cases of bacterial superinfection and improvements in prevention practices (hand washing, social distancing, vaccination, etc.)**.

GLOBAL ACTION PLAN ON AMR

The World Health Organization's global action plan on AMR and the global One Health strategy make raising awareness and understanding of AMR a priority, considering it to be essential for the adoption, deployment, and implementation of national programs for tackling AMR.



ADVAC COURSE

— Advanced course on vaccinology

The 21st edition of the advanced course on vaccinology took place from May 9 to 27, 2021, with a virtual, interactive format supervised at the Les Pensières Center. This was a first for the ADVAC speakers, who also included the challenges posed by Covid-19 in the course content.

A total of 73 participants from 41 countries took part in 60 conferences, followed by group work, debates, and round table discussions. They joined an active network of more than 1,200 alumni, who regularly get together outside the main meetings on vaccines. Four virtual meetings between former students were organized in 2021 on subjects related to the COVID-19 vaccine.

AMR COURSE

— Course on antimicrobial resistance

Based on the "One Health" principle, the AMR course was developed by the Mérioux Foundation and Paris-Diderot University in 2019 to support the objectives of the WHO Global Action Plan on AMR. Postponed from 2020, the second edition was held at the Les Pensières Center from November 1 to 5, 2021, bringing together in person 37 students from 20 countries in Asia, Africa, and the Middle East. Also present were several representatives of organizations involved in the fight against AMR, including the WHO, FAO and OIE. The AMR course benefits from the financial support of bioMérioux and the International Federation of Pharmaceutical Manufacturers & Associations (IFPMA).

PUBLIC HEALTH INITIATIVES

The Mérieux Foundation contributes to several global public health initiatives. By combining complementary areas of expertise, optimizing resources, and creating synergies, these partnerships play an essential role in the fight against infectious diseases.

GLOBAL PARTNERSHIP TO FIGHT CHOLERA

— GLOBAL TASK FORCE ON CHOLERA CONTROL (GTFCC)

The GTFCC is a global consortium committed to reducing the number of deaths due to cholera by 90% by 2030. The Mérieux Foundation has been a partner of this initiative since 2017, alongside more than 50 organizations (WHO, Gavi, the Vaccine Alliance, the Bill & Melinda Gates Foundation, WaterAid, etc.) and is involved in aspects associated with knowledge sharing, taking responsibility for the website, and for organizing meetings at the Les Pensières Center.

In 2021, the annual meeting of the GTFCC took place as a hybrid event from June 8 to 10, with more than 230 participants attending in person or joining remotely. The meeting, traditionally organized alongside the World Health Assembly, took place in the form of a webinar attended by 150 people on May 20, 2021.

GTFCC THEMED WORKSHOPS 2021

→ **Epidemiology and laboratory working group**
Webinar held on January 22 – 42 participants

→ **WASH (Water, Sanitation, Health) working groups**
4 webinars on March 24, April 12, May 7, September 29 – 204 participants

→ **Surveillance working groups**
2 webinars on March 30 and April 27 – 88 participants

→ **Oral cholera vaccine working groups**
Hybrid meeting on December 6 to 8 – 145 participants



ACCEPTANCE OF VACCINATION

— Vaccine acceptance initiative

Particularly committed to prevention and immunization, the Mérieux Foundation set up the Vaccine Acceptance initiative with the aim of intensifying multisectoral efforts to **promote acceptance of vaccination**. In the context of increasing mistrust in vaccines, exacerbated by the COVID-19 pandemic, two one-day events dealing with information and misinformation were offered in 2021:

■ On March 29, 290 participants attended a webinar on the **“Introduction and Acceptance of COVID-19 Vaccines”**, during which several international experts presented actual examples of the vaccine being introduced and the associated crisis management aspects;

■ On April 15, 250 people attended an event devoted to **the management of fake news**, considered a major threat to public health in that it can hamper the deployment of prevention strategies.

CONTROLLING RABIES

The Foundation has been involved in rabies control and prevention for many years, supporting initiatives developed to deal with this key topic alongside regional and international partners. Two meetings to support rabies prevention and control benefited from the Mérieux Foundation's support in 2021, within the framework of its partnership with the GARC (Global Alliance for Rabies Control).

→ **Meeting of the MERACON network**, the network for rabies control in the Middle East, Eastern Europe, Central Asia, and North Africa, supported by the Mérieux Foundation

Webinar held on February 26, 2021 – 70 participants

→ **World Rabies Day**: highlighting the work of local teams working towards the elimination of rabies worldwide

Webinar held on September 6 – 301 participants

COORDINATION OF RESEARCH ON INFECTIOUS DISEASES

— Global research collaboration for infectious disease research preparedness



Having already been put to the test in 2020, the international GloPID-R initiative, whose objective **is to provide a joined-up response to emerging epidemics**, confirmed in 2021 that it had the capacity to fulfil the task. In line with its mission, the network's activities facilitated the coordination of research funding, with several priorities identified: cases of long Covid, monitoring progress in research (identification of 13,000 projects in 160 countries by the end of 2021), and accounting for the specific requirements of low and middle-income countries. Scientific recommendations and considerations were also published, contributing towards future decision-making in the field of Covid-19 research.

The Mérieux Foundation coordinates the global activities of the secretariat and the GloPID-R network in partnership with the University of Oxford, which oversees the scientific aspects. Three new members joined the GloPID-R initiative in 2021: in Burkina Faso, Ivory Coast and Rwanda.

PUBLIC HEALTH INITIATIVES

COMBATING THE ZIKA VIRUS

— ZikaPLAN: Zika preparedness latin american network

Delayed by the Covid-19 pandemic, the **ZikaPLAN project has been given a six-month extension, enabling an important stage of training on the diagnosis of arboviruses, of which Zika is one example, to be completed.** Financed by the European Commission's Horizon 2020 program, the initiative adopts a global approach to establish sustainable intervention in Latin America. The Mérieux Foundation, which is one of 25 members of the network, oversees training and the publication of research results.

The training workshop on the diagnosis of arboviruses was organized in March 2021, in partnership with the Institute of Tropical Medicine at Sao Paulo University. Since the end-of-project conference could not take place as planned, the Foundation offered three online events on specific topics to highlight the progress made throughout the four years of the project.



OTHER SCIENTIFIC CONFERENCES

In partnership with a network of international experts, the Mérieux Foundation organizes scientific conferences attended by various health stakeholders to explore major topics of scientific and medical interest. Since 2020, these conferences have been held in the form of online webinars or hybrid events.

The Mérieux Foundation has been participating in and supporting the Asia Dengue Voice and Action task force (ADVA) working group since 2013 to advocate in favor of the prevention and control of dengue in Asia, an endemic region with a strong prevalence of dengue. **Throughout 2021, five webinars were organized to deal with key subjects on the dengue situation in Asia and the contextual challenges due to the COVID-19 pandemic.** The themes of the webinars were as follows:

- Managing patients who are seriously ill with dengue - intensive adult and pediatric care - January
- Impact of the Covid-19 pandemic on the global dengue situation - March
- World Dengue Day - forum on cross-sector synergies - June
- Pre-vaccination screening for dengue - what is the next stage? - September

CONFERENCE ON VIRAL HEPATITIS IN SOUTH-EAST ASIA

The 2021 edition of the **Mekong Hepatitis Symposium** was broadcast from the Les Pensières Center on November 26. This regional network gets together each year to make progress in dealing with viral hepatitis B and C in the Mekong Basin, a region at the center of major outbreaks of these infections worldwide. **Two key issues were discussed: the prevention and treatment of hepatitis B and the challenges involved in eradicating hepatitis C by 2030, to comply with WHO objectives.**

This event received operational support from the French National Research Institute for Sustainable Development (IRD), the Lyon Cancer Research Center, the University of Sorbonne Paris Nord, the Center Infectiology, Lao-Christophe Mérieux and the University of Chiang Mai in Thailand.

THE BURDEN OF VIRAL HEPATITIS

- **Viral hepatitis B and C affect more than 320 million worldwide, causing 1.4 million deaths per year. Hepatitis has become the leading fatal infectious disease, ahead of tuberculosis, HIV, and malaria;**
- **Hepatitis B and C are responsible for more than 80% of hepatocellular carcinomas (primary liver cancer) worldwide;**
- **Despite the existence of treatments, more than 80% of sufferers do not benefit from any care.**



04 MOTHER & CHILD PROGRAMS



The Mérieux Foundation is committed to supporting the health and well-being of particularly vulnerable groups, especially women and children, who are the primary victims of crises and insecurity. This commitment covers their basic human needs as part of a global health approach.

Since progress in healthcare is closely linked with living conditions, the Mérieux Foundation supports local humanitarian projects helping poor communities. These projects help to restore the dignity of marginalized groups of people through access to healthcare, education, and basic living requirements such as food and hygiene.

In 2021, this intervention strategy benefited 23 local associations, 11 of which are in geographical areas defined as priority zones by the WHO, such as Haiti, Madagascar, and Cambodia. These associations in the field, most of which are historic partners of the Foundation, rely on their local facilities and knowledge to develop programs to fulfil the requirements of these territories. Many campaigns are aimed at children and young people, who make a major contribution within their communities to the understanding and spread of a culture of infectious disease prevention.

Two Mother & Child community health centers have been built with the support of the Mérieux Foundation since 2020. These centers are the perfect representation of the global health approach, offering physical, mental, and social health services, which could be replicated in other countries with similar needs.

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

FONDATION CHRISTOPHE ET RODOLPHE MÉRIEUX

The Fondation Christophe et Rodolphe Mérieux is an independent family foundation created in 2001 under the aegis of the Institut de France. It devotes most of its resources to funding projects in the field. It draws on the expertise and human resources of the Mérieux Foundation for the operational implementation of its projects.

MADAGASCAR DEVELOPMENT OF HEALTH AND HYGIENE EDUCATION KITS

Health education

True to its belief that educating children can play a key role in the fight against infectious diseases, the Mérieux Foundation with the support of the Ministry of National Education in Madagascar has developed a **fun and interactive program to raise awareness** amongst primary and secondary school pupils. High-priority topics were identified, giving rise to the creation of educational kits: hygiene regulations (WASH), nutrition, the prevention of infectious diseases, and sexual education and the prevention of sexually transmitted diseases.



In 2021, kits were handed out in almost 200 educational establishments, benefiting more than 90,000 pupils, whose teachers were given training in advance. IT equipment was supplied to 32 secondary schools and 3 youth centers in the center and outskirts of Antananarivo. Some elements of the infectious diseases kit were adapted to a TV format and were broadcast at the end of the year in the form of video clips across various channels.

THE NUTRISUD PRODUCTION UNIT IN BRIEF

- Maximum production capacity of 600 tonnes per year, or 12 million portions;
- Current distribution in 20 school canteens, which also helps to decrease rates of absenteeism;
- In the long term, supplements will be distributed in several hundred schools in the Androy and Anosy regions in the south of Madagascar, benefiting almost 120,000 children per year.

MADAGASCAR OPENING OF A NUTRITIONAL SUPPLEMENTS PRODUCTION UNIT

Fighting malnutrition

The introduction of a production unit for food supplements in Madagascar is the Mérieux Foundation's first initiative in the field of fighting malnutrition and was finalized in 2021. The container plant, made by the specialist company Nutriset and financed by the Fondation Christophe et Rodolphe Mérieux, was shipped and managed by Fitia, a local association which will manage operations. The factory has been set up in Tolagnaro, in the south of Madagascar, where child malnutrition is particularly alarming. In some regions, according to the National Nutrition Office of Madagascar, 35% of children are suffering from stunted growth. The inauguration took place on October 1, 2021, and was attended by the President of the Republic of Madagascar, Andry Rajoelina. The factory has been operational **since the start of 2022 and supplies 20 schools in the south of the country, with around 10,000 children benefiting from this service.**

The project also includes a dimension associated with **local economic development**, which is illustrated in various ways:

- Staff recruitment carried out with special attention paid to the employment and empowerment of women;
- When the factory first started operations, production used imported raw materials. The second phase of the project will consist of developing a formulation using local products, supporting the local agricultural sectors concerned;
- Laboratory capacity will be reinforced in Tolagnaro to allow quality control to be carried out.



MADAGASCAR CONSTRUCTION OF A UNIVERSITY CAMPUS WITH THE AKAMASOA ASSOCIATION

Access to education

The Fondation Christophe et Rodolphe Mérieux has been a partner of the Madagascar NGO AKAMASOA since 2014 and in 2021 funded **the construction of a French/English language university, thus providing access to higher education for young students from poor families.** Located in the village of Vohitsara, the five-story building has space for almost 500 students. This project follows on from several activities supported by the Foundation in the fields of healthcare, hygiene, housing, and education. Following the construction of a high school in 2019 and the creation of this university, a library will be added to the educational program provided by AKAMASO over the next few years.

MALI INAUGURATION OF A NEW MATERNITY UNIT AND RENOVATION OF A HEALTH CENTER

Access to healthcare

Having opened its doors in 2020, the new maternity unit in Sirakoro was inaugurated on November 23, 2021, in the presence of Alain Mérieux and Diéminatou Sangaré, Minister of Health and Social Development in Mali. Previously located in an old building, **the maternity unit was transferred to a brand new unit offering high-quality healthcare and better conditions for monitoring pregnancies.** The maternity unit now bears the name of Dr. Youssouf Issabré, the first director of the Charles Mérieux Center for Infectious Disease in Mali, who played a key role in developing the Foundation's activities in the country.

The second phase of the project involves the renovation of the initial building, which also included a health center. Work began in 2021 thank to an exceptional donation by bioMérieux shareholders. The new health center will open its doors in 2022.

MALI - SENEGAL - BURKINA FASO REINFORCED PARTNERSHIP WITH SAMUSOCIAL

Access to healthcare

Initially set up in Mali in 2005, the partnership with Samusocial has now been expanded to include other countries and other initiatives of Samusocial International, which has set itself the objective of supporting homeless children in cities in developing countries. In 2021, Samusocial in Mali, Burkina Faso, and Senegal benefited from support for providing medical, psychosocial, and educational care for homeless children.

Local campaigns carried out in 2021 include:

- **Samusocial Mali:** training for social workers in sexual and reproductive health, launch of a lice treatment campaign, and an HIV screening campaign;
- **Samusocial Burkina Faso:** introduction of educational football activities, training for communal teams on Samusocial intervention practices;
- **Samusocial Senegal:** finalization of the "Zero children on the streets" program, prevention campaigns (Covid, addiction, and street smart programs), installation of hand-washing kits, etc.



LEBANON

INCREASED CAPACITY OF THE DURIS HEALTH CENTER

Access to healthcare

The Duris maternal and infant healthcare center, built by the Mérieux Foundation in the Beqaa Valley in northeast Lebanon, has been open to the public since March 2020. It was built as part of the MELIBAN project, in accordance with the United Nations Strategic Framework for Lebanon, and will serve almost 3 million highly vulnerable people, including Syrian refugees and Lebanese communities. In just a few years, 70% of the Lebanese population has been driven below the poverty line by the economic and financial crisis that has hit the country. This humanitarian emergency is particularly significant in the Beqaa Valley, a rural area in one of the most precarious situations, which hosts most of the Syrian refugees in the country.

In 2021, the health center increased its capacity to provide medical care, with the number of consultations increasing from 300 to 900 per month. **More than 5,700 people were provided with treatment between January and November 2021, more than 70% of them women and children.** The center also integrated the mental health program introduced by the health authorities for the Baalbek-Hermel region and sessions to raise awareness of good health and hygiene practices were also organized.

The project is led by the Foundation in partnership with the NGO Amel Association, a local partner of the Mérieux Foundation, thanks to financial support from the Department of International Cooperation of the Principality of Monaco.



CAMBODIA

SUPPORT FOR THE ENFANTS DU MÉKONG ASSOCIATION

Access to education and healthcare

The Fondation Christophe et Rodolphe Mérieux is a partner of the NGO Enfants du Mékong and contributes towards the funding of two activities:

- **The Dr. Christophe Mérieux University Center** for students from disadvantaged backgrounds. Although all teaching has been online since the beginning of the Covid-19 crisis, not one of the 156 beneficiaries of this establishment dropped out in 2021. The center also offers a nursery school class and provides housing for 250 families living in extreme poverty
- **The Mother & Child program**, which provides adapted aid to suit various needs, including nutritional support, housing repair or construction, and training, etc. 230 families benefited from these actions in 2021 and emergency Covid-19 assistance was provided for more than 2,500 families.

TUNISIA

SUPPORT FOR VULNERABLE WOMEN AND VICTIMS OF GENDER-BASED VIOLENCE

Social and professional inclusion

The Fondation Christophe et Rodolphe Mérieux supports the Tunisian NGO Beity within the framework of a partnership with the Fondation AnBer. Set up in 2012, Beity tackles the economic and social vulnerability of women with various actions aiming to **enhance their capacity for independence**. The association was particularly active throughout the coronavirus crisis, which hit Tunisia hard (emergency program covering health check-ups and social and psychological support).

The Foundation supports the three main activities of the association to help women who are victims of discrimination, violence, and exclusion:

- Socio-professional, psychological, and legal support;
- Accommodation in a center set up in the Medina of Tunis in 2016;
- Professional caregiver training in a training center set up by the association in 2018.

From January to October 2021, the day unit cared for 185 new beneficiaries. In 2021, specific support was oriented towards boosting professional inclusion, with more than 50 women receiving support (training to become a caregiver, guidance for different training courses, support for setting up a project, or funding for starting a new business).



SMALL GRANTS 2021

The Mérieux Foundation's Small Grants program is a €50,000-a-year fund – granted by the Fondation Christophe et Rodolphe Mérieux that awards grants of up to €5,000 to small organizations and individual projects with a strong local impact. **Two application review sessions are held each year. Ten projects received support in 2021:**

■ Support for primary healthcare structures

- Construction of a medical analysis laboratory in Togo (Social Action Center in Togo)
- Support for providing care for children suffering from motor disabilities in the north of Rwanda (NGO Fraternité Chrétienne des Personnes Malades et Handicapées du Rwanda)
- Tackling malaria in the villages surrounding the Sainte Claire d'Assise Andrakiba Hospital in Madagascar (Les Amis de Sainte Claire association)
- Preventing mother to child transmission of the hepatitis B virus in Senegal (AGORA association)

■ Education and awareness

- Improving community health in 41 bush schools in the south of Madagascar (EJEDA Solidarité association)
- Raising awareness of reproductive health in Cameroon (Value Health Africa NGO)
- Reinforcement of Mother & Child healthcare services in the Efoulan health district in Cameroon (Child Aid Development Foundation International)
- Reinforcement of the prevention, diagnosis, and treatment of leprosy in Brazil (Brasil Saúde e Ação NGO)

■ Global health actions

- Improving hygiene and sanitation for migrant children in the Mutengene camps in Cameroon (Association Help for orphans in Cameroon)
- Treatment for infant malnutrition in the Democratic Republic of the Congo (Association de l'Amour Vivant Congo)

2021 GOVERNANCE

BOARD OF DIRECTORS

PRESIDENT OF HONOR

- Prof. François GROS*

REPRESENTATIVES OF THE FOUNDING MEMBERS

- Alain MÉRIEUX
President
- Chantal MÉRIEUX
- Karine MEHLER
- Olivia MÉRIEUX
- Alexandre MÉRIEUX

QUALIFIED PERSONS

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- Prof. Jean-François DELFRAISSY
- Prof. David L. HEYMANN
- Dr. Marie-Paule KIENY
- Prof. Didier RAOULT
- Dr. Robert SEBBAG
- Bernard SINOU

GOVERNMENT REPRESENTATIVE

The Prefect of
the Auvergne-Rhône-Alpes
Region

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Director General
- Dr. Marc BONNEVILLE
Medical & Scientific Director,
Deputy Director
- Clélia LEBAYLE
Secretary General
Director of Support Functions
- Dr. François-Xavier BABIN
Director of International
Operations
- Dr. Pascal VINCELOT
Director of Cooperation and
Prospective Programs
- Bénédicte PANSIER
Director of Les Pensières Center
for Global Health

SCIENTIFIC ADVISORY BOARD

- Dr. Marie-Paule KIENY
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Inserm (France)
- Dr. Valérie D'ACREMONT
Swiss Tropical and Public
Health Institute (Switzerland)
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Johns Hopkins Bloomberg
School of Public Health,
Baltimore (United States)
- Dr. Kevin De COCK
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Control and Prevention) (Kenya)
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Erasmus University Rotterdam
(Netherlands)
- Dr. Rana HAJJEH
WHO/Regional Office for the
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- Prof. Francine NTOUMI
Congoese Foundation for
Medical Research (Congo)
- Dr. Christophe PAQUET*
Agence française de
développement (France)
- Prof. Jean William PAPE
GHESKIO Centers (Haiti)
- Dr. Firdausi QADRI
International Centre for
Diarrhoeal Disease Research
(Bangladesh)
- Dr. Voahangy RASOLOFO
Institut Pasteur Madagascar
(Madagascar)
- Dr. Wenhong ZHANG
Huashan Hospital of the Fudan
University (China)

MÉRIEUX FOUNDATION USA

BOARD OF DIRECTORS

- Prof. David L. HEYMANN
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& Tropical Medicine
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University of Colorado;
Department of Global Health,
Milken Institute of Public
Health, George Washington
University (United States)
- Didier CHERPITEL
Mérieux Foundation Board of
Directors (France)
- Dr. Kevin DE COCK
CDC (Centers for Disease
Control and Prevention) (Kenya)
- Dr. Warren JOHNSON
Center for Global Health,
Weill Cornell Medical College
(United States)
- Karine MEHLER
Conseil d'Administration
de la Fondation Mérieux (France)
- Clare O'BRIEN
Shearman & Sterling
(United States)

MANAGEMENT TEAM

- Koren WOLMAN-TARDY
Chief Executive Officer
- Aline FRIMON-RICHARD
Director of Finance & Operations
- Allegra MOLKENTHIN
Program and Operations Officer

2021 FUNDING PARTNERS

“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

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.

REGIONAL, NATIONAL & INTERNATIONAL INSTITUTIONS

- African Society for Laboratory Medicine (ASLM)
- Agence Française de Développement (AFD)
- Coalition for Epidemic Preparedness Innovations (CEPI)
- Defense Threat Reduction Agency (DTRA)
- Department of Foreign Affairs and Trade, Australian Government (DFAT)
- Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
- European and Developing Countries Clinical Trials Partnership (EDCTP)
- European Commission
- Expertise France
- Fleming Fund (UK Department of Aid and Social Care)
- International Organization for Migration (IOM)
- L'Initiative (Expertise France)
- Luxembourg Government Aid and Development Agency (LuxDev)
- Pan American Health Organization (PAHO)
- Prince's Government of Monaco
- IFPMA
- Région Auvergne-Rhône-Alpes
- Région Ile de France
- The Joint Programming Initiative on Antimicrobial Resistance (JPIAMR)
- U.S. Centers for Disease Control and Prevention (CDC)
- UK Foreign Commonwealth Development Office (FCDO)
- United States Agency for International Development (USAID)
- World Bank – via the West African Health Organisation (WAHO)
- World Health Organization (WHO)

FOUNDATIONS & NGOS

- Alliance et Missions Médicales (Lebanon and Madagascar)
- Bill & Melinda Gates Foundation
- Fondation AnBer
- Fondation Christophe et Rodolphe Mérieux
- Fondation Pierre Fabre
- Fondation Raoul Follereau
- Fondation Saint-Irénée
- Fonds Decitre / Lire et Sourire
- Global Alliance for Rabies Control (GARC)
- Institut Pasteur
- IPHARMEX
- NCTLD – National Center Tuberculosis
- PATH
- Red Cross France
- The Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund)
- Wellcome Trust
- Zazakely Association

UNIVERSITIES & RESEARCH INSTITUTES

- Agence France Recherche Nord&Sud Sida-HIV Hépatites (ANRS)
- Agence nationale de la recherche (ANR)
- Institut de Recherche pour le Développement (IRD)
- Lyonbiopôle
- Oxford University
- Université de Genève

INDUSTRY & COMPANIES

- bioMérieux
- Cepheid
- GFA Consulting Group
- GlaxoSmithKline Biologicals (GSK)
- Institut Mérieux
- Janssen Vaccines & Prevention (JNJ)
- Merck/MSD
- Pfizer
- Roche
- Sanofi Pasteur
- Serum Institute of India
- Shearman & Sterling
- Société M.B.D.
- Takeda
- Thermofisher

*deceased on February 18th, 2022.

* until August, 26th, 2021.

2021 ACCOUNTS & KEY FIGURES

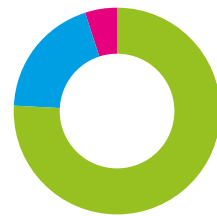
BALANCE SHEET

ASSETS (K€)	NET DEC. 31, 2021	NET DEC. 31, 2020
FIXED ASSETS		
Intangible fixed assets	1158	1431
Property, plant and equipment	4536	4266
Investments and other financial assets	38 541	37 310
TOTAL	44 235	43 007
CURRENT ASSETS		
Accounts receivable	952	708
Other receivables	17 560	18 860
Marketable securities	38 600	40 600
Cash and cash equivalents	22 441	22 096
Prepaid expenses	4 591	3 038
Unrealized exchange losses	2	7
TOTAL	84 146	85 309
TOTAL ASSETS	128 381	128 316
LIABILITIES AND FUND BALANCE (K€)	DEC. 31, 2021	DEC. 31, 2020
FUND BALANCE		
True endowment	68216	68216
Reserves	884	884
Retained earnings	9003	12806
Net income / loss for the period	6433	-3802
Other endowment	7	7
TOTAL	84 544	78 111
QUASI ENDOWMENT		
Allowance for contingencies	238	144
Funds reserved for future engagements	3 961	3 644
TOTAL	4 199	3 788
LIABILITIES		
Loans	5 010	5 476
Accounts payable	1 541	1 699
Tax and social debts	1 719	1 485
Investment payable	228	36
Other payable	4 318	2 787
Deferred income	26 819	34 933
Unrealized exchange gains	3	1
TOTAL	39 638	46 417
TOTAL LIABILITIES AND FUND BALANCE	128 381	128 316

INCOME STATEMENT

(K€)	ACTUAL 2021	ACTUAL 2020
INCOME		
Services revenue	165	106
Contributions	0	0
Income from third-party funders	20 310	16 905
Expenses refund	1 073	1 017
Other operating income	87	50
Uses of dedicated funds	3 644	2 040
TOTAL INCOME	25 280	20 118
EXPENSES		
External purchases and expenses	13 240	11 474
Financial aid	3 869	2 884
Taxes and duties	765	856
Salaries and social contributions	5 749	5 422
Depreciations	719	456
Dedicated funds carried over	3 961	3 644
Other operating income	102	49
TOTAL EXPENSES	28 404	24 783
OPERATING RESULTS	-3 124	-4 665
FINANCIAL INCOME		
Dividends	911	899
Other financial income	3 687	812
Reverse on financial allowances	324	56
Net income from marketable securities	5 000	828
TOTAL FINANCIAL INCOME	9 922	2 595
FINANCIAL EXPENSES		
Financial allowances	170	1196
Other financial expenses	118	413
TOTAL FINANCIAL EXPENSES	288	1609
FINANCIAL RESULTS	9 634	986
EXCEPTIONAL INCOME		
Exceptional income	44	1
Exceptional reverse in allowances	-	-
TOTAL EXCEPTIONAL INCOME	44	1
EXCEPTIONAL COSTS		
Exceptional expenses	2	1
Exceptional allowances for contingencies	117	123
TOTAL EXCEPTIONAL COSTS	120	124
EXCEPTIONAL RESULT	-76	-123
Income tax	-	-
TOTAL INCOME	35 246	22 714
TOTAL EXPENSES	28 812	26 516
INTERMEDIATE BALANCE	6 433	-3 802

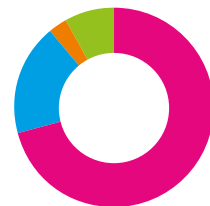
2021 ACCOUNTS & KEY FIGURES



BREAKDOWN OF EXPENSES

• Excluding provisions and exceptional expenses

Missions	76%
Administration	19%
International support	5%



BREAKDOWN OF EXPENSES BY STRATEGIC AREA OF FOCUS

• Excluding provisions and exceptional expenses

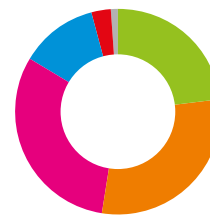
Diagnostics – Health Systems	71%
Applied Research	18%
Knowledge sharing	3%
Mother & Child Programs	8%



GEOGRAPHICAL SEGMENTATION OF ACTIVITIES

Africa	35%
Asia	23%
Europe ⁽¹⁾	23%
Madagascar	12%
Middle East	3%
Caribbean	3%
South America	1%

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



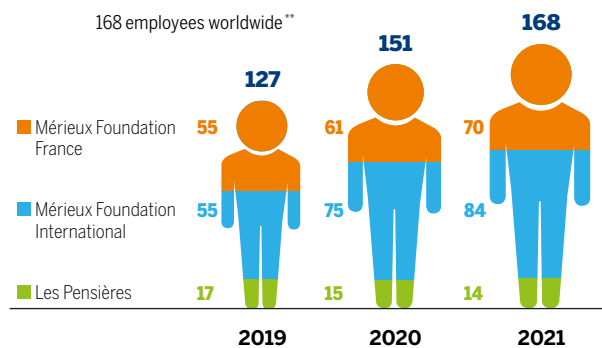
BREAKDOWN OF INCOME

Excluding dedicated funds, provisions and non-recurring items

Financial products & Real estate income	31%
Public partnerships	29%
Sponsorship	23%
Other private partnerships	12%
Fondation Christophe et Rodolphe Mérieux	3%
Other income/ operating revenues	1%
Donations and legacies	0%

CHANGES IN HEADCOUNT* AS AT DECEMBER 31, 2021

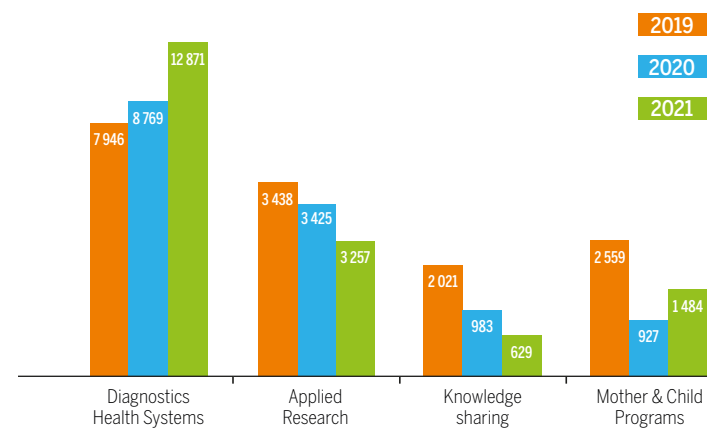
168 employees worldwide**



* Full-time equivalents
** Excluding interns, temporary employees

EVOLUTION OF EXPENSES BY STRATEGIC AREA OF FOCUS

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



Deloitte & Associés
Etablissement secondaire - Lyon
Immeuble Higazi
156 cours Charlemagne
CS 40207
69526 Lyon Cedex 02
France
Téléphone : +33 (0) 4 72 43 37 00
www.deloitte.fr

FONDATION MERIEUX

Fondation reconnue d'utilité publique
17 rue Bourgeat
69002 LYON

Statutory auditor's report on the financial statements

For the year ended 31 December 2021

To the Board of FONDATION MERIEUX

Opinion

In compliance with the engagement entrusted to us by your Board of Directors, we have audited the accompanying financial statements of FONDATION MERIEUX for the year ended 31 December 2021.

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 2021 and of the results of its operations for the year then ended in accordance with French accounting principles.

5 place de la République - 69002 Lyon La Défense Cedex - France
Téléphone : +33 (0) 1 40 93 28 00

Société par actions simplifiée au capital de 2 100 000 €
Régistree au Registre Commercial de Lyon au Tribunal de Commerce de Lyon
Société de Commerce au Capital inscrite au Répertoire des Sociétés de Commerce
SIREN 502 041 615
TVA : FR20 510 028 041
Une entité du réseau Deloitte



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 of the Treasurer 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 controls 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 Treasurer.

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.

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.

5 PLACE DE LA REPUBLIQUE - FONDATION MERIEUX - STATUTORY AUDITOR'S REPORT ON THE FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 DECEMBER 2021



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's Responsibilities for the Audit of the Financial Statements" section of our report.

Independence

We conducted our audit engagement in compliance with independence requirements of the French Commercial Code (code de commerce) and the French Code of Ethics (code de déontologie) for statutory auditors, for the period from January 1st, 2021 to the date of our report.

Justification of Assessments

Due to the global crisis related to the Covid-19 pandemic, the financial statements of this period have been prepared and audited under specific conditions. Indeed, this crisis and the exceptional measures taken in the context of the state of sanitary emergency have had numerous consequences for companies, particularly on their operations and their financing, and have led to greater uncertainties on their future prospects. Those measures, such as travel restrictions and remote working, have also had an impact on the companies' internal organization and the performance of the audits.

It is in this complex and evolving context that, 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 following assessments that, in our professional judgment, were of most significance in our audit of the financial statements of the current period.

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

The note "Accounting principles, methods and rules" to the financial statements sets out in particular the accounting rules and methods relating to the valuation of investments. As part of our assessment of the accounting rules and principles followed by your Foundation, we have verified the appropriateness of the accounting methods referred to above and the information provided in the notes to the financial statements, and have ensured that they are correctly applied.

5 PLACE DE LA REPUBLIQUE - FONDATION MERIEUX - STATUTORY AUDITOR'S REPORT ON THE FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 DECEMBER 2021



As part of an audit conducted in accordance with professional standards applicable in France, the statutory auditor exercises 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.
- 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, 21 June 2022

The Statutory Auditor

French original signed by

Deloitte & Associés

Arnaud de GASQUET

5 PLACE DE LA REPUBLIQUE - FONDATION MERIEUX - STATUTORY AUDITOR'S REPORT ON THE FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 DECEMBER 2021

KEY FIGURES

- **More than 50 years in the fight against infectious diseases**
- **4 areas of intervention**
- **25 countries where we work**
- **18 laboratories of excellence built or under construction, including 14 Rodolphe Mérieux Laboratories since 2004**
- **More than 70 laboratories renovated since 2005**
- **A network of 20 applied research units in 15 countries**
- **More than 30 scientific conferences hybrids or online**
- **168 employees in 15 countries**
- **An annual budget of over 24 million euros**



*Discover our
2021 annual report
online!*

PHOTOS

- AMEL ASSOCIATION
- ASSOCIATION FITIA
- FONDATION MÉRIEUX
- LES PENSÉES
- MAMOUNE PROD
- MARTIN GROSJEAN
- OLIVIA MÉRIEUX
- SAMUSOCIAL
- SANGO
- STUDIO BERGOEND

WRITING

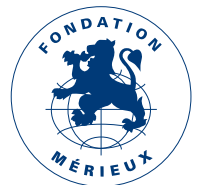
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17, rue Bourgelat
69002 Lyon • France
Tel: +33 (0)4 72 40 79 79
contact@fondation-merieux.org
www.fondation-merieux.org