



VaxInlive 2024

Novel Vaccine Technologies
26th of April, Antwerp



BOOKLET

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VaxInlive Symposia

VaxInlive Symposia serve as a dynamic discussion platform providing an opportunity to passionate researchers from all around the globe to get engaged in scientific discourse. VaxInlive 2024 is a continuation series of Symposia (2013, 2014, 2015, 2018, 2019, 2021, and 2022), which was conducted in the context of the LIVE (Leading International Vaccinology Education) Master Erasmus+ Mundus Joint Master's Degree. The 1st promotion of LIVE started in September 2016. As a living story of VaxInlive symposia, the VaxInlive 2024 symposium is an initiative to build a collaborative discussion platform for Researchers and Vaccinologists across the globe to induce exciting exchanges of knowledge about infectious diseases and vaccines. VaxInlive symposium is an amalgamation of the efforts towards breaking the barriers and putting forth the scientific expertise to engage researchers from different nationalities. Similar to one of the objectives of Master LIVE, which focuses on the idea of breaking boundaries by recruiting students from all over the world with different nationalities. VaxInlive organizing committee is a group of enthusiastic and passionate scientists who are motivated to expand knowledge by bringing worldwide expertise on one platform

VaxInlive 2024 Local organizing committee

Prof. Peter Delpitte, PhD, Chair (Professor of Virology and Vaccinology, University of Antwerp), drs. Sara Van Looy (Master LIVE Alumni, PhD - Assistant FBD, Local Master LIVE Advisor) and Naomi De Roeck (LIVE assistant, Labtechnician LMPH)

VaxInlive 2024 International committee

Prof. Christine Delprat (UCBL); LIVE master coordinator, Prof. Thomas Stratmann (UB), Prof. Carme Roura Mir (UAB), Prof. Dolores Jaraquemada Pérez de Guzmán (UAB), Prof. Stéphane Paul (UJM); Coordinators LIVE Master, Daria Chirita; LIVE assistant.

Detailed information is published on the website of the VaxInlive 2024 symposium:

<https://www.uantwerpen.be/en/conferences/vaxinlive-symposium-2024/>





Master LIVE

LIVE (Leading International Vaccinology Education) is a two-year dynamic and multidisciplinary Joint Master Degree co-organized by five European universities bringing forward their technical and diverse teaching expertise together and awarding a distinctive Master degree of excellent quality: Universitat Autònoma de Barcelona (ES), Universitat de Barcelona (ES), Universiteit Antwerpen (BE), Université de Saint-Etienne (FR) and Université Claude Bernard Lyon 1 (Coordinator, FR). The programme welcomes experts in the field of Vaccinology to gather and train the future generation of Vaccinologists. Academic internationality is enriched by a worldwide network of academic universities from Brazil, China, Europe and USA and a worldwide network of Associated Partners from the whole working chain in vaccinology. 25 LIVE students are recruited each year among more than 1500 registered applicants from 108 nationalities in 2023. During their studies, their mobility involves three different countries helping them to expand their vision and passion. It provides an ideal opportunity for them to learn foreign languages, English being the language of instruction of the LIVE Master. LIVE programme provides students with an advanced understanding of Immunology, Infectiology, Vaccinology, but also legislation, health policy and humanities around Vaccinology to prepare students for a professional international career and/or continuation with PhD studies. This degree opens a wide array of career opportunities where the graduates can choose a career in big pharma, vaccine manufacturers or in small and medium enterprises specialized in research and development of vaccines or in public organizations dealing with public health policy / clinic / research on vaccines. Graduates are also well prepared for doctorate research in PhD programs.

The Master live is co-funded by:



The Universitat Autònoma de Barcelona, Universitat de Barcelona, Universiteit Antwerpen, Université Jean Monnet de Saint Etienne and Université Claude Bernard Lyon 1 (Coordinator),



the European commission (EACEA), thanks to the Erasmus+ Mundus Joint Master Degrees (EMJMD) label of excellence,



Sanofi Pasteur, Institut Mérieux, Fondation Mérieux, University of Paris-Est Créteil (UPEC), Vaccine Research Institute (VRI), The Vaccine and Infectious Disease Organization (VIDO), CRODA and Le CEA.

For more information, visit: [Associated Partners - LIVE \(masterlive-vaccinology.eu\)](https://www.masterlive-vaccinology.eu)

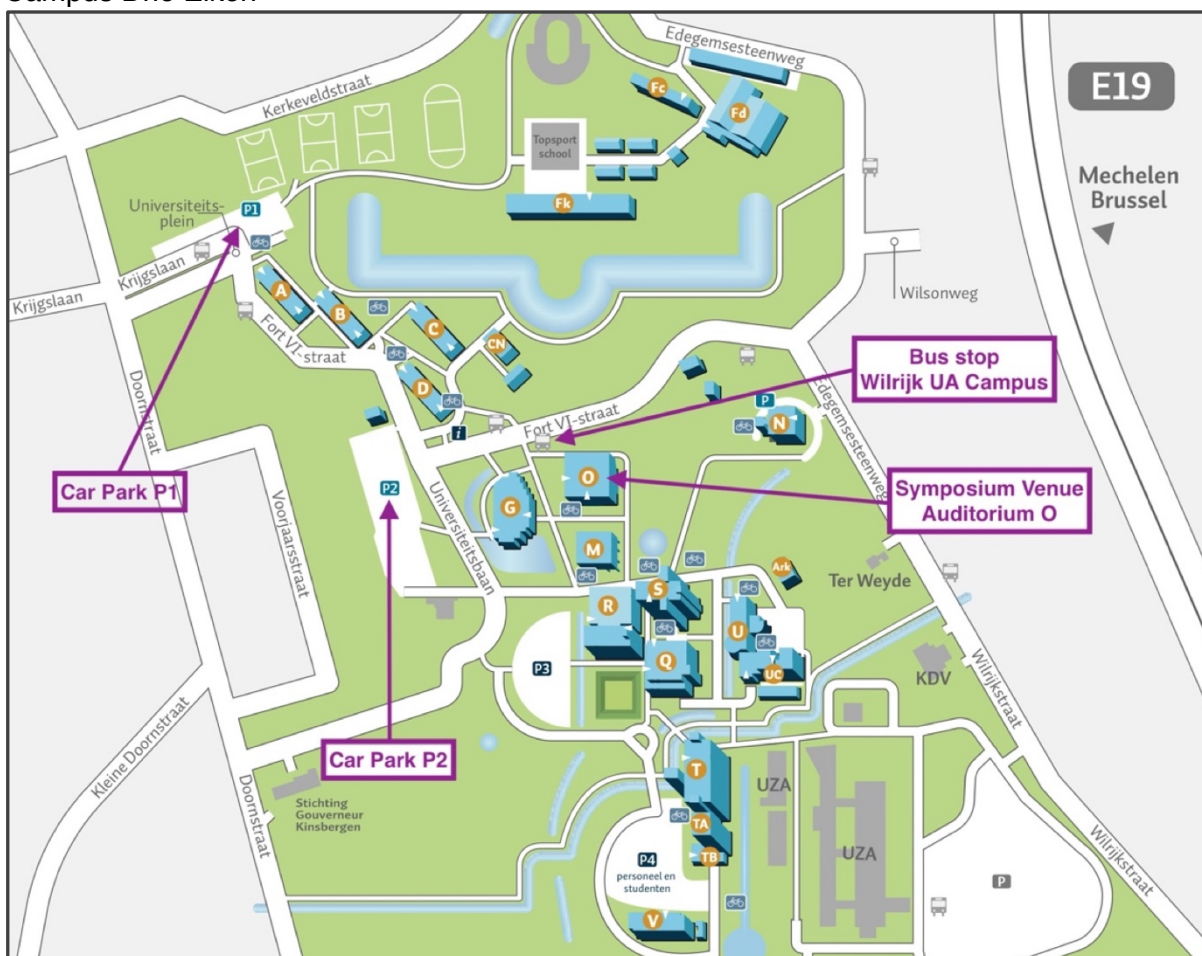
The venue

Symposium venue

University of Antwerp, Campus Drie Eiken (CDE)
Auditorium O.5, 1st floor
Universiteitsplein 1
2610 Antwerpen
BELGIUM



Campus Drie Eiken



Reaching the symposium venue

By car

- Use “Universiteitsbaan 210, Antwerpen” as destination in your car navigation system.
- Park in car park P2. If P2 is full, you can park at P1 (Universiteitsplein 1).
- Auditorium O on the campus is a 5-minute walk from parking P2.

By train

- You can also take a train directly to Antwerp Centraal
- To book in advance; [SNCB official website - Buy your train tickets online \(belgiantrain.be\)](http://www.belgiantrain.be)
- Subsequently, follow the guidelines of ‘arriving by bus’ (see below) to the symposium venue.

By bus

- The only bus going to the campus is bus 17
- Details on Bus number 17 can be found at this link: <http://bit.ly/BusLine17>
- Leave the bus at stop ‘Wilrijk UA Campus’ (sometimes called stop ‘Fort VI-straat’).
- Building O on the campus is a 2-minute walk from the bus stop.
- For tickets, please refer to section; Local Public Transport.

By Taxi

- Book a taxi in advance through; Boek uw taxi in Antwerpen | Reserveer uw taxi online | Antwerp-Tax
+32 3 238 38 38
- This journey could averagely cost 30€.

Starting from Brussels Airport

By Shuttle bus

- There is a direct bus shuttle available from Brussels Airport (BRU) to Antwerp Centraal Station.
- The airport express bus leaves every two hours, and you can buy tickets either via the following link; [Luchthaven vervoer Antwerpen - Zaventem | Shuttle luchthaven \(airportexpress.be\)](http://www.luchthavenvervoerantwerpen-zaventem.be) or on the bus through cash/card.
- One journey costs 10€. Just follow the exit/bus stop signs on the airport to reach your stop.
- Subsequently, follow the guidelines of ‘Arriving through bus’ to reach the symposium venue.

VaxInlive 2024 Program

April 26th, 2024 Afternoon 12:15-18:30



Co-funded by the
Erasmus+ Programme
of the European Union

12.15: welcome with lunch – networking

Opening of the symposium
Prof. dr. Peter Delpitte, chair of the symposium

SESSION 1 – CHAIR Prof. Thomas Stratmann

13.20: Setting the 'vaccine supply chain' scene: How innovations in vaccine development reshape the supply chain into an e-commerce alike full distribution ecosystem (Duo presentation)

Prof. dr. Roel Gevaers (University of Antwerp and Antwerp Management School; Chair of the Pharma Logistics Masterclass
Frank Van Gelder, Secretary-General Pharma.Aero

13.45: Multiple antigen presenting system (MAPS): state of the art and applications for bacterial vaccines
dr. Florence Strubbe, GSK Vaccines

14.05: Developing a next generation rabies vaccine with artificial intelligence

Prof. dr. Pieter Meysman, Department of Informatics, University of Antwerp, and Chief Technology Officer, ImmuneWatch

14.25: Pneumococcal vaccines: added value and future challenges

Prof. dr. Heidi Theeten, University of Antwerp

14.45: coffee break

SESSION 2 – CHAIR Prof. Stéphane Paul

15.30: Diving deeper to uncover the possibilities of self-amplifying RNA

dr. Katrien Poelaert, Ziphilus Vaccines

15.50: Vaccine confidence project

Greet Hendrickx, University of Antwerp

Prof. dr. Emilie Karafillakis, London School of Hygiene and Medicine, University of Antwerp

16.15: Elucidating Vaccine-Induced B-Cell Responses through BCR Repertoire and Single Cell Analyses

dr. Bart Cuypers; Senior Data Scientist, Vaccine Immune Informatics, GSK

16.35: New approaches for vaccines against human parasitic diseases

Prof. Alvaro Baeza Garcia, Department Biomedical Sciences, University of Antwerp

16.55: Systemic and mucosal immune responses to SARS-CoV-2 following infection and vaccination

Dr Stephanie Longet, Pathophysiology and biotherapies of mucosal infections (GIMAP), University of Saint-Etienne

Closure of the symposium

Prof. dr. Christine Delprat, Coordinator LIVE master programme

17.30: Reception and networking

VaxInlive 2024 Speakers

Prof. dr. Roel Gevaers



Prof. dr. Roel Gevaers is a professor at the University of Antwerp and the Antwerp Management School and he is also guest lecturer at several other international universities.

His focus research areas are last mile logistics, eCommerce logistics, pharma logistics and Supply Chain Management. He is the Chairman of the yearly Pharma Logistics Masterclass as well as the Chairman of the Urban Logistics zero-emission Topteam for the Flemish Government.

Roel Gevaers strongly believes in and supports collaborations and strong relations between business and academic research in last mile, eCommerce, and pharma supply chains to support knowledge sharing.

Frank Van Gelder



Frank has been active in different industries related to healthcare, ATMP, and supply chain for Life Science and Medtech industries. As a senior consultant he guides numerous projects related to critical supply chains, IT health applications, and medical educational projects. With a background in health care and being active for 15 years specifically in organ & cell clinical transplantation programs and clinical patient research, Frank started his freelance career involved in the quality improvements of critical supply chains of high-sensitive products by air. He is especially involved in digital solutions increasing transparency and acceleration of knowledge, where recently he became directly involved in Immersive Learning developments through Virtual Reality Experiences, and this in relation to clinical training programs in acute and intensive care settings.

He holds different leadership positions such as the position of the Secretary General of Pharma.Aero VZW, a non-profit organisation, working cross industrial to foster worldwide collaboration within the Life Science and Medtech airfreight industry, and recently he took up the Managing Director's position of GLC Medical International, an R&D and Medical Device Infection diagnostics company, using a groundbreaking new technology for infectious disease preparedness and surveillance. He is a guest teacher at the University of Antwerp and the Antwerp Management School. He is co-chair and co-founder of the Pharma Logistics Masterclass (PLMC). He believes strongly in disruptive and innovative approaches in which he favours training and education as keys to success to ensure acceleration of human skills as the essence to success.

Dr. Florence Strubbe



Florence Strubbe completed her Master's in Biomedical Sciences at the University of Ghent in 2012 and earned a Master's in General Management from Vlerick Business School in 2013. She began her career at GSK in 2013, participating in the R&D Vaccine leadership program with rotations through Clinical Operations, Regulatory Affairs, Finance, and Global Medical Affairs, focusing on MMRV and Rotavirus vaccines. From 2016 to 2019, she served as a global medical affairs manager in the United States, concentrating on meningococcal vaccines and playing a key role in promoting and increasing the uptake of the 4CMenB vaccine in the US and Europe.

In 2020, Strubbe transitioned to BeLux, assuming the role of Medical Affairs Lead for vaccines, where she is recognized for her strategic approach to medical development, collaboration with vaccine experts, and commitment to evidence-based public health advocacy.

Prof. dr. Pieter Meysman



Prof. dr. ir. Pieter Meysman is an associate professor at the University of Antwerp, Belgium at the ADREM data lab and leads the immunoinformatics activities of the AUDACIS consortium. He graduated as a PhD in bioscience engineering from the KULeuven in 2012 and has published more than 90 research articles and patents. His research has directly resulted in two university spin-offs of the University of Antwerp and Antwerp University Hospital, namely Innocens and ImmuneWatch. He is active in the latter as the part-

time CTO to oversee technology transfer from the university to ImmuneWatch, which develops novel AI technologies to aid in vaccine development.

His main research focus is on the use of artificial intelligence to gain understanding into the adaptive immune system. To this end, he has supervised the development of several immunoinformatics tools to handle complex immunological data, including TCRex, ClusTCR and ImRex. He has won a number of awards for his research into the human T-cell receptor repertoire, including the GSK Vaccines award.

Prof. dr. Heidi Theeten



Heidi Theeten, is a distinguished scholar and professor at the University of Antwerp, renowned for her expertise in vaccine evaluation and infectious disease research. With a Doctorate in Medicine, Heidi has dedicated her career to advancing our understanding of immunology and vaccine efficacy.

Currently serving as a professor in the Faculty of Medicine at the University of Antwerp, Heidi plays a pivotal role in shaping the next generation of healthcare professionals. In addition to her academic responsibilities, Heidi is actively engaged in research at the Center of Evaluation of Vaccines, where she leads pioneering studies on vaccine development and evaluation.

Dr. Katrien Poelaert



Dr. Katrien Poelaert is a veterinarian by training and obtained her PhD in Veterinary Sciences in 2019 at the Laboratory of Virology, Faculty of Veterinary Medicine (Ghent University, Belgium) under the supervision of Prof. Nauwynck. She was granted a fellowship of the Belgian American Educational Foundation (BAEF) to start a post-doctoral research project at Fox Chase Cancer Center (Philadelphia, Temple University, USA) focusing on measles virus spread and dormancy in the central nervous system.

After this stay in the USA, she joined the research group of Prof. van Kuppeveld at Utrecht University to study the neuropathogenesis of non-polio enteroviruses (Enterovirus D68). In October 2021, she moved to industry and joined Ziphius (a start-up pharmaceutical company located in Merelbeke, Belgium) as a Senior Scientist. She is leading the prophylactic products program of Ziphius, focusing on the vaccine development.

Greet Hendrickx



Greet Hendrickx, a seasoned professional in the field of biomedical sciences and vaccine advocacy, embarked on her journey after completing her studies as a Biomedical Engineer and a postgraduate in Biotechnology and Biomedical Sciences. After 18 years working at Innogenetics, she transitioned to a pivotal role as a Senior Project Coordinator within VAXINFECTIO at the Centre for the Evaluation of Vaccination, University of Antwerp. Here, she spearheaded the executive secretariat of two distinguished European expert boards, namely the Viral Hepatitis Prevention Board and the Adult Immunization Board.

As a cornerstone of the European Hub of the Vaccine Confidence Project, Greet has been at the forefront of bolstering public trust in vaccination. Her recent endeavor as the team lead for the CONFIVAX team underscores her commitment to consolidating multidisciplinary research and expertise on vaccination attitudes.

Prof. dr. Emilie Karafillakis



Dr Emilie Karafillakis, is an Assistant Professor and the European Director of the Vaccine Confidence Project at the Vaccine Confidence Project™, at the London School of Hygiene & Tropical Medicine and the University of Antwerp. She is a senior social scientist with more than 10 years of experience in international research and teaching in academia.

With a background in public health, infectious disease control, and health systems and policies research, her work focuses on understanding individual and group beliefs, attitudes and confidence in health interventions and assess how these can influence public health control measures and health promotion strategies, including vaccination. She has extensive experience on issues of vaccine confidence in Europe, including among parents, adolescents, pregnant women and healthcare professionals.

Dr. Bart Cuypers



Dr. Bart Cuypers is Senior Data Scientist in the GSK Vaccine Immune Informatics team. With a focus on leveraging high-throughput B- and T-cell repertoire data, he specializes in enhancing understanding vaccine-induced immune responses. His work is central to the team's mission of advancing vaccine projects by exploring the complex relationship between antigen exposure and immune response. Dr. Cuypers studied Cell & Systems Biology at the University of Antwerp.

He obtained a PhD and conducted post-doctoral research at the University of Antwerp Adrem Data Lab & the Institute of Tropical Medicine, building expertise in multi-omics, bioinformatics, reverse vaccinology, and infectious diseases.

Prof. dr. Alvaro Baeza Garcia



Alvaro Baeza Garcia is an Assistant Professor in the Parasitology group of the LMPH at the University of Antwerp. He carried out his PhD thesis at the Institute Pasteur of Lille on the vector immune responses against *Schistosoma*, leading to the first functional characterization of a cytokine in the invertebrate immune responses against parasite infection. He was a postdoctoral fellow at Yale University in Prof Bucala's laboratory, where he led the first study using RNA vaccines against Malaria.

After a second postdoc at Inserm in France on T-cell responses against cancer, he recently joined the University of Antwerp. Here his research focuses on the role of pro-inflammatory factors expressed by parasites and hosts in regulating T and B cell immune responses against parasitic infections to design better therapeutic interventions. He is currently exploring the use of new vaccine platforms to target parasitic diseases such as Malaria and Leishmaniasis.

Dr. Stephanie Longet



Dr. Stephanie Longet is an Assistant Professor of Immunology at the University of Saint-Etienne in France. During her PhD project at the University of Lausanne and her 5-year postdoctoral experience at Trinity College Dublin, her work focused on passive and prophylactic oral vaccine strategies to induce protective immune response at intestinal level using *in vitro* and preclinical models.

During her 4-year postdoctoral experience at Public Health England and at the University of Oxford, she was strongly involved in the characterisation of systemic and mucosal adaptive immune responses in preclinical models and humans following SARS-CoV-2 infection and/or COVID-19 vaccination. In March 2023, she joined the University of Saint-Etienne as an Assistant Professor. Her current research interests are the development of nasal vaccine strategies against viral infections and the characterisation of mucosal memory immune responses including tissue-resident memory responses in the respiratory tract.

General information

Registration Desk

A registration desk will be open at the conference venue to pick up your conference materials and badge upon arrival. Registration will be completed within 12:15 – 13:10.

Conference Badges

Name badges (speakers and local committee) or name labels (visitors) are required for all sessions, meal functions and receptions. Please cooperate by wearing your badge at all times.

WiFi access

All guests of VaxInlive 2024 Symposium can connect to free WiFi provided on campus. On the day of 26th April, guests can browse to www.guestroam.be to connect to WiFi. Please choose 'Universiteit Antwerpen' as the Institute, and then 'Universiteit Antwerpen Wifi for one day' as the Department. After accepting the policy disclaimer, you will receive a validation code and then the credentials to connect to WiFi.

Legal Disclaimer: This network may only be used for legal purposes. Users must make sure their equipment is in no way a threat to the proper operation of other networked devices (virus-free). Some applications (e.g. P2P networks) are excluded from use on the UA network. If you will use such applications, your device will be quarantined for at least one hour. This means that during this period no connection can be made to the internet. Take care: some download programs (characterized by contacting a lot of hosts in a limited period) can be seen as a P2Pclient and can trigger the device to be quarantined. The use of this network is at your own risk. The University of Antwerp is not responsible for any damage to your device by using the UA network.

Host information desk

Local organising committee members will be available to answer questions you may have regarding local sites, restaurants, and to provide logistic information.

Emergency telephone numbers

Fire, medical emergency or ambulance

Call: 100 (free number)

In Belgium, local emergencies are organised under the free 100 number, which can be called for any accident or emergency to connect you to an operator who will arrange assistance and contact the emergency services. It works similar to 112 except that you need a SIM if you call via mobile (unlike 112).

Police

Call: 101 (free number) | www.police.be

EMJMD LIVE Main Partners

The Universities of Spain



UNIVERSITAT DE
BARCELONA

Under the motto “The Audacity of Knowledge” during the 2017-2018 and 2018-2019 academic years the UAB celebrated its 50th

anniversary with different institutional and cultural events on the campus and the surrounding cities, with an emphasis on the milestones achieved over these fifty years. In parallel the university has also launched a strategic reflection process to define the vision of the university in the strategic lines of Horizon 2030. After 50 years of existence, the UAB has consolidated amongst the 200 best universities in the world within the main university rankings.

Closely linked to Barcelona and Catalonia, the University of Barcelona combines traditional values with innovation, quality and inclusion. The University of Barcelona has sixteen faculties, ten affiliated centres and a doctoral school through which all its academic programmes are run. It also has a Science Park, a Science and Technology Centre service, seventeen research institutes, over five hundred research groups and nearly six thousand researchers. The University of Barcelona has the mission to provide a public service for higher education, with the highest level of quality, through study, teaching, research and effective management of knowledge transfer. The UB’s values are derived from the principles set out in its Statutes, which are shared by the entire university community: freedom, democracy, justice, equality and solidarity.

<https://www.uab.cat/>

<https://web.ub.edu/web/ub/>



Universiteit
Antwerpen

The University of Antwerp

The University of Antwerp is a young, dynamic and forward-thinking university. It integrates the assets of its historical roots with its ambition to contribute positively to society. The University of Antwerp develops, provides access to and disseminates scientific knowledge through research, teaching and academic service to the community and accomplishes these tasks in a spirit of academic freedom and responsibility. The University of Antwerp espouses active pluralism. In that spirit, it stimulates critical research and teaching, reflection and debate on scientific, social, philosophical and ethical questions. Our university has nine faculties, a host of centres and institutes, several decision-making and advisory bodies and eleven central departments. The University of Antwerp has almost 5,000 members of personnel in various layers, organised according to basic academic and administrative structures. The University of Antwerp does not operate alone. We have close ties with Antwerp University Hospital (UZA), Antwerp Management School (AMS) and other higher education institutions in Antwerp that belong to the Antwerp University Association. These relationships and our partnerships with the City of Antwerp and the port continuously create win-win situations. Our university is embedded in an extensive socioeconomic network, which ensures that we are engaged in intensive dialogue with society.

[UAntwerp | University of Antwerp \(uantwerpen.be\)](http://uantwerpen.be)

The Universities of France



UNIVERSITÉ
JEAN MONNET
SAINT-ÉTIENNE

Université Claude Bernard



Lyon 1

The Université de Lyon is located at the heart of the Auvergne-Rhône-Alpes region, in Lyon & Saint-Étienne and represents the most important French University site outside the

Paris Region. The Université de Lyon is a world-class academic site of excellence composed of 12 member institutions including the Université Claude Bernard Lyon 1 and the Université Jean Monnet de Saint-Etienne, 154,000 students, 6,800 researchers and teacher-

researchers, 17 doctoral schools, 5,400 PhD students, 1,000 theses defended each year. The University of Lyon obtained the label "Initiative of Excellence / Initiative d'excellence (IDEX)" in 2017 to develop three major axes, which are in resonance with the socio-economic assets of our territory: Humanities and Urbanity, Sciences and Engineering, BioHealth and Society. The Université de Lyon provides several programs that aim to help strengthen entrepreneurship and innovation in Lyon and Saint-Étienne: The PEPITE Beelys to support students in projects setting up or taking over companies; The Innovation Factory, to use the university's talents in the creation of start-ups and local companies; The SATT PULSALYS (Technology Transfer Acceleration Company), to develop research findings at the Université de Lyon and to promote their transfer to socio-economic sectors; Doctor'Entreprise, to bring together companies, research laboratories and PhD students. To expand abroad and welcome talents from abroad, the International Alliance of the Université de Lyon is an integrated platform for research and training involving ten universities spread over 5 strategic geographical zones (Brazil, Canada, China, Japan, Europe). A keystone to our education policy, the Université de Lyon offers 20 IDEXLYON-labelled Master's programs that are jointly organized by several institutions, and grant accredited diplomas. With strong international focus, these Master's programs, including the EMJMD LIVE, are part of our 140 Master's degrees. Its ambition is to make from the «university » – in the broad sense – an active player and contributor to the development of the society.

<https://www.universite-lyon.fr/recherche/>

<https://www.univ-lyon1.fr/>

<https://www.univ-st-etienne.fr/fr/index.html>

EMJMD LIVE associated and supporting partners



Founded in 2011 by Innate Pharma and Transgene (formerly Platine Pharma and Services, then ABL Lyon), our company is a leader in soluble and cellular biomarker analysis in the context of clinical trials. We



offer expert services to advance innovative therapies from pre-clinical to clinical testing. In 2014, Platine Pharma services was acquired by ABL Inc, a global contract manufacturing and laboratory research service provider, a full subsidiary of Institut Mérieux. In 2020, alongside its senior managers, Turenne Santé acquired our company, creating a new entity named Active Biomarkers. In September 2022, Active Biomarkers joined KCAS, adding

its European capacity and expertise to KCAS and FlowMetric's existing facilities in Kansas, Philadelphia and Milan, Italy. Active Biomarkers' team has decades of experience in immunological-based assays. We develop tailored assays to support human clinical trials and pre-clinical animal studies. Our everyday mission is to design and run bioanalyses to help our clients better understand the impact of their cutting-edge therapies, document the mechanisms of action, correlates of protection, pharmacokinetic / pharmacodynamic, and other critical safety and efficacy data. Since 2011, Active Biomarkers is accredited for French research tax credit (CIR).

<https://active-biomarkers.com/>



AMAL Therapeutics (AMAL) is a biotech, developing unique therapeutic vaccines and a distinct unit of the Discovery Research organization of the Boehringer Ingelheim group of companies.

Their aim is to overcome the challenges around effective anti-cancer therapy by stimulating a patient's immune system in a unique way, in order to create immunological memory, as well as target a broad range of patients. They have developed KISIMA®, a novel peptide/protein-based immunisation technology platform, which is self-adjuvanting and enables the assembly within one chimeric fusion protein of three elements essential to generate potent immunity: a proprietary cell-penetrating peptide for antigen delivery, a proprietary TLR- peptide agonist as adjuvant and a modulable multi-antigenic cargo that can be tailored for various indications. While the power of KISIMA® can be harnessed to discover and develop therapeutic vaccines for different indications, their vision is to transform the prospects of cancer patients. They aim to offer effective cancer therapies by complementing existing standards of care (e.g., chemo-and radiotherapies) without adding to their known toxicities, and by working in synergy with them, including with immune-checkpoints inhibitors. ATP128, their lead program in metastatic colorectal cancer has entered into the clinic in July 2019.

<https://www.amaltherapeutics.com/>



Bavarian Nordic is a fully integrated vaccine company focused on the development, manufacturing and commercialization of life-saving vaccines. By 2025 we aspire to be one of the largest pure play vaccine companies, improving and saving lives by excelling in R&D innovation, manufacturing and commercialization. We develop innovative life-saving vaccines: We have a strong heritage in vaccine development and with a proven technology, we continue to make innovations to help fight existing and emerging diseases. We are the best-in-class vaccine manufacturer: We are experts in live virus vaccine manufacturing and with the recent addition of fill and finish capabilities we have enabled end-to-end commercial-scale manufacturing. We are driven by commercial excellence: We have established a commercial infrastructure with presence in key markets in Europe and the USA to drive profitable growth of our expanding portfolio of vaccines.

<https://www.bavarian-nordic.com/>



Baylor College of Medicine is a health sciences university that creates knowledge and applies science and discoveries to further education, healthcare and community service locally and globally. Tropical medicine is the study of the world's major tropical diseases and related conditions, which include a group of 17 neglected tropical diseases (sometimes referred to as 'NTDs') such as hookworm infection, schistosomiasis, river blindness, elephantiasis, trachoma, Chagas disease, Buruli ulcer, and leishmaniasis, as well as HIV/AIDS, tuberculosis, and malaria. The field also includes related disorders in malnutrition and even some non-communicable diseases. The National School of Tropical Medicine (NSTM) at Baylor College of Medicine is the only school of tropical medicine in the United States solely committed to addressing the world's most pressing tropical diseases that disproportionately afflict "the bottom billion," the world's poorest people who live below the World Bank poverty level. NSTM has a nationally and internationally recognized robust educational programs focused on Neglected Tropical Diseases and Infections of Poverty. Together with faculty from the Section of Pediatric Tropical Medicine in the Department of Pediatrics and faculty from other key departments, centers and schools within Baylor College of Medicine and the Texas Medical Center, the school continues to build infrastructure capacity for education focused on Neglected Tropical Diseases and Infections of Poverty in the United States and globally.

www.bcm.edu



BIOASTER is a Technological Research Institute created in April 2012 by Institut Pasteur and Lyonbiopole at the initiative of the French government and private life science companies. BIOASTER is a not-for-profit scientific cooperation foundation dedicated to microbiology and infectious diseases, tackling diseases linked to or caused by bacteria, viruses, parasites, and fungi. We offer a new approach to R&D, by integrating scientific and technological innovations through collaborations in applied translational science. By fostering multidisciplinary collaborations turned towards open innovation, BIOASTER accelerates the development of health products focused on patient needs. With an industry expertise in the fields of diagnostics, vaccines, antimicrobials, and microbiome development, technologies developed at BIOASTER encompass ad hoc complex pre/clinical studies, multi-omics analyses, microsystems, organ on a chip, cellular/molecular optical engineering, high content data integration and machine learning/artificial intelligence. Located in Lyon and Paris, BIOASTER has more than 100 employees including 80 world-class scientists and engineers originating from 16 different countries.
<https://www.bioaster.org/>



BioMérieux was created in 1963, but our roots go all the way back to the 19th century, with Marcel Mérieux, a student of Louis Pasteur. A family-owned company, bioMérieux has grown to become a world leader in the field of *in vitro* diagnostics. Our entrepreneurial adventure is driven by an unrelenting commitment to improve public health worldwide. We specialize in:

Clinical applications: We develop and produce diagnostic solutions that help healthcare professionals quickly and reliably determine a pathology or the source of a contamination and provide them with crucial information for optimal patient care.

Industrial applications: We also apply our expertise to meeting industrial microbiology needs, building innovative, precise technologies that ensure the quality and safety of food and pharmaceutical products.

The Company is present in 45 countries and serves more than 160 countries with the support of a large network of distributors. Beginning with Marcel Mérieux's development of the first anti-tetanus serum over a century ago, innovation has always been at the heart of bioMérieux. This pioneering spirit continues to drive our R&D teams that combine their state-of-the-art scientific knowledge with emerging techniques and new technologies to drive progress in pathogen detection and identification. bioMérieux develops high-performance solutions that are based on three key areas of *in vitro* diagnostics:

- Microbiology: we are the world leader in clinical microbiology and industrial microbiological control;
- Immunoassays: we are specialized in high medical value tests;
- Molecular biology: we are a pioneer and leader in the syndromic molecular diagnosis of infectious diseases.

<https://www.biomerieux.com/en>



Boehringer Ingelheim Animal Health is working on first-in-class innovation for the prediction, prevention, and treatment of diseases in animals. For veterinarians, pet owners, farmers, and governments in more than 150 countries, we offer a large and innovative portfolio of products and services to improve the health and well-being of companion animals and livestock. As a global leader in the animal health industry and as part of family-owned Boehringer Ingelheim, we take a long-term perspective. The lives of animals and humans are interconnected in deep and complex ways. We know that when animals are healthy, humans are healthier too. By using the synergies between our Animal Health and Human Pharma businesses and by delivering value through innovation, we enhance the health and well-being of both.

<https://www.boehringer-ingelheim.com/animal-health>



Founded in China in 2009, CanSino Biologics Inc. (CanSinoBIO) is an industry-leading biopharmaceutical company dedicated to providing global solutions for the prevention and treatment of infectious diseases through research & development, manufacturing and commercialization of innovative, high-quality and affordable vaccine products for human use. CanSinoBIO has been listed on the Main Board of Hong Kong Exchange and

Clearing Limited (HKEx: 6185.HK) and on the Sci-Tech Innovation Board (STAR Market, SHSE: 688185) of the Shanghai Stock Exchange, making it the first “A+H” dual-listed vaccine company in the history of China’s Science and Technology Innovation Board.

Our marketed products include: Convidecia®Air® [Recombinant COVID-19 Vaccine (Adenovirus Type 5 Vector) for Inhalation], Convidecia® [Recombinant Novel Coronavirus Vaccine (Adenovirus Type 5 Vector)], Menphecica® [Group A and Group C Meningococcal Conjugate Vaccine (CRM197 Vector)], Menhycia® [Group ACYW135 Meningococcal Conjugate Vaccine (CRM197 Vector)], and Ad5-EBOV. At present, the Company is developing and conducting clinical trials of several products including potential best-in-class and first-in-class vaccines in China and globally innovative and potential global best-in-class vaccines. CanSinoBIO has developed five key platform technologies, including viral vector-based technology, synthetic vaccine technology, protein structure design and recombinant VLP technology, mRNA vaccine technology as well as formulation and delivery technology. In addition, the Company owns a number of core intellectual property rights and proprietary technologies related to vaccine products. CanSinoBIO has established a rich portfolio of a pipeline products preventing more than ten diseases, including COVID-19, Ebola virus disease, tuberculosis, meningitis, pertussis, diphtheria, tetanus, shingles etc., and is participating in innovative R&D collaboration with multiple research institutions across the world.

We have constructed large-scale manufacturing bases in Tianjin and Shanghai, with a floor area of over 100,000 square meters. Both have been designed and constructed, and are operating in accordance with international standards to manufacture multiple novel vaccines. In addition, local filling production lines have been set up in Mexico, Pakistan, and Malaysia to establish joint manufacture. Our full-fledged marketing and supply system that covers China, Southeast Asia, the Middle East, Latin America, and other countries/regions ensures the rapid distribution of vaccine products across the world. As a leader in innovative vaccine R&D, we are deeply committed to the protection of global public health through the fulfillment of our social and international responsibilities, and the development and supply of high-quality vaccine products.

<https://www.cansinotech.com/>



Centre for the Evaluation of Vaccination
Vaccine & Infectious Disease Institute
University of Antwerp

The CEV is a multidisciplinary research group, participating on a regular basis in (inter)national scientific vaccine research. The available

expertise of the CEV holds a platform for conducting vaccine trials (phase 1-4) and is involved in policy research projects related to vaccination.

Research mission:

- Improve knowledge in several vaccine-related fields by performing different research projects, including clinical vaccine trials, epidemiological surveys and economic evaluations and infectious disease modelling.
- Spread knowledge on all aspects of vaccination by publishing results of the research projects, both through scientific and vulgarised publications, by offering teaching and training to (para)medical students and by organising vaccine-related courses to health care professionals.
- Support public health policy making, based on our expertise in Public Health, Youth Health, Social Medicine, Epidemiology, and Vaccinology.
- Support and help target vaccination policy and public health in Flanders, Belgium, and Europe, by written as well as oral communications.
- Offer consultancy services in vaccine-related fields, such as vaccine research, vaccine administration, vaccination programmes, and epidemiology of vaccine-preventable diseases.

<https://www.uantwerpen.be/en/research-groups/centre-for-evaluation-vaccination/>



The French Alternative Energies and Atomic Energy Commission (CEA) is a key player in research, development and innovation in four main areas: defence and security, low carbon energies (nuclear and renewable energies), technological research for industry, fundamental research in the physical

sciences and life sciences. Drawing on its widely acknowledged expertise, the CEA actively participates in collaborative projects with a large number of academic and industrial partners. The CEA is established in nine centers spread throughout France. It works in partnership with many other research bodies, local authorities and universities. Within this context, the CEA is a stakeholder in a series of national alliances set up to coordinate French research in energy (ANCRE), life sciences and health (AVIESAN), digital science and technology (ALLISTENE), environmental sciences (AllEnvi) and human and social sciences (ATHENA). Widely acknowledged as an expert in its areas of skill, the CEA is actively involved in the European Research Area and its international presence is constantly growing. The CEA is the only French research organization to be listed in the Clarivate 2020 ranking and is the leading French research organization filing patents in Europe, according to the European Patent Office (EPO) 2021 ranking.

<https://www.cea.fr/english>



The Pasteur Center of Cameroon (CPC) is a technical body of Cameroon's Ministry of Public Health, a hospital institution with financial autonomy and legal personality. It was established in 1959 in Yaounde; it has had an annex in Garoua (CPCAG) since 1985, and since 2004 it has had an office in Douala. The CPC is a member of the International Network of Pasteur Institutes (RIIP). Center

Pasteur contributes to the fight against disease and the promotion of health through the care of Cameroonian patients and the prevention of international health risks through the surveillance of endemic and epidemic diseases, scientific research and the training of health personnel.

Thus, this mission is divided into 3 strategic areas:

- To make available to the maximum number of Cameroonian patients and customers an offer in medical biology and in Hygiene and Environment at the lowest possible price; hence our slogan: "Excellence in biology accessible to all".
- To contribute to the fight against infectious diseases in Central Africa through biological and epidemiological surveillance activities,
- To establish national recognition and make the CPC an internationally recognized Scientific Research Institute.

Research Programs: HIV/AIDS, Hepatitis, Poliomyelitis, Human Influenza, Arbovirus, Tuberculosis, Buruli ulcer, Other programs...

www.pasteur-yaounde.org



The Cancer Research Center of Lyon (CRCL, UMR Inserm 1052 CNRS 5286 - Center Léon Bérard) is a research structure affiliated with the University Claude Bernard Lyon 1, the national health and research bodies (Inserm and CNRS), the Léon Bérard Comprehensive Cancer Center (CLB) and with the Lyon University Hospitals (HCL) as clinical partners. The CRCL was officially created in January 2011 and its 5-year contract was recently renewed for the 2016-2020 period. It comprises 24 teams, totalling over 480 members, including 138 researchers and lecturers. The CRCL aims at increasing its international visibility and the attractiveness of the Lyon cancer research cluster, at facilitating the transfer of knowledge from fundamental cancer research to clinical applications in oncology, and at developing teaching and training in oncology. One of the main goals of the CRCL is to support the development of strong translational research to enable patients to rapidly benefit from breakthroughs in basic research. This bridge from "bench to bedside" was rendered possible due to the strong collaboration between clinicians and pathologists of the CLB and HCL and scientific teams of the CRCL, creating a continuity between basic research and clinical applications.

<http://www.cnrs.fr/en>, <http://www.crcl.fr/>

The logo for Croda, featuring the word "CRODA" in white, uppercase letters on a dark green rectangular background.

Croda Pharma is a leading partner for the development of excipients and the supply of high purity materials for pharmaceutical formulations. The company is focused on empowering biologics drug delivery, through its vaccine adjuvant systems, small molecule, protein, and nucleic acid delivery platforms. With a wide range of solutions for both human and animal health markets, the pharmaceutical portfolio is unsurpassed in its excellence. Croda Pharma's products, along with its in-house formulation and regulatory expertise, allows the company to meet its customers' most demanding formulation needs. The company is committed to enabling the next generation of drug delivery systems. Leveraging over 80 years of expertise, Croda Pharma collaborates with vaccine manufacturers to tailor and develop optimal vaccine formulations using their excipients, lipids, and adjuvants. With an established portfolio of GMP and high-performance adjuvants, including Alhydrogel™ and Adjuphos™, the company also assists vaccine developers through lipids for the delivery of nucleic acid-based therapeutics. Their experts develop and manufacture high purity and innovative lipids to solve the stability and delivery issues associated with mRNA delivery and next-generation vaccines and therapeutics. Croda Pharma is on a mission to support the development of the novel adjuvants of tomorrow. The company is committed to making these adjuvants available for preclinical and clinical R&D programs, with both industrial and academic partners. Croda Pharma continues to expand its offering in innovative speciality excipients, vaccine adjuvant systems, and lipids. By enabling over 250 ongoing clinical projects, targeting a range of therapeutic areas including oncology, malaria, HIV, and diabetes, they strive to empower biopharma and improve lives across the globe. As a part of Croda, the company is dedicated to being the most sustainable supplier of innovative ingredients, becoming Climate, Land, and People Positive by 2030.

<https://www.croda.com/en-gb>



Dalhousie University was founded in 1818. Located in Nova Scotia, Canada (Mi'kma'ki) with four campuses in Halifax and Truro, and satellite locations in Yarmouth and Saint John, New Brunswick, our broad range of academic programs attract and retain a diverse mix of incredible students, scholars, researchers and staff who work together with interdisciplinary perspective and a focus on service. Our 13 academic Faculties expand understanding through teaching excellence and a drive for discovery that results in more than \$190 million in research funding each year. As Atlantic Canada's primary research-intensive university and a member of the U15 Group of Canadian Universities, our research and innovation includes world-leading researchers working in labs, studios and in the field. Building on our legacy of groundbreaking research and outstanding scholarship, we are focused on providing a unique, interactive and collaborative environment that supports all our students, instructors, researchers and staff to achieve excellence.

www.dal.ca/



Emlyon business school was founded in 1872 by the Lyon Chamber of Commerce and Industry. It is a private higher-education establishment recognized by the French State. It is one of the oldest business schools in Europe. Emlyon is among the 1% of global business schools to be accredited by the three international accreditation systems: AACSB, EQUIS and AMBA. As

such, it merits its status as a global-ranking school of business and management. The School hosts 9,020 students representing 125 nationalities in undergraduate and postgraduate programs, along with nearly 6,900 participants in executive education programs. The School counts six campuses around the world: Lyon, Saint-Étienne, Paris, Shanghai, Bhubaneswar and Mumbai. It draws on a network of 190 international academic partners and leads a community of 38,600 alumni in 130 different countries. Emlyon's distinctive academic signature early makers molds learning into a lifelong endeavor to have an impact on the world and offers a real alternative in its environment. It sees learning as not only a transfer of academic knowledge but also a "course of learning experiences" that equips students to forge a constant link between thought and action: "doing to learn, learning to do". Through these collective and individual learning experiences, emlyon has set out to train responsible managers capable of taking up the challenges of today and tomorrow. This general-interest calling lies at the heart of the school's identity and is written into its articles of association since July 2021 when it transitioned to the status of a benefit corporation.

Mines Saint Etienne is one of the most prestigious engineering schools in France and its mission is to support the economy by:

- Educating highly qualified managers with strong technical and scientific skills;
- Developing applied research to meet the needs of industry;
- Contributing to companies' innovation, creation & competitiveness worldwide.

Mines Saint Etienne's academic standing is committed to excellence, to a wealth of subject fields, and we desire to offer each student a curriculum tailored to his or her goals and the realities of the economic world. The MSc in Health Management and Data Intelligence is the outcome of the partnership between Mines Saint Etienne, a renowned engineering school, and emlyon business school, one of Europe's top business schools devoted to lifelong learning for entrepreneurial and international management. The two institutions joined forces and created this program in response to the health industry's need for future managers that will be able to master the specifics of operations disrupted by artificial intelligence impacts. With campuses in Lyon and Saint Etienne in Auvergne Rhône Alpes region, both institutions embody excellence in their domain, and foster an innovative learning environment for students.

<https://em-lyon.com/en>, <https://msc-health-data-intelligence.com/en>



The Centre for Research in Infectious Diseases (CIRI) is a joint research unit created in 2013 by Lyon 1 University, Inserm, CNRS and the ENS Lyon in partnership with VetAgro Sup, the Institut Pasteur and

the Hospices Civils de Lyon. The CIRI gathers the scientific and medical research communities with complementary disciplinary backgrounds grouped in 3 specialties working together with the objective to understand host-microbe interactions to better fight infectious diseases. Through a multidisciplinary approach combining microbiology (bacteriology and virology), immunology, cell biology, clinical research and epidemiology, plus a strong interface with the industry, the CIRI intends to be a research Centre opened to therapeutic innovation and to act a major player in the areas of medical prevention and treatment of infectious diseases. The CIRI is meant to implement an essential further step of the development of the research in Infectiology in Lyon through a highly structured co-operation between academic and clinical research communities, on the Charles Mérieux campus. It will play a pivotal role by structuring the interactions between academic and private research, and by promoting socio-economic opportunities through strong partnerships with operators involved in the innovation or pre-industrial development, including the Lyon Biopôle and the IRT BioAster. The CIRI will thus constitute a strong interface with industry, with increased collaborations with key actors in the domain of human and animal health on the Lyon area and optimal potential for valorization of results. The CIRI currently includes nearly 300 researchers, faculty members, graduate students, engineers and technicians in ca. twenty teams that have been enrolled because of their strong expertise in key basic disciplines for the study of infectious diseases (i.e., microbiology, immunology and cell biology) and also of their capacity or specific interest to translate novel knowledge, of scientific or technological nature, in translational research programs and applied research.

<http://www.ens-lyon.fr/en/>, <https://ciri.ens-lyon.fr/>



The European Vaccine Initiative (EVI) is a European non-profit Product Development Partnership (PDP) that supports the development of safe, effective and affordable vaccines against diseases of poverty and emerging infectious diseases, through collaboration and coordination. With more than 200 partners worldwide, EVI uses the power

of collaboration, innovation, open science, partnerships, and advocacy to move vaccines forward. EVI's portfolio and activities are diverse. Since its inception in 1998, EVI has collaborated in the development of more than 40 vaccine formulations against diseases like malaria, leishmaniasis, Zika virus and diarrhoeal diseases, 9 of which progressed into mid-stage clinical development. EVI is also supporting vaccine development through cross-cutting projects ranging from the development of non-animal approaches for vaccine quality control testing and assay harmonisation, to the establishment of a sustainable European vaccine infrastructure that can accelerate vaccine development across several disease areas, among many other projects and activities. We undertake training and support capacity strengthening for vaccine R&D in both Europe and low- and middle-income countries. We aim to spearhead global vaccine development efforts by engaging with partners from academia and other research institutions, the private sector, governments and civil society organisations, including partners from low- and middle-income countries affected by diseases of poverty.

<http://www.euvaccine.eu/>



The University of Florence is an important and influential centre for research and higher training in Italy, with 1,800 lecturers and internal research staff, 1,600 technical and administrative staff, and over 1,600 research assistants and doctoral students. It offers a wide range of study programmes at various levels and in all areas of knowledge. Over 140 Degree courses (First and Second Cycle, corresponding to Bachelor's and Master's Degrees) organised in 10 Schools, with a population of about 51,000 enrolled students, one-fourth of which come from outside of Tuscany. There are over 9,000 degrees awarded each year in Florence. According to the alumni data, the percentage of students who are in the workforce one year after their First Level degree is above national average. The University of Florence has a natural international vocation and the development of internationalization is one of its strategic priorities. It is one of the largest and most productive public research systems in Italy. This result is accomplished thanks to the number of permanent and temporary researchers working in a wide range of disciplinary and scientific fields, and the numerous junior scientists in training. It is also due to an intensive participation in research programmes of national and international relevance and to the significant scientific results achieved. External funds support the research and knowledge transfer activities. This combination of factors qualifies the Florentine institution as a modern research university and accounts for its excellent position in national and world rankings. Researchers at the University of Florence operate within 21 different departments and have at their disposal approximately 40 research structures comprising inter-departmental and inter-university centres as well as specialised research, knowledge transfer and advanced training centres. In recent years the University of Florence has increasingly consolidated its ventures in the field of knowledge transfer: from the filing of patents to the setting up of joint workshops with businesses, through to participation in spin-off companies. Knowledge transfer activities are coordinated by CSAVRI (Centro di Servizi di Ateneo per la Valorizzazione della Ricerca e la gestione dell'Incubatore universitario), the centre for the enhancement of research and management of the university's incubator.

<https://www.unifi.it/changelang-eng.html>



Fondation Mérieux, an independent family foundation with public interest status, is committed to fighting, in the field, the infectious diseases that affect developing countries by building capacities, particularly in clinical laboratories.

With its network of laboratories, the foundation's work is focused on diagnosis, an essential aspect of patient care and an indispensable tool for disease surveillance and control. Taking a global health approach, the foundation also works in the field to help the most vulnerable, with a strong emphasis on mothers and children. From its very beginning in 1967, the Mérieux Foundation has united public and private sector partners around a common mission. Active today in over twenty countries, the Foundation works to strengthen the skills of healthcare professionals in the field to ensure its programs have a long-lasting impact. It catalyses local and international initiatives to help the most vulnerable populations gain fairer access to healthcare. Our 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.

<http://www.fondation-merieux.org>



GSK is a global biopharma company with a purpose to unite science, technology and talent to get ahead of disease together. We aim to positively impact the health of 2.5 billion people over the next 10 years. We prevent and treat disease with vaccines, specialty and general medicines. We focus

on science of the immune system, human genetics, and advanced technologies investing in 4 core therapeutic areas and future opportunities to impact health at scale. We operate responsibly for all our stakeholders by prioritising Innovation, Performance and Trust.

Our culture: Ambitious for patients to deliver what matters better and faster. Accountable for impact with clear ownership and support to succeed. Do the right thing with integrity and care because people count on us. Vaccines at a glance: We have more than 20 vaccines to help protect people from a range of diseases throughout their lives. We supply vaccines to people living in over 160 countries. Almost 17,000 GSK people around the globe work on vaccines. We have 21 vaccine candidates in our pipeline as we seek to develop new vaccines against infectious diseases.

<http://www.gsk.com/>



HIPRA is a biotechnological pharmaceutical company focused on prevention for animal and human health, with a broad range of highly innovative vaccines. With its claim “Building immunity for a healthier world”, HIPRA affirms its commitment to contributing with solutions that improve world health. R&D projects are the basis of the knowledge. HIPRA has more than 50 years of experience dedicated to the research and development of different

vaccines. With a unique organizational model, HIPRA controls all the processes of the value chain, generating singular know-how and becoming a reference in the research, production, and commercialization of biologics. HIPRA is the company that has launched the most biotech vaccines in the last 10 years, with a total of 22 vaccines. HIPRA has a solid international presence in more than 40 countries, with its own subsidiaries, 3 R+D centres and 6 production centres strategically located in Europe (Spain) and America (Brazil). Moreover, its extensive international distribution network keeps open marketing channels with nearly 100 other countries, thereby covering the 5 continents. HIPRA is ranked 5th of the global leaders in the veterinary industry developing vaccines for Animal Health. The beginnings of HIPRA date back to 1971 when a group of young entrepreneurs acquired a small laboratory in Madrid founded in 1954, called HIPRA (by the surnames of its former creators: Hidalgo and Prada), and moved to Amer (Girona). The year 1991, with a workforce of 100 people and a turnover of 10 million euros, was a crucial year in HIPRA’s history. A new highly motivated management team redefines the company’s expansion policy. Thus begins an important period of technical and commercial expansion. As of the year 2000, began the internationalization of HIPRA with the implementation of our own subsidiaries around the world. In 2009 the strategic positioning was refined with the clear mission of being the world leader in prevention, with differential and innovative products and, therefore, it stopped investing in pharmacological products. In 2020, and in a context of the COVID-19 pandemic, a new challenge was faced using its extensive experience in innovative vaccines, the development of the vaccine against this new virus based on recombinant protein. In 2021 the new Human Health division was created to develop new innovative products. The same year GoodGut was acquired, a biotechnological start-up dedicated to the research and development of diagnostic tests for digestive diseases.

<https://www.hipracovid19.com/en/about-hipra>



I-REIVAC, a network dedicated to clinical research in vaccinology

Created in 2007, I-REIVAC (Innovative clinical research network in vaccinology), has been awarded the F-CRIN network of excellence label in 2014. It conducts phase 1 to 3 industrial and academic clinical trials, on preventive immunization in healthy volunteers and specific population (immunocompromised, elderly, pregnant women,

comorbidities, ...); large scale epidemiological studies in vaccine preventable diseases; and developing social sciences approach to improve vaccine program acceptability. Coordinated by Professor Odile Launay, an infectious disease specialist and vaccinology researcher, the network brings together clinical centers, centers for biological resources and immunology laboratories. It gathers partners with complementary expertise at national and European level: clinicians, vaccinologists, biologists, immunologists, epidemiologists, researchers in Human and Social Sciences, all strongly involved in research on vaccinology. The network aims at developing and promoting vaccine research. Its objectives are:

- To enhance the visibility and competitiveness of France in vaccination research,
- To develop a quality and attractive scientific program for industrial and university partners,
- To promote French excellence thanks to:
 - International university studies coordinated by French researchers,
 - Preclinical tests in collaboration with pharmaceutical industries, biotech's, etc.
- To develop European and international strong and efficient collaboration.

<https://www.ireivac.org/>



Ifakara Health Institute (IHI) is a leading health research organization in Africa, with a strong track record of developing, testing and validating innovations for health. We are driven by core strategic mandate for research, training and services. The institute's work spans across the full research lifecycle from basic science to policy and translation. IHI work is organized in three research departments, six research units and seven

technical units. The research departments are: Environmental Health & Ecological Sciences, Interventions & Clinical Trials, and Health Systems, Impact Evaluation & Policy. The research units are: Grants and Contracts, Training & Capacity Building, Laboratories, Data Systems and Platforms, Vector Control Product Testing, and Chronic Diseases Clinics. The technical units, which are supporting research (our primary activity) are: Internal Audit, Knowledge Management and Communications, Finance Management, Human Resources, Procurement Management, Branch Management and Information & Communication Technology. We have three major offices in Tanzania (Ifakara, Bagamoyo & Dar es Salaam).

<https://ihi.or.tz/>



The Germans Trias i Pujol Research Institute (IGTP) is a public research centre in the Autonomous region of Catalonia in Northern Spain dedicated to increasing scientific knowledge and transferring it to improve the care and lives of patients. The institute is attached to one of the

large teaching hospitals in the Barcelona area, the Germans Trias University Hospital (HUGTP), and is located on the biomedical campus that surrounds it, Campus Can Ruti. It is a CERCA centre, a member of the biocluster supported and supervised by the Autonomous Catalanian Government. It is also accredited as a Centre of Excellence by the Instituto Carlos III (Spanish Government) and in this capacity acts as an umbrella organization for scientific research on the campus, where it works closely with the other centres. The mission of the IGTP is to create a multi-disciplinary and multi-institutional environment that opens the gates to highly efficient translational research with a view to improving people's health and quality of life.

The Germans Trias Institute carries out research within 9 areas:

- Science of Behaviour and Substance Abuse
- Immunology and Inflammation
- Cardiovascular and Respiratory Diseases
- Infectious Diseases
- Endocrine and Diseases of the Metabolism, Bones and Kidneys
- Diseases of the Liver and Digestive Tract
- Cancer
- Neuroscience
- Community Health

Scientists working in these areas publish an average of over 500 papers a year, contribute to improved treatment and healthcare protocols, produce patents and set up spin-off companies in order to improve the lives of patients.

<http://www.germanstrias.org/>



Incepta Vaccine Ltd

Incepta Vaccine Ltd is the first human vaccine manufacturing company in Bangladesh. The manufacturing unit is situated at Zirabo, Savar which is conveniently located at the outskirts of Dhaka city. It is established with an objective to introduce modern concepts in manufacturing vaccine by acquiring advanced knowledge and technique. Prime objective of this company is to protect vast populations of Bangladesh as well as developing world from various infectious diseases at an affordable cost. It has a vision to develop novel vaccines against diseases of the developing world. Incepta Vaccine Ltd, a state-of-the-art facility fully compliant with WHO GMP requirements, is a large vaccine manufacturing facility that has the capacity to manufacture 180 million single dose vials and ampoules per year. A large pool of scientists are engaged in different areas of specialties like research and development, quality control, quality assurance, production and other related areas.

<http://inceptavaccine.com/>



The CIC-EC of Saint-Etienne was created in February 2003. The CIC is a structure accredited by INSERM. The major assignments entrusted were to develop the methodological aid and IT support to multicentric clinical trials and clinical epidemiological research taking on all or part of this research work. The CIC-EC was therefore aimed at clinical

research development particularly within labelled teams of the CHU of Saint-Etienne. In 2008, the CIC-EC has been expanded to new fields of clinical research as cancer and vaccinology. The CIC-EC Vaccinology has been developed by the Pr. F. Lucht (medical doctor in infectious diseases) and the Dr. S. Paul (immunologist and expert in vaccinology). In 2009, the CIC-EC Vaccinology has been labelled by ANRS (French network for HIV vaccine research) and REIVAC (French network of clinical investigators in Vaccinology). The CIC has participated in more than 20 clinical trials in the field of vaccine development both with academic labs and companies. The expertise of the CIC-EC Vaccinology renamed as CIC1408 in 2013 is the evaluation of mucosal vaccines. In 2014, the REIVAC network has been labelled by the F-Crin network to develop excellence in the field of Vaccinology in Europe. The CIC manages trials accepted by its technical committee, and primarily in line with the research areas defined by its steering committee:

- A vascular and hemostasis theme including an antithrombotic and vascular diseases axis, a hemophilia – hemostasis axis and a neurovascular axis,
- An immunology theme comprising a vaccinology axis, a chronic inflammatory bowel disease (IBD) axis and an inflammatory joint pathology axis,
- A prevention theme including a prevention axis in oncology and a prevention and control of infections axis,
- A general medicine theme.

<https://www.inserm.fr/en>, <https://www.ciil.fr/>,

http://www.chu-st-etienne.fr/Professionnels/Recherche/Presentation_DRCI/Pro_CIC_EC.asp



Institut Mérieux is contributing its experience in biology to improve medicine and public health across the globe. To fight against infectious diseases and cancer, the Institute imagines and develops new approaches in the fields of diagnostics, immunotherapy, food safety, and nutrition. Its three bio-industrial companies (bioMérieux, Transgene and Mérieux NutriSciences), working closely with its entities devoted to innovation (such as ABL Inc. and Mérieux Développement), have contributed to major advances in medicine and public health. Institut Mérieux employs nearly 22,000 people around the world and is present in nearly 45 countries, with 4 billion euros in sales.

<http://www.institut-merieux.com/en/home/>



With 121 years of history, Butantan works to prevent diseases like Covid-19, flu, tetanus, diphtheria, hepatitis A and B, chikungunya, whooping cough, dengue, HPV and rabies. In 2021, Butantan produced:

- 100 million doses of Covid-19 vaccine
- 80 million doses of flu vaccine
- 28 million doses of vaccines Against hepatitis A and B, HPV, DTaP and rabies
- 560 thousand units of serum against venoms, bacterial toxins and the rabies virus

Instituto Butantan is the main producer of immunobiologicals in Brazil. It is responsible for a considerable percentage of the national production of hyperimmune sera and vaccine antigens, which make up the vaccines used in the National Immunization Program (Programa Nacional de Imunizações, PNI) of the Brazilian Ministry of Health. Our technological development activities in the production of health inputs are associated with the production of vaccines, antitoxins and antivenoms, and biopharmaceuticals for human use.

<https://en.butantan.gov.br/institute.php>



The International Vaccine Institute (IVI) is a non-profit International Organization established in 1997 as an initiative of the United Nations Development Programme (UNDP). We are among the few organizations in the world dedicated to vaccines and vaccination for global health. Our mission is to Discover, develop and deliver safe, effective and affordable vaccines for global public health. IVI is

headquartered in Seoul and hosted by the Republic of Korea with 39-member countries and the WHO on its treaty. IVI focuses on vaccines against infectious diseases affecting the World's most impoverished. We aim to make vaccines available and accessible for vulnerable populations in developing countries. We live in an increasingly globalized world where new and emerging infectious diseases can become global health threats. IVI also focuses on vaccines against infectious diseases of major global health concern.

<http://www.ivi.int/>



Even the most promising vaccines don't always make it out of the laboratory into large-scale production. We at Intravacc are fully aware of the challenges on the long road of vaccine

development. We substantially reduce the risks and costs involved with developing vaccines. How? By bridging the gap between your concept and late stage clinical studies.

The Netherlands-based Intravacc, part of the Utrecht Science Park location Bilthoven, is one of the world's leading organizations with many years of experience in translational vaccinology. As an established independent clinical development and manufacturing organization (CDMO) in the vaccine industry, Intravacc offers a wide range of expertise and is the bridge between your discovery and the start.

<http://www.intravacc.nl/>



The IrsiCaixa AIDS Research Institute is an international landmark and leading centre for research into the eradication of HIV/AIDS and related diseases. IrsiCaixa researchers also tackle other biomedical challenges, such as those associated with the microbiome and emerging infectious diseases. The IrsiCaixa AIDS Research Institute was created as a private non-profit foundation in 1995 with the support of “la Caixa” and the Ministry of Health of the Government of Catalonia. Its director is Dr. Bonaventura Clotet, who is also president of the Fight Infections Foundation and clinical director of infectious diseases of the territorial management of the North Metropolitan Area of the Institut Català de la Salut. IrsiCaixa is located in this hospital, next to the Fight AIDS Foundation, which makes for a unique model of collaboration between researchers, healthcare professionals, patients and community representatives. This transfer of knowledge between key stakeholders makes for novel solutions that facilitate progress towards eradication of HIV infection.

IrsiCaixa research is based on a combined strategy to eradicate AIDS, based on five strategic lines that include the development of vaccines and antibodies against HIV. Twelve research groups and more than 100 researchers based at IrsiCaixa carry out translational research in collaboration with research and healthcare centres worldwide. The resulting publications are amongst those with the highest impact factors in this field. IrsiCaixa also participates in clinical trials to evaluate novel therapeutic strategies and cooperates with low-income countries in the global fight against the pandemic. IrsiCaixa places special emphasis on the formal training of young scientists, on innovation and on transfers of knowledge generated in its laboratories. IrsiCaixa also coordinates educational and participatory programmes aimed at promoting health and wellness and at aligning research with the needs and expectations of citizens. In fact, advances at IrsiCaixa are achieved in constant dialogue with a community advisory committee (CAC), an external body that facilitates communication between the scientific community, health professionals, civil society organizations and patients.

<https://www.irsicaixa.es/en>



Founded in 1997, the Institute of Research in Health Sciences (Institut de Recherche en Sciences de la santé – IRSS) is one of the 4 specialized units of the National Center of Scientific and Technologic Research. The missions of the IRSS are to:

- Conduct research that can provide solutions to priority health problems
- To coordinate research in the health sector in Burkina
- To valorize and disseminate the results of the research.

Research programs are focused on the following themes:

- infectious and parasitic diseases;
- health policies and systems;
- maternal and child health;
- nutrition;
- traditional pharmacopoeia and medicinal plants;
- traditional medicine and ethnomedicine;
- drugs;
- pesticides, chemicals and health.

<https://bf.linkedin.com/company/irss-bf>



The Barcelona Institute for Global Health (ISGlobal) was set up in 2010 as a result of an innovative alliance between the “la Caixa” Foundation, academic institutions and government bodies to contribute to the efforts undertaken by the international community to address the challenges in global health. ISGlobal is a consolidated hub of excellence in research that has grown out of work first started in the world of health care by the Hospital Clínic and the Parc de Salut MAR and in the academic sphere by the University of Barcelona and Pompeu Fabra University. Its working model is based on the generation of scientific knowledge through Research Programmes and Groups, and its translation through the areas of Education and Training, Innovation, and Analysis and Global Development. Its ultimate goal is to help close the gaps in health disparities between and within different regions of the world that affect the most vulnerable populations. Scientific research is the backbone of ISGlobal’s work. This activity is carried out with a focus on translational research and in collaboration with many partners and associates. Since the merger with the Centre for Research in Environmental Epidemiology (CREAL) in June 2016, ISGlobal focuses its research efforts on two main research areas: on one hand, infectious diseases and maternal, reproductive and child health; on the other hand, non-communicable diseases and environmental health. Its multidisciplinary approach allows it to encompass a wide range of fields and topics, ranging from molecular biology to clinical and epidemiological research.

<https://www.isglobal.org>



There are more than 30,000 of us working hard to prevent, treat, cure and stop some of the most devastating and complex diseases of our time. From heart disease and HIV to Alzheimer’s and cancer, we are mobilizing on issues that touch everyone’s lives. Our mission is to transform people’s lives and fundamentally change the way diseases are managed, interpreted and prevented. We believe that the best way to change things is to challenge them. So every day, in more than 150 countries, we bring together cutting-edge science and the most creative minds in the industry to approach disease in a different way. We seek not only to innovate, but to provide people with the tools to make informed decisions and achieve the best possible health outcomes. We are developing treatments for patients in six major therapeutic areas:

- Cardiovascular and metabolic disease
- Immunology
- Infectious diseases and vaccines
- Neuroscience
- Oncology
- Pulmonary hypertension

<https://www.janssen.com/netherlands/>



Karolinska Institutet is one of the world's leading medical universities. Our vision is to advance knowledge about life and strive towards better health for all. Karolinska Institutet accounts for the single largest share of all academic medical research conducted in Sweden and offers the country's broadest range of education in medicine and health sciences. The Nobel Assembly at Karolinska Institutet selects the Nobel laureates in Physiology or Medicine. Karolinska Institutet was founded by King Karl XIII in 1810 as an "academy for the training of skilled army surgeons". Today, Karolinska Institutet is a modern medical university and one of the foremost in the world. With our close relationship to the clinical milieu, a well-established infrastructure and a stable financial situation, Karolinska Institutet has excellent prerequisites for sustaining high quality research and education. Karolinska Institutet (KI) offers a wide range of programmes and courses in medicine and healthcare to meet society's need for skills in the field. This enables us to conduct high-quality, relevant interprofessional education and training, through which students from different programmes learn with, from and about each other in the interests of effective collaboration as students and, later, as healthcare professionals. Karolinska Institutet conducts research and education on two campuses (Solna and Flemingsberg) and at a number of the county's hospitals. There are some 6,500 FTE students on KI's programmes and courses. The teachers often conduct research alongside their educational duties, giving their students access to the latest knowledge in the entire field of medicine. Students, teachers and researchers together constitute an interesting and stimulating academic environment. Many of KI's programmes include placements that offer real-world clinical practice and education. KI is also engaged in large-scale international exchanges that give students opportunities to pursue some of their studies abroad.

<https://ki.se/>

KU LEUVEN

KU Leuven is dedicated to education and research in nearly all fields. Its fifteen faculties offer classes and degree-granting academic programmes, whilst research activities are organised by departments and research groups. These faculties and departments are clustered into three thematic groups: Humanities and Social Sciences, Science, Engineering and Technology (SET), and Biomedical Sciences. Each of these groups sponsors its own doctoral school for organising and awarding doctoral degrees. KU Leuven boasts thirteen campuses, spread across 10 cities in Flanders.

The Rega Institute was founded in 1954 by Professor Piet De Somer and named after the 18th century philanthropist and Professor Josephus Rega of Leuven. It hosts part of the Department of Microbiology and Immunology. Since its inception, the Rega Institute hosts also the Section of Medicinal Chemistry of the Department of Pharmaceutical Sciences and it is thus a true interdepartmental and interdisciplinary research institute. The Rega Institute has always been a jewel in the crown of research and innovation at the University of Leuven on the basis of publications, citations and prestigious scientific prizes of its members.

<https://www.kuleuven.be/english/>, <https://rega.kuleuven.be/>



LovalTech was created in January 2022, to set a technology platform for the development of next generation vaccines capable to protect the world population against infectious diseases, not or badly covered by the current vaccines. The situation from the last 2 years with the Covid-19 pandemic, its 6,8 million deaths, 670 million cases and 16 billion doses of vaccines injected, led us to work on an innovative Covid vaccine, knowing that current vaccines are effective and protect against serious forms of the disease, but knowing also that we will only emerge from this global health crisis by stopping the contagiousness and the transmission of the virus and by giving access to vaccination to whole population, especially to low- income countries. This is why we are committed to carrying out the development of this protein vaccine for nasal administration resulting from BIOMAP research team (University/INRAE-Tours-France) of Professor Isabelle Dimier-Poisson, also Managing Director and CSO of LoValTech. We took over this project from the end of the preclinical stages which have shown the efficacy of our vaccine candidate on the original virus and its various variants, as well as its ability to stop viral transmission. Our nasal vaccine will be used first as a booster for populations already vaccinated and secondly in first intention for non-vaccinated populations, knowing that we have the desire to put our vaccine available to emerging countries on terms compatible with their income. We are currently working on the preparation and implementation of the clinical phases in humans, with a target of placing on the market by 2024-2025. This Covid vaccine will clearly be the “proof of concept” for our innovative vaccine technology platform to combat infectious disease outbreaks. We would like to thank our partners for their support during these preparation phases and their support in the next steps. Drop the masks and return to life before Covid-19 will be our motto!

<https://lovaltechnology.com/en/editorial/>



The Luxembourg Institute of Health (LIH) is a public biomedical research organisation focused on precision health and invested in becoming a leading reference in Europe for the translation of scientific excellence into meaningful benefits for patients. LIH places the patient at the heart of all its activities, driven by a collective obligation towards society to use knowledge and technology arising from research on patient-derived data to have a direct impact on people’s health. Its dedicated teams of multidisciplinary researchers strive for excellence, generating relevant knowledge linked to immune related diseases and cancer. The institute embraces collaborations, disruptive technology and process innovation as unique opportunities to improve the application of diagnostics and therapeutics with the long-term goal of preventing disease. LIH aims to perform research that transcends the boundaries of classical disease definition. Its translational and transversal research strategy, combined with the increasing appreciation of the role of the immune system in determining disease, has led LIH to focus on two priority areas, with inflammation and immunity as the common thread: cancer and immunological disorders.

<https://www.lih.lu/>



Lyonbiopôle Auvergne-Rhône-Alpes was accredited as a competitiveness cluster by the French State in 2005 and is the drive of the health innovation ecosystem in Auvergne-Rhône-Alpes, ensuring that it is connected, developed and promoted. We bring together, advise and work with 270 members – companies, academics and hospitals – with their plans to innovate, grow, expand internationally

and host new projects. We support these biotech, medtech and digital health-tech partners to build the medicine of the future and to make tomorrow's health innovations available to patients. In addition to providing access to an exceptional industrial, academic and clinical network, throughout the year we conduct scientific and economic activities to meet the needs of our members and to support them.

<https://lyonbiopole.com/>



The Institute of Microbiology of the CAS represents the largest scientific body extensively exploring life cycles, molecular mechanisms and regulatory systems of various microorganisms such as bacteria, yeast, fungi and algae) as well as mammalian cell lines with respect to basic research questions as well as their prospective practical exploitation in

medicine and industry. The main research interests of this Institute represent cellular and molecular microbiology, genetics and physiology of microorganisms and their resistance to antibiotics, production of microbial metabolites and their biotransformation, and grading up production strains by genetic modifications etc. Another main research direction is embodied by soil ecology, ecotoxicology and microbial degradation of organic pollutants in the natural environment. An immunological section of the Institute then studies the importance of microorganisms in phylogenetic and ontogenetic acquisition of immunity as well as during the onset of autoimmune diseases and, last but not least, it is also focused on immunotherapies of oncogenic diseases. Institute of Microbiology of the CAS has an internationally recognized collection of basidiomycetes and its own biotechnological unit, which is mainly used to monitor microbiological and biotechnological processes at a semi-operational scale. IM CAS has three satellite working units outside of Prague; the first of which is in Trebon (research on phototrophic microorganisms) the second is in Novy Hradek (gnotobiology) and third is in Nove Hradky (Center for Nanobiology and Structural Biology). Despite the fact that the Institute of Microbiology of the CAS is preferentially focused on the basic research, many of its outputs find or will find practical use in pharmaceutical as well as biotechnological industry as documented by a genuine interest of a number of private companies in our scientific work.

<http://mbucas.cz/en/>



The Ministry of Public Health is the National Health Authority that guarantees the right to health of the population in Ecuadorian territory, through governance, health promotion, disease prevention, surveillance, quality, research and provision of integrated and comprehensive care services.

The Ministry of Public Health, as the governing body, will be the reference institution for the entire National Health System, guaranteeing quality, inclusive and equitable health care, with an emphasis on health promotion and disease prevention for the full development of opportunities for the population.

<https://www.salud.gob.ec/>



Moderna, Inc (formerly ModeRNA Therapeutics until 2018) is an American biotechnology company, founded in 2010 and based in Cambridge, Massachusetts, that aims to develop “protein therapies” based on messenger ribonucleic acid (messenger RNA) technology. Our mission is to deliver on the promise of mRNA science to create a new generation of transformative medicines for patients. An mRNA

can teach the body how to make a specific protein that can help your immune system prevent or treat certain diseases. Messenger RNA is not new technology, but we are discovering new ways to use it to treat and prevent illnesses and diseases. Since our founding in 2010, we have worked to build the industry’s leading mRNA technology platform. In 2010, Moderna’s name combines the words “modified” and “RNA”, which happens to contain the word “modern”. In 2011, Moderna begins research into the production of mRNA medicines. Stéphane Bancel joins as founding CEO. In 2014, New headquarters and labs open in Cambridge, Massachusetts. In 2015, Moderna initiates first-in-human dose of an mRNA vaccine (mRNA-1440), an H10N8 flu vaccine candidate. In 2016, Lease signed to build 200,000 sq ft GMP mRNA clinical manufacturing facility in Norwood, MA. In 2017, Moderna initiates first-in-human dosing for mRNA-1653, a combination vaccine with the potential to protect against more than one disease – human metapneumovirus (hMPV virus) and parainfluenza virus. In 2018, Moderna opens its state-of-the-art clinical development site in Norwood, MA. In 2019, Moderna announces dosing of the first antibody encoded by mRNA in a clinical trial. In 2020, The U.S. Centers for Disease Control and Prevention votes to recommend the use of the Moderna COVID-19 vaccine in people 18 years of age and older in the U.S. In 2022, The U.S. Food and Drug Administration (FDA) approved the Biologics License Application (BLA) for SPIKEVAX (COVID-19 Vaccine, mRNA) to prevent COVID-19 in individuals 18 years of age and older in the U.S.

<https://www.modernatx.com/>



MSD

MSD is a global pharmaceutical company providing innovative healthcare solutions through its prescription medicines (mainly in oncology and infectious diseases), vaccines and animal health products. For 130 years, MSD has been inventing for life, developing medicines and vaccines for many of the world’s most challenging diseases as part of our mission to save and improve lives. We demonstrate our commitment to patients and population health by improving access to healthcare through far-reaching policies, programmes and partnerships. Today, MSD continues to be at the forefront of research to prevent and treat diseases that threaten people and animals – including cancer, infectious diseases such as HIV and Ebola, and emerging animal diseases – as we aspire to be the world’s leading research-based biopharmaceutical company. Number of employees worldwide: about 74 000 – Number of employees in France: about 950.

<https://www.msd-france.com/>



The Faculty of Veterinary Medicine of National University of Life and Environmental Sciences of Ukraine carries out training of specialists in the field of “Veterinary Medicine” for the agro-industrial complex of Ukraine. Currently, the training is carried out in the educational degrees “Bachelor” and “Master”. For now more than 1300 students study at the faculty. The Faculty of Veterinary Medicine is a scientific and methodological center of veterinary education for future students of this profile in Ukraine. Regular sessions of the scientific-methodical Commission of the Ministry of Agrarian Policy of Ukraine on the specialty “Veterinary Medicine”, different scientific conferences, symposiums, meetings of a national and international character are held in our university.

<https://nubip.edu.ua/en/node/1662>



Founded in 1929 in Barcelona, Spain, REIG JOFRE is a pharmaceutical company listed on the Spanish Stock Exchange market, under the ticker RJF, dedicated to the research, development, manufacture and marketing of pharmaceutical products and food supplements. REIG JOFRE structures its product development activity in three business

areas:

- Pharmaceutical Technologies specialized in the development and manufacture of sterile and lyophilized injectable pharmaceutical products, as well as antibiotics derived from penicillin.
- Specialty Pharmacare focused on the research, development, manufacture and commercialization of specialties in the areas of dermatology and osteoarticular, mainly.
- Consumer Healthcare with the line of food supplements marketed under the Forté Pharma brand mostly in France, Belgium, Spain and Portugal, as well as other OTC products.

REIG JOFRE has more than 1,100 employees, 4 development and production centres in Europe (2 in Toledo, 1 in Barcelona and 1 in Sweden), subsidiaries in 8 countries (Spain, France, Portugal, Belgium, Sweden, United Kingdom, Poland, and Singapore) and 155 business partners in more than 70 countries.

<https://reigjofre.com/en/>



We are an innovative global healthcare company, driven by one purpose: we chase the miracles of science to improve people's lives. Our team, across some 100 countries, is dedicated to transforming the practice of medicine by working to turn the impossible into the possible. We provide potentially life-changing treatment options and life-saving vaccine protection to millions of people globally, while putting sustainability and social responsibility at the center of our ambitions. Sanofi's global vaccines business unit partners with the public health, medical and scientific communities to improve access to life-protecting vaccines and increase vaccination coverage, while striving to develop new and improved vaccines to enhance health and well-being.

Sanofi is listed on EURONEXT: SAN and NASDAQ: SNY

<https://www.sanofi.com/>



USP, as the major institution of higher learning and research in Brazil, is responsible for educating a large part of Brazilian Masters and Ph.D's. The University of São Paulo (USP) is a public university, maintained by the State of São Paulo and affiliated with the State Secretariat of Economic, Scientific and Technological Development.

Various world rankings, created to measure the quality of universities according to various criteria, particularly those related to scientific productivity, have widely recognized the talent and dedication of USP professors, students and employees. USP offers courses in all areas of knowledge. In addition to the undergraduate, master's and doctorate courses, all free, the University also offers specializations, residences and free courses for all audiences. Since its foundation in 1934, USP has played a fundamental role in advancing research in the country, whether in the scientific, technological or social field, thanks to the work done by its students, employees and teachers. Currently, USP is responsible for more than 20% of all scientific production in Brazil. USP is a Partner of the Butantan Institute, the major vaccine manufacturer of Brazil, which is an associated Partner of the LIVE.

<https://www5.usp.br/>



Seppic, an Air Liquide Healthcare company, has been a subsidiary of the Air Liquide Group since 1986. For over 75 years, Seppic has developed, manufactured, and marketed unique ingredients for cosmetic, nutraceutical, pharmaceutical, veterinary, and industrial products. Across the world, Seppic has created a vast team of women

and men who love what they do in service to their customers, and to the health, well-being, and beauty of all. Seppic has 770 employees in 14 countries, 6 000 customers in 100 countries, 80 distributors, 5 production sites and 5 customer technical service centers.

<https://www.seppic.com/en>



Speranza Therapeutics is a clinical-stage Biotech with a Focus on COVID-19 Vaccine Development. Located at the heart of Frankfurt am Main, Speranza Therapeutics is led by a dedicated and highly-specialized team, with a strong background in biopharmaceutical research, development and manufacturing. The Company is backed by the Boehringer Ingelheim Venture Fund and partners with leading

academic institutions such as the University Hospital Tübingen. Prime-2-CoV_Beta, our lead COVID-19 vaccine candidate, was originally developed at the University of Tübingen, Germany. It is based on a highly attenuated and non-pathogenic live viral vector D1701-VrV derived from an ORF virus isolate. Used for 20 years in biomedical research and veterinary medicine, this vector has highly beneficial characteristics for the development of a COVID-19 vaccine.

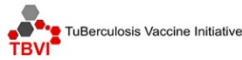
<https://www.speransatherapeutics.com/>



The Sphère unit (Sciences, Philosophy, History) UMR7219 was created in 2009 from the meeting of two units: the CHSPAM (Centre of History of Sciences and Arab and Medieval Philosophies, former UMR 7062), created in 1972, and REHSEIS (Epistemological and Historical Researches on Exact Sciences and Scientific Institutions, former UMR 7596), created in 1984. This meeting concretizes the proximity and the

complementarity of the scientific programs of these two units, whose works relate to a long duration ranging from the antiquity to the contemporary period, in different cultural contexts. The unit includes, on a principal assignment, research professors from two university departments (Paris 1 and Université Paris Cité, previously from Paris, Paris Diderot, and Paris 7) and, as associates, a large number of research professors from other universities and institutions. This integration into the world of teaching is essential for the development of our activities. We conceive our research as part of an international framework. SPHERE maintains links with researchers from all over the world, whose orientations vary considerably. It has the will to be an international place of exchange in the fields it gathers. This is evidenced by its involvement in the creation and animation of several international societies, the direction of international journals, cooperation agreements with foreign institutions, as well as the publications of its members. The researchers of the Unit teach, and they do so at the most diverse academic levels. We welcome many French and foreign students for internships, and we strive to convince our students of the importance of international research integration. By encouraging them to do so, we give them the means to integrate the national and international scientific community.

<http://www.sphere.univ-paris-diderot.fr/?lang=en>



The TuBerculosis Vaccine Initiative (TBVI) is a Research and Innovation partnership that facilitates the discovery and development of new, safe and effective TB vaccines that are accessible and affordable for all people. As a non-profit foundation, TBVI creates an enabling environment for TB vaccine research and innovation (R&I) and product development. TBVI supports R&D partners to develop and move the most promising TB vaccine and biomarker candidates through the pipeline. To continue to innovate and diversify the pipeline and TB vaccine platforms, TBVI supports collaborative research and innovation by its R&D partners. TBVI adds value through providing services of technical advice for product development; project identification, development and management; and resource mobilisation. TBVI works through the Global TB Vaccine Partnership (GTBVP) with global stakeholders to strengthen Global and European cooperation and coordination and identifies gaps to move the field forward. To make decisions to select/down select vaccine candidates in an objective and transparent manner and to use the available financial resources effectively, TBVI assesses and manages its portfolio based on criteria in its TB Vaccine Development Pathway tool. It seeks to align its R&I activities with other global efforts, in particular with Global partners in the Global TB Vaccine Partnership (GTBVP). TBVI does not have its own commercial interests. Ownership of vaccine candidates and biomarkers, and any intellectual property rights remain with researchers and vaccine developers. This enables TBVI to be a neutral and honest broker among its R&D partners, global stakeholders and funders. Access and affordability of TB vaccines is a statutory objective of TBVI and is a commitment that is part of each project grant agreement supported by TBVI. TBVI and its R&D partners have developed over 50% of the current candidates in the TB vaccine pipeline.

TBVI's work focusses on:

- product development – moving current leading TB vaccine and biomarker candidates and fast followers through the pipeline
- collaborative research and innovation – continuing to innovate and diversify the TB vaccine and biomarker pipeline and TB vaccine platforms; develop and test alternative vaccine routes and delivery mechanisms; develop and validate pre-clinical models; develop human challenge models; develop next generation portfolio management tools; and harness the power of AI for TB vaccine and biomarker research and clinical trials.
- Global and European Cooperation and Coordination of TB vaccine R&I efforts, including identifying and addressing key gaps to move the TB vaccine R&I field forward.

<https://www.tbvi.eu/>



**THE JENNER
INSTITUTE**
DEVELOPING INNOVATIVE VACCINES

The Jenner Institute is based within the Nuffield Department of Medicine, University of Oxford, and operates out of the Old Road Campus Research Building, in Headington, Oxford. It was formed in November 2005

through a partnership between the University of Oxford and the UK Institute for Animal Health. It is associated with the Nuffield Department of Medicine, in the Medical Sciences Division of Oxford University. The institute develops vaccines and carries out clinical trials for diseases including malaria, tuberculosis (vaccine MVA85A), ebola, and MERS-Coronavirus. The Jenner Institute also supports senior vaccine scientists, known as Jenner Investigators, within many other departments across the University of Oxford, as well as externally within The Pirbright Institute and the Animal and Plant Health Agency. The Jenner Institute brings together investigators who are designing and developing numerous vaccines to generate an exceptional breadth of scientific know-how and critical mass, whilst still allowing the individual investigators to remain independent and accountable to their funders and stakeholders. The Jenner Institute is supported by the Jenner Vaccine Foundation, a UK registered charity and is advised by the Jenner Institute Scientific Advisory Board. In 2020, the institute successfully developed the Oxford–AstraZeneca COVID-19 vaccine, in a project backed by private companies including Oxford Sciences Innovation, Google Ventures, and Sequoia Capital, among others.

<https://www.jenner.ac.uk/>



We are a world leading centre of excellence in research and surveillance of viral diseases of farm animals and viruses that spread from animals to humans. We receive strategic funding from the Biotechnology and Biological Sciences Research Council (BBSRC), and work to enhance capability to contain, control and eliminate these economically and medically important diseases through highly innovative fundamental and

applied bioscience. The Institute employs around 450 staff, research students and visiting scientists, and has recently moved to one campus in Pirbright, Surrey, where investment by BBSRC has resulted in a redevelopment of the site and the construction of a high-level containment facility – the BBSRC National Virology Centre: The Plowright Building and a SAPO level two facility, The Jenner Building. Our work has a huge impact both nationally and internationally as we fulfil our mission to be the world’s leading innovative centre for preventing and controlling viral diseases of livestock. We play a crucial role in protecting UK livestock from viruses that have huge socio-economic impact with a unique combination of fundamental research and applied science in diagnostics and control. The Institute is home to Reference Laboratories that focus on surveillance of viruses that are not endemic, but pose a threat to the UK. These include foot-and-mouth disease virus (FMDV) and bluetongue virus (BTV). We provide the UK with its capability to monitor current and future threats from exotic viruses, to inform national and international government and non-governmental agencies, and to lead with efforts to best control exotic viruses if and when they arrive in the UK.

<https://www.pirbright.ac.uk/our-science/impact-our-research>



Transgene is a clinical-stage biotechnology company focused on designing and developing novel immunotherapeutics. Every day, we push the boundaries of innovation with our therapeutic vaccines and oncolytic viruses, to design better treatments for patients. A pioneer in viral vectors engineering, we have one ambition: design innovative treatments in the fight against cancer. Our approach uses the mechanisms of the immune response to enable the patient's body to fight against disease.

<https://www.transgene.fr/en/>



TRON is an independent non-profit translational research organization. We pursue new diagnostics and drugs for the treatment of diseases with high medical need. We apply our transdisciplinary competencies in genomics and immunology to develop novel platforms for the identification and validation of 'omics'-based biomarkers, to modulate immune system components for use in personalized therapies. Collaborating with academia and industry, TRON executes research at the leading edge to support innovative drug design for human health. TRON's mission is to bridge the gap between fundamental science at universities and market-oriented research in the pharmaceutical industry. We turn innovative scientific concepts into treatments ready for clinical testing, thereby accelerating the translation of discoveries into progress for patients. Translating scientific concepts into clinical applications is a major contemporary challenge in health care. Expiring patents, empty pipelines and the increasing complexity of product development in the era of individualized medicine mean that even large pharmaceutical companies cannot address these challenges alone. At the same time, increasing regulatory requirements and costs have seen public research organizations virtually suspend the clinical translation of new scientific insight. Here in Mainz, we believe mastering these challenges is possible through cooperation between our first-rate research institute and private companies specializing in innovative product development. TRON was founded in 2010 as a non-profit limited liability company to address these challenges. Co-founders Ugur Sahin, Christoph Huber and Özlem Türeci's vision for TRON is to facilitate clinical translation of innovative science by interfacing between public and private stakeholders and bridging the gap between research insight and mature product development.

<https://tron-mainz.de/>



With one-third of its students and researchers coming from abroad, Université libre de Bruxelles is one of the most multicultural Belgian universities. It has a long-held tradition of excellence, thanks to its more than 220 research units, 8 interdisciplinary institutes, over 2,000

PhD candidates and more than 3.600 researchers and members of academic staff in all fields. It received 4 scientific Nobel Prizes out of the 6 awarded to Belgians, among them the 2013 Nobel Prize in Physics. Actively involved in the European Research Area, ULB has obtained to this day 47 ERC grants and received European funding (COFUND) to host international post-doctoral researchers. With its 12 faculties, Schools and Institutes, it trains students in all disciplines, closely combining cutting-edge research and education. ULB also recently spearheaded the creation of a large-scale university hospitals network and a scientific biopark dedicated to technological innovation. Open to the world, ULB has set up many partnerships with some of the world's top universities and is a proud member of the CIVIS European Alliance. Since its creation, ULB has been cultivating the flame of freedom. It has constantly demonstrated its independence and its commitment to the great struggles for democracy, individual liberties and human rights. Our outward-looking stance to Europe and the world has resulted in the creation of the CIVIS, Europe's Civic University Alliance.

<https://www.ulb.be/en/ulb-homepage>



The Vaccine Research Institute (VRI), Laboratory of excellence, was established by the French National Agency for Research on AIDS and viral hepatitis (ANRS – France REcherche Nord & sud Sida-HIV

Hépatites) and the University of Paris-Est Créteil (UPEC) to conduct research to accelerate the development of effective vaccines against HIV/AIDS, and (re)-emerging infectious diseases. The VRI's structure strengthens the links between basic research and translational research, patient's associations and the socio-economic world, contributing to accelerating vaccine development. The VRI is structured around research teams with multi-disciplinary expertise, a network of national and international thought leading scientists, a clinical network of physicians, core facilities and innovative immunomonitoring platform. The VRI is closely linked to the department of clinical immunopathology (Hospital CHU Mondor), which has been involved in more than 20 clinical trials in the field of HIV and primary immunodeficiencies. More than 1200 HIV-infected patients are followed in this clinical department. Since 2007, the clinical department extended its clinical research program by the creation of Clinical Center for HIV Vaccinology aimed at recruiting healthy volunteers and developing HIV vaccine clinical trials. The VRI Clinical Core in conjunction with the ANRS clinical center network, sets up the VRI Phase I/II vaccine clinical trials that aims to identify the prime/boost strategy to be developed in Phase IIb. The scientific goals of the VRI offer significant opportunities for innovation as they intend to:

- develop and extend the portfolio of candidate vaccines for HIV and (re)-emerging infectious diseases to be tested in clinical trials
- improve the technology of immuno and viromonitoring for vaccine trials
- strengthen the partnership between immunologists, virologists, cell biologists, molecular biologists, pre-clinical model specialists and clinicians
- develop novel partnerships with industry
- pursue a social science program to analyze the specific issues related to communication on HIV and overall vaccinology
- bring strong expertise on regulatory, legal and ethical aspects
- provide the optimal environment for improved coordination of an integrated scientific program and of dedicated funding

<https://www.u-pec.fr/fr/universite/strategie-et-grands-projets/labex-vri-vaccine-research-institute>



Valneva is a specialty vaccine company focused on the development and commercialization of prophylactic vaccines for infectious diseases with significant unmet medical need. Valneva has leveraged its expertise and capabilities both to successfully commercialize three vaccines and to rapidly advance a broad range of vaccine candidates into the clinic, including candidates against Lyme disease and the chikungunya virus. Valneva's strategy stems from its vision to contribute to a world in which no one dies or suffers from a vaccine-preventable disease. Valneva aims to build a leading vaccines company with a portfolio of specialized assets targeting diseases with limited preventive or therapeutic treatment options.

<https://valneva.com/>



The Vaccine Formulation Institute is a not-for-profit company dedicated to the development of adjuvants and formulations, with state-of-the-art laboratories in Switzerland. VFI was initially created in 2012 with the support of the World Health Organization in order to help the vaccine community to access more easily know-how and expertise in vaccine formulation and adjuvant technologies, in order to catalyzing the development of new-generation adjuvanted vaccines. VFI's mission is to develop clinically-relevant adjuvants and vaccine formulations to fight diseases in all parts of the world on an open-access basis. Its main activities consist of research and development of innovative adjuvant technologies, provision of adjuvants to the vaccine community for preclinical and clinical evaluation of vaccines, technology transfer of adjuvant technologies to industry partners to make them broadly accessible and affordable, and provision of training on adjuvants and vaccine formulations to vaccinologists worldwide, with a specific focus on low- and middle-income countries. VFI has recently completed the development of SWE, the first adjuvant for prophylactic human vaccines in open-access since the aluminium salts. SWE is an oil-in-water emulsion now commercialized by Seppic under the trademark Sepivac SWE™ which is under clinical evaluation by numerous institutions worldwide.

<https://www.vaccineformulationinstitute.org/>



The Vaccine and Infectious Disease Organization (VIDO), Canada's Centre for Pandemic Research, operates one of the largest and most advanced high containment facilities with capacity to house a variety of small and large animal species from bats to bison. VIDO is a world leader in infectious disease research and vaccine development for humans and animals. As part of the University of Saskatchewan,

VIDO's expertise, infrastructure, and history put us at the forefront of innovation and make us a valuable resource and a source of pride for Canada. For over 45 years, we have trained graduate-level scientists and developed solutions to emerging diseases including eight commercially available vaccines, with several others in regulatory development. We have played a key role in Canada's response to the COVID-19 pandemic. To strengthen Canada's preparedness for emerging infectious diseases, we are expanding our capabilities as Canada's Centre for Pandemic Research:

- Opening the Vaccine Development Centre, pilot scale biomanufacturing facility with flexibility to conduct process development and meet good manufacturing practice requirements for all vaccine platforms and a variety of protein biologics.
- Adding containment level 4 capacity, which will allow us to work with ANY pathogen.
- Building a new animal facility capable of housing a wider range of animals, which will expand our preclinical research and development capacity.
- Attracting new talent to expand our expertise and providing training opportunities to develop the next generation of scientists.

These important enhancements will support scientists from Canada and around the world to develop vaccines and therapeutics for humans and animals.

<https://www.vido.org/>



Within the last decade, Vakzine Projektmanagement GmbH (VPM) has successfully managed and consulted the development of promising biopharmaceutical candidates, ranging from small molecules, recombinant proteins up to gene-modified live vaccines and ATMPs. VPM brought these products for its customers in the pharmaceutical industry, academic research and small biotechnology companies, from preclinical phase through clinical phases I-III. Since 2012 VPM has started its consulting and service business. Based on its in-depth experience and a strong network of reliable partners, VPM offers tailor-made hands-on services and consultancy. The clients are small, medium and large biopharmaceutical enterprises, as well as private funding organizations, and research groups. The consulting and service offers refer to the entire product development value chain as VPM has experienced and successfully mastered each of these value points for itself. Since July 2018 Serum Institute of India (SIPL) is majority shareholder of VPM. SIPL is the world's largest vaccine manufacturer by number of doses produced and sold globally (more than 1.3 billion doses) which includes Polio vaccine as well as Diphtheria, Tetanus, Pertussis, Hib, BCG, r-Hepatitis B, Measles, Mumps and Rubella vaccines. Vaccines manufactured by SIPL are accredited by the World Health Organization, Geneva and are being used in around 170 countries across the globe in their national immunization programs, saving millions of lives throughout the world. The acquisition through SIPL provides VPM and its clients a direct link to cost-effective GMP manufacturing. Since the foundation of the company, VPM has also developed five own products and focused its resources then on the three main products: a) a bladder cancer immunotherapeutic (VPM1002BC), b) a novel tuberculosis vaccine candidate (VPM1002), and c) a CMV vaccine (VPM2001). These products have a combined target market of more than 6 billion Euros. All three products have been successfully out-licensed to pharmaceutical

companies including R&D contracts to further pursue with the development. Founded originally in August 2002, VPM was established following an initiative of the German Federal Ministry of Education and Research (BMBF) to promote the development of vaccines in Germany. Scope of the vaccine initiative was the funding of rapid transfer of results from basic research into the development of new vaccines. The BMBF provided VPM with 25.6 million euros funding between 2001 and 2010 to organize and finance the preclinical and clinical development of vaccines nationwide. To this end, VPM acquired proprietary rights to promising vaccine candidates from public German laboratories and managed their development until further licensing to industrial partners. In order to identify such promising vaccine candidates in Germany, a map of vaccine research with the associated technologies for research and development of vaccines was drawn up at the beginning of the BMBF funding and updated in 2006.

<https://www.vpm-consult.com/>



Founded in 1948, WHO is the United Nations agency that connects nations, partners and people to promote health, keep the world safe and serve the vulnerable – so everyone, everywhere can attain the highest level of health. WHO leads global efforts to expand universal health coverage. We direct and coordinate the world's response to health emergencies. And we promote healthier lives – from pregnancy care through old age. Our Triple Billion targets outline an ambitious plan for the world to achieve good health for all using science-based policies and programmes. Our team of 8000+ professionals includes the world's leading public health experts, including doctors, epidemiologists, scientists and managers. Together, we coordinate the world's response to health emergencies, promote well-being, prevent disease and expand access to health care. By connecting nations, people and partners to scientific evidence they can rely on, we strive to give everyone an equal chance at a safe and healthy life. From emerging epidemics such as COVID-19 and Zika to the persistent threat of communicable diseases including HIV, malaria and tuberculosis and chronic diseases such as diabetes, heart disease and cancer, we bring together 194 countries and work on the frontlines in 150+ locations to confront the biggest health challenges of our time and measurably advance the well-being of the world's people. Every day, WHO's experts are dedicated to creating a world free from disease and addressing the social conditions that influence human health and well-being. The Thirteenth General Programme of Work (GPW 13) defines WHO's strategy for the five-year period, 2019-2023. It focuses on triple billion targets to achieve measurable impacts on people's health at the country level. The triple billion targets are to ensure by 2023:

- One billion more people are benefiting from universal health coverage
- One billion more people are better protected from health emergencies
- One billion more people are enjoying better health and well-being

<https://www.who.int/>



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