

CENTRE FOR EMERGING VIRAL DISEASES

Geneva University Hospitals
Faculty of Medicine, University of Geneva



Our expertise

The Centre for Emerging Viral Diseases provides unique expertise in Switzerland in preparing for and responding to viral epidemics and pandemics.

At the cutting edge of virological diagnosis

The Centre for Emerging Viral Diseases houses the high-security laboratories essential to the work of the National Reference Centres for Influenza (CNRI) and Emerging Viruses (CRIVE). Thanks to the infrastructure of the Geneva University Hospitals (HUG) and subsidies from the Federal Office of Public Health (FOPH), the centre has the only Swiss laboratory dedicated to the diagnosis of rare or highly pathogenic viral infections available 7 days a week for the whole of Switzerland.

A clinical, diagnostic and public health mission

One of our Centre's priorities is to provide high-quality medical care. This includes the use of the latest antiviral treatments.

The centre brings together specialists in infectious diseases, tropical medicine, vaccinology and epidemiology to monitor and study new viruses that are dangerous to humans. Thanks to its expertise and long tradition in the field of viral diseases, the centre was on the front line during the Covid-19 pandemic, and even more recently during the monkeypox epidemic.

As a key player in public health in the field of viral diseases, the centre is an indispensable resource not only for hospitals, but also for health authorities and international organizations in Geneva.

A research mission

Supported by the Faculty of Medicine at the University of Geneva, our specialists conduct fundamental and translational research aimed at improving our understanding of viral infections. This research is internationally recognized.

Fast response to epidemics

Being ready to react quickly to new epidemic threats is crucial for the years to come. Covid-19 and monkeypox are just two recent examples of the risk posed by viral diseases. They illustrate the complexity of emerging or re-emerging viruses, for which there are often no treatments or vaccines immediately available.

Promoting expertise in the service of health

The Centre's strength lies in its passionate and determined members. To ensure that its mission and institutions continue to shine in a complex and competitive world, the aim is to strengthen this team.

The Centre's strategy is based on a long experience, which began many years before our society painfully realized the importance of viral diseases and their remarkable capacity to create pandemics.

WHO Collaborating Centre

The centre has been designated as a World Health Organization (WHO) Collaborating Centre for Epidemic and Pandemic Diseases. This collaboration includes technical support for clinical management and the development of recommendations, as well as the sharing, development, evaluation and validation of diagnostic tools to prepare for future epidemics.

The centre and its partners

Geneva Centre for Emerging Viral Diseases



Infectious Diseases Department

Medical expertise
Clinical and research activities
Patient care HIV unit

WHO Collaborating Centre

Reference laboratory for Covid-19
Reference laboratory for measles and rubella



Laboratory Medicine Department

Virology Laboratory

Diagnosis of viral diseases
P3 and P4D high-security laboratory

Swiss National Reference Laboratories

Emerging viral diseases
Influenza



Faculty of Medicine, University of Geneva

Research and development
Diagnostic development
Department of Microbiology and Molecular Medicine

Public health

Partnership and expertise for public health authorities and the WHO



Vaccinology Centre

Department of Tropical and Humanitarian Medicine

Institute of Global Health

Who are we?

Coordination and Supervision



Prof. Laurent Kaiser is in charge of the Infectious Diseases Department. A specialist in clinical virology since the the AIDS pandemic, he was behind the creation of Europe's only in-hospital laboratory for diagnosing the most dangerous viruses.



Prof. Isabella Eckerle is a Doctor of Medicine specializing in virology, with particular expertise in zoonotic viruses, particularly coronaviruses. She heads a research group affiliated to the Faculty of Medicine. She is an expert at the European Centre for Disease Prevention and Control, the WHO and the Robert Koch Institute.



Dr. Manuel Schibler, MD-PhD in virology, is head of the virology laboratory and a clinician in infectious diseases. He was involved in the Ebola, Covid-19 and monkeypox crises, in terms of both hospital preparation and the development of diagnostic tools.

Clinics, Epidemiology and Applied Vaccinology



Dr. Pauline Vetter, an infectious diseases specialist with a degree in tropical medicine, is the lead clinician and an expert in emerging viral diseases. She has carried out several Ebola missions focusing on clinical management and vaccination. During the Covid-19 pandemic and the mpox epidemic, she acted as liaison between the hospital, the laboratory and the public health authorities.



Dr. Frédérique Jacquériorz Bausch is a specialist in tropical and travel medicine and public health, with experience in South America and Africa. During the Ebola and Marburg epidemics, she was deployed as a WHO consultant. She was responsible for supervising diagnostic and vaccination centres during the Covid-19 crisis. She is a member of several WHO working groups.



Prof. Alexandra Calmy is Vice-Dean of the Faculty of Medicine. Her research, focused on HIV-AIDS, is internationally recognised. She has developed unique expertise in the management of antiviral therapies, particularly during the Covid-19 crisis. She is a member of numerous national and WHO working groups.

National Reference Centre for Influenza (CNRI)

The CNRI team, supported by the FOPH and recognized by the WHO, has been monitoring influenza since 1986 and respiratory viruses since 2020.



Dr. Ana Rita Gonçalves Cabecinhas, PhD biologist, head of the National Reference Centre for Influenza.

National Reference Centers for Emerging Viral Infections (CRIVE) and for Measles and Rubella (CNRRR)

The CRIVE is the only laboratory in Switzerland able to respond 7 days a week to public health needs in the field of emerging viral diseases. During the influenza pandemics of 2009 and Covid-19, it acted as the only competent laboratory in the early stages. Its organization is unique in Europe, enabling it to diagnose most viral infections known to affect humans.



Dr. Pascal Cherpillod, PhD biologist, co-responsible for the laboratory, biosafety officer, in charge of the P3 and P4D biosafety laboratories



Dr. Francisco Perez Rodriguez, PhD biologist, characterization and development of assays for emerging viruses.

Genomic Characterisation of Viruses

Thanks to the expertise of our biologists, the Emerging Viral Diseases Centre has access to a wide range of sequencing methods including next generation sequencing. This activity requires constant technological adaptation and advanced bioinformatics support.



Dr. Samuel Cordey, PhD biologist, FAMH specialist in medical microbiology, responsible for genomic analysis.



Sabine Yerly, quality manager, biologist responsible for automated analyses and specialist in HIV and hepatitis C.



Dr. Adriana Renzoni, PhD biologist, FAMH specialist in medical microbiology, responsible for the development of serologies and new methods.

Associated groups and partners

The Centre of Vaccinology

This centre has unique expertise in vaccinology, and issues recommendations for the community, hospitalized people and in complex situations. The Center for Vaccinology focuses its research on immune responses induced by vaccines and viral infections.



Dr. Christiane Eberhardt, PD, private docent, is head of the HUG's Vaccinology Centre. Her research focuses on maternal vaccination and immune responses to viral infections and immunizations.



Prof. Arnaud Didierlaurent, chair of the Giorgi-Cavaglieri Foundation, is the director of the Center for Vaccinology at the Faculty of Medicine. He is a specialist in immunology and has extensive experience in applied research thanks to a career in private industry where he worked on vaccine adjuvants.

Department of Tropical Medicine and Humanitarian Services

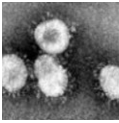


Prof. François Chappuis is responsible for the Department of tropical Medicine and Humanitarian Services. His experience in tropical medicine and clinical parasitology is extensive and covers the epidemiology, diagnosis and treatment of parasitic diseases and the prevention and treatment of snake bites.

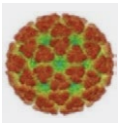
The main emerging viruses in recent decades



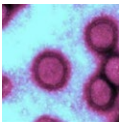
West Nile virus – 1999 – Originated in Africa. It causes severe encephalitis. It suddenly spread to New York in 1999, before spreading to the rest of North America and Europe.



SARS-CoV-1 – 2003 – First large-scale deadly epidemic caused by a coronavirus. Shook China before spreading to 29 countries around the world. For the first time, under the aegis of the WHO, drastic health measures were deployed on a global scale.



Chikungunya – 2005 – Spread from Africa to Réunion Island, before reaching India and South America. Caused millions of infections. Chronic arthritis as the main complication. Silent, forgotten epidemic. Expected to appear in Europe.



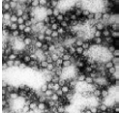
Influenza A (H1N1) pandemic – 2009 – Mixture of a human and pig virus similar to the Spanish flu in 1918. The impact on the number of deaths was initially considered limited, but it has been the cause of all seasonal epidemics since then, resulting in several hundred thousand deaths worldwide.



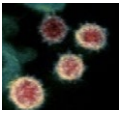
Zika – 2013 – Emerged in Polynesia, then spread to South America. It causes foetal malformations that have only been observed since 2015, several decades after the virus was identified.



Ebola – 2014 – Largest epidemic ever observed in Africa of a virus known since 1976. Frequent outbreaks in Central Africa. One of the most virulent viruses in the world. A constant threat in countries where the reservoir (bats) lives.



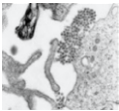
Yellow fever – 2016 – Epidemics in Africa and Brazil probably linked to deforestation. Extremely dangerous virus for which there is a shortage of vaccines in endemic countries. One death in Switzerland of a person returning from a trip.



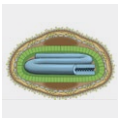
SARS-CoV-2 – 2019 – Zoonotic origin from a bat virus, whose transmission route humans remains to be determined. A pandemic that illustrates the need for a centre of expertise in the years to come.



Avian flu (Influenza H5N1) – 2021 – A virus mainly affecting animals. A large-scale and unprecedented epidemic has been observed in birds in recent years. Its zoonotic transmission combined with the potential for increased adaptation to mammals could pave the way for a new pandemic.



Dengue – 2022 – Recurrent epidemics killing thousands of children in Asia, Africa and South America. Climate change is extending its area of activity, with small-scale epidemics regularly observed around the Mediterranean basin.



Monkeypox (mpox) – 2022 – A neglected virus that has spread worldwide, from the same family as the human smallpox virus. Its impact on global health remains underestimated.



Disease X – ? – It is estimated that there are over 1.6 million viruses yet to be discovered in animals. Changes in our lifestyles, human population growth, the modification of ecosystems, loss of biodiversity and climate change are all factors that will favour the emergence of these viruses in the years to come.

Practical information

Contact

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➔ www.hug.ch/en/centre-emerging-viral-diseases

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Access

Bus 1, 5, 7 and 35,
"Hôpital" stop

Bus 3, "Claparède" stop

Léman Express,
"Genève-Champel" stop

Car parks

H-Cluse et H-Lombard



This brochure was produced by the Infectious Diseases Department in collaboration with the Communications Department.