



PRESS RELEASE

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A new laboratory to strengthen virus research

By upgrading a biosafety level 3 (BSL3) laboratory, the UNIGE is increasing its capacity to conduct research on highly pathogenic viruses, in particular on SARS-CoV2.

In terms of safety, potentially pathogenic biological agents are classified into four levels — from 1 to 4 — according to their danger to human or environmental health. SARS-CoV2 is classified as a BSL3 pathogen, like HIV or hepatitis B and C viruses. In order to carry out research aimed at developing effective treatments or vaccines against these potentially deadly viruses, scientists need specially equipped laboratories that ensure both their safety and that of the environment. Such high-tech facilities are rare. The University of Geneva (UNIGE) is now opening a BSL3 laboratory in the University Medical Centre (CMU), which will provide its researchers with the instruments necessary for cutting-edge research, particularly in the field of coronavirus.

The COVID-19 pandemic has put virologists in the spotlight: at the UNIGE Faculty of Medicine, several virus expert teams have launched fundamental or translational research projects aimed at discovering new treatments or infection prevention strategies. But to be able to work efficiently and safely, a BSL3 laboratory is essential. “COVID-19 highlighted the lack of suitable premises at the UNIGE, and enabled us to quickly release the necessary funds to secure and equip BSL3 laboratory”, says Caroline Tapparel Vu, professor in the Department of Microbiology and Molecular Medicine at the UNIGE Faculty of Medicine and academic director of the laboratory.

Blood-borne and airborne viruses

The Faculty of Medicine already had a BSL3 laboratory, initially set up to study blood-borne viruses, such as HIV and certain hepatitis viruses. However, this laboratory was not equipped to handle many other BSL3-classified viruses, notably, airborne viruses such as coronaviruses. “Airborne viruses, which are generally much more contagious, require more secure equipment”, explains Sophie Clément-Leboube, future operational manager of the laboratory. “We have therefore installed isolators with integrated gloves to ensure the complete separation of experimenters from the viruses. In addition, an integrated microscope in total confinement but connected to a network allows the observation of the evolution of an infected cell remotely over several hours.”

Safety as a primary concern

The BSL3 laboratory is a highly secure environment: maintained under constant under-pressure to minimize the risk of an accidental release of pathogens in the environment, it will only be accessible to trai-



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View of the laboratory and of the equipment needed for airborne virus research at UNIGE.

High resolution pictures

ned scientists holding a formal authorisation, by the Federal Office for Public Health. It will also allow samples to be stored for research purposes. “However, of course, no virus or infected cell leaves the laboratory alive”, Sophie Clément-Leboube stresses. “The laboratory is constantly monitored, all waste is destroyed at high temperature inside the BSL3 and the air is continuously cleaned by a high-efficiency particle filter.”

“We are increasingly witnessing the emergence or re-emergence of viral diseases”, notes Caroline Tapparel Vu. «Research is intensifying and we can now count on safe and reliable tools, which complete the already extremely wide range of research platforms at the Faculty of Medicine”

As the laboratory does not yet house a pathogen, a press visit is organised on Friday 22 October, from 10 am to 12 pm. Please register by e-mail at media@unige.ch.

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