

PRESS RELEASE

For immediate release

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COVID-PATH: Unveiling the gut's role in COVID-19 and Long COVID

The COVID-PATH project was officially launched on March 12, 2025, to investigate the gastrointestinal (GI) impact of SARS-CoV-2 and its link to Long COVID. This three-year International Collaborative Research Project (PRCI) brings together the Joliot Institute of the French major research organisation CEA, the Luxembourg Institute of Health (LIH), and the Luxembourg Centre for Systems Biomedicine (LCSB) at the University of Luxembourg. Co-led by Dr. Lucia Grenga (CEA) and Prof. Markus Ollert (LIH), and involving the group of Prof. Paul Wilmes at LCSB, this ambitious project has been awarded €1.16 million in co-funding from the French National Research Agency (ANR) and the Luxembourg National Research Fund (FNR).

Since the onset of the COVID-19 pandemic, growing evidence suggests that the gastrointestinal tract acts as a key player in disease severity and long-term health outcomes. Research, including previous findings from the project's partners, indicates that even mild or asymptomatic COVID-19 cases face a substantial risk of developing Long COVID. Given the gut microbiome's fundamental role in immune regulation and overall health, COVID-PATH will employ advanced metagenomics, metaproteomics, and immune profiling to investigate how SARS-CoV-2 infection in the GI tract contributes to microbiome dysbiosis, intestinal barrier dysfunction, and dysregulated immune responses.

The project takes a human-centric, data-driven approach, analyzing biological samples collected in Luxembourg during the pandemic to deepen our understanding of COVID-19 pathophysiology. By uncovering the early mechanisms underlying Long COVID, COVID-PATH aims to identify biomarkers of disease progression, paving the way for targeted prevention and intervention strategies, ultimately offering hope for more effective treatments and improved long-term outcomes for patients.

"A project like COVID-PATH, which explores the intricate interplay between the gut microbiome, SARS-CoV-2 infection and immunity, is crucial for both fundamental research and informing future medical strategies", noted the project leaders.

About the ANR: <https://anr.fr/en/>

About the FNR: <https://www.fnr.lu/>

About the Luxembourg Institute of Health (LIH)

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.

The 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.

About the Luxembourg Centre for Systems Biomedicine

The Luxembourg Centre for Systems Biomedicine (LCSB) is an interdisciplinary research centre at the University of Luxembourg. Its 250 staff members combine their expertise in a broad spectrum of disciplines - from computational biology to clinical and experimental neuroscience – to study the brain and its diseases. Research at the LCSB focuses on neurodegenerative disorders such as Alzheimer’s or Parkinson’s. Collaboration between biologists, medical and computer scientists, physicists, engineers as well as mathematicians offers new insights into complex biological mechanisms and disease processes, with the aim of developing new tools for diagnostics, prevention, and therapy.

The LCSB has established strategic partnerships with scientific partners worldwide and with all major biomedical research units in Luxembourg. The centre also carries out collaborative projects with hospitals and research-oriented companies, accelerating the translation of fundamental research results into clinical applications, for the benefit of patients.

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