

TACKLING COVID-19: THE NEW EU-FUNDED COVIRNA PROJECT

A diagnostic test to improve surveillance and care of COVID-19 patients

The COVIRNA project, led by the Luxembourg Institute of Health (LIH), is one of the 23 research projects awarded within the framework of the Horizon 2020 call for Expression of Interest “Innovative and rapid health-related approaches to respond to COVID-19 and to deliver quick results for society for a higher level of preparedness of health systems”. The project aims to foster the development of a novel diagnostic test to predict COVID-19 outcomes for patients and improve the cooperation between European research institutions to strengthen the response to the pandemic.

THE COVIRNA PROJECT IS BORN

On May 19th 2020, the European Commission launched the *Second call for an Expression of Interest for innovative and rapid health-related approaches to respond to COVID-19 and to deliver quick results for society for a higher level of preparedness of health systems* (SC1-PHECORONAVIRUS-2020-2) as part of the ERAvsCORONA Action Plan. An overall budget of €128.2 million is mobilised under this call, mainly originating from the Horizon 2020 (H2020) Framework Programme as part of the Commission's EUR 1.4 billion pledge to the Coronavirus Global Response. Complementing a first call aimed at advancing the knowledge of SARS-CoV-2 in relation to potential clinical and public health measures, this second call focused on wide-scale, rapid (within 3-24 months) deployment of readily available health-based technological solutions to manage and contain this current and future outbreaks.

In this context, and building on the network developed within the EU-CardioRNA (“Catalyzing transcriptomics research in cardiovascular disease”) COST Action, a consortium of 15 academic and innovative SME partners pooled their expertise and resources (notably by providing access to various European COVID-19 clinical cohorts) to build a multidisciplinary and multicentre study with the common aim to improve individualised surveillance, care and follow-up of COVID-19 patients in the context of the current pandemic.

Awarded under the topic SC1-PHE-CORONAVIRUS-2B (Medical technologies, Digital tools and Artificial Intelligence (AI) analytics to improve surveillance and care at high Technology Readiness Levels), the COVIRNA project started in November 2020 and will last 24 months.

WHAT COVIRNA IS

The LIH, through the Cardiovascular Research Unit of the Department of Population Health (DoPH), led by Dr Yvan Devaux, will be the Coordinator of **“COVIRNA”** (*A diagnostic test to improve surveillance and care of COVID-19 patients*). COVIRNA is a patient-centred Innovation Action aiming to generate a diagnostic tool to identify COVID-19 patients at risk of developing fatal cardiovascular complications, ultimately leading to their improved surveillance and care. In particular, the project will complete and deploy a prognostic system based on cardiovascular biomarkers of COVID-19 clinical outcomes, combined with a predictive model built on digital tools and artificial intelligence analytics.

THE SOLUTION

The team will conduct a large retrospective study on multiple existing cohorts of COVID-19 patients throughout Europe and upscale the already validated and patented “FIMICS” panel of cardiac-enriched long noncoding RNA biomarkers into an *in-vitro* diagnostic test (COVIRNA), adapted to COVID-19 patients. The study will therefore rapidly deliver a minimally-invasive, simple yet robust and affordable prognostic assay that can be used in the context of the current COVID-19 pandemic, as well as in further major health crises.

“By tackling the cardiovascular complications of COVID-19, which are known to contribute significantly to mortality, the project is expected to have a major impact on patient outcomes”, explains Dr Yvan Devaux. “The COVIRNA test will be CE-marked and made ready to be commercialised, allowing the stratification of patients according to their risk of developing cardiac side-effects, thereby improving therapeutic approaches and informing novel drug design”, he concludes.

THE COVIRNA TEAM

With a total budget of EUR 4.44 million and EUR 3.88 million of EU contribution, the project boasts a complementary consortium of 15 partners from healthcare, academia and industry from 12 European countries. The partners are:

- Luxembourg Institute of Health (LU)
- Firalis SA (FR)
- University of Luxembourg (LU)
- Imperial College of Science and Technology Medicine (UK)
- University of Maastricht (NL)
- European Health Management Association (BE)
- Heinrich-Heine-University of Düsseldorf (DE)
- The University of Edinburgh (UK)
- International University of Sarajevo (BA)
- Policlinico San Donato SPA (IT)
- Pharmahungary 2000 Kft (HU)
- University of Leipzig (DE)
- Jožef Stefan Institute (SI)
- Fundació Privada Institut de Recerca de l'Hospital de la Santa Creu i Sant Pau (SP)
- University of Coimbra (PT)