

Announcement

Botnar Research Centre for Child Health supports eleven research projects to combat COVID-19

13 May 2020, Basel, The Botnar Research Centre for Child Health (BRCCH), with the support of Fondation Botnar, announces 11 research projects within its new initiative, Fast Track Call for Acute Global Health Challenges (FTC). The FTC is an Emergency Response to COVID-19 and the unprecedented global health challenges stemming from the pandemic. The overarching objective is to enable research that will help mitigate COVID-19-related medical and public health challenges in the short-term, as well as contribute to better preparedness and reduced global disease burden in the long-term. The initiative supports research in the following three areas:

1. Diagnostics for COVID-19 (5 projects)
2. Human Immune Response to COVID-19 (3 projects)
3. Medical Interventions and Disease Management for COVID-19 (3 projects)

“We were pleased to have received an impressive number of excellent project proposals from the scientific community in response to our Emergency Response Call. The projects we are now supporting are testimony of scientific excellence that our partner institutions provide to BRCCH’s goals and we are confident that their successful completion will significantly contribute to efforts tackling the global COVID-19 challenge.” – Prof Georg Holländer, BRCCH Director

Rapid and effective collaborations among BRCCH’s four partner institutions, University of Basel (UniBas) including University Hospital Basel (USB), ETH Zurich, University Children’s Hospital Basel (UKBB) and the Swiss Tropical and Public Health Institute (Swiss TPH), and in collaboration with research teams worldwide, will aim to address urgent health needs. The following consortia will start research activities this month. The total investments for COVID-19 projects will amount to CHF 15 Mio in total for a period of 2.5 years.

Within the ***Diagnostics*** focus of the Call, the project led by Prof Janos Vörös (ETH Zurich) aims to develop a mobile and rapid diagnostic test system for COVID-19 based on lateral flow assays. The project will provide a highly sensitive means for diagnosing SARS-CoV-2 infection at point-of-need.

In a project to be carried out in Lesotho, Dr Klaus Reither (Swiss TPH) and his team will combine artificial intelligence, chest X-ray and antigen-based diagnostic tests to enable and improve diagnosis of COVID-19 patients in low-income settings. This project will be carried out in collaboration with the Foundation for Innovative Diagnostics (FIND).

PCR-based testing has been widely adopted as a method to detect SARS-CoV-2 infection. While this method is sensitive, it is time-consuming and costly. To overcome these challenges, Prof Wendelin Stark (ETH Zurich) and his team aim to develop a portable PCR device that will allow viral testing to be carried out more rapidly and at a lower-cost. The device will have the potential to increase diagnostic capacity not only in high-income countries such as Switzerland, but also in low- and middle-income settings.

Prof Sai Reddy (ETH Zurich) and his team aim to use a novel approach based on molecular barcoding and deep sequencing that will allow up to approx. 5,000 individualised patient samples to be tested for SARS-CoV-2 at once, thereby enabling large-scale surveillance of COVID-19. In addition, Professor Reddy's team will develop an innovative high-throughput serology platform for detecting antibodies generated against SARS-CoV-2.

The team led by Prof Daniel Paris (Swiss TPH) aims to develop a simple, low-cost device that can detect antibodies against SARS-CoV-2 using saliva. The project seeks to identify individuals who have been previously infected with SARS-CoV-2 and to provide valuable insights into the variations in the immune response to COVID-19.

Within the ***Human Immune Response*** focus of the Call, the team led by Prof Alexandar Tzankov (USB & UniBas) aims to bring together long-standing expertise in autopsy, pathology, immunology and neurology in Basel to investigate the interactions of SARS-CoV-2 with tissues and organs derived from deceased patients. The project will contribute valuable insights into the pathogenesis of COVID-19 and into the future design of medical interventions for this disease.

The team led by Prof Christoph Hess (UniBas) aims to investigate the role of the immune response to COVID-19 in patients. The team will explore how biological processes in immune cells, particularly metabolism, and their respective functions are affected in patients with differing levels of disease severity with the aim of improving therapeutic interventions for COVID-19 patients.

Prof Andreas Moor (ETH Zurich) and his team will investigate B cell immunity in convalescent COVID-19 patients with the aim of identifying high-affinity antibodies against SARS-CoV-2 that could be further harnessed for therapeutic interventions.

Within the ***Medical Interventions and Disease Management*** arm of the Call, the project led by Prof Melissa Penny (Swiss TPH) seeks to harness mathematical modelling and machine learning approaches to guide and optimize clinical and public health strategies for diagnostics, therapeutic interventions, disease surveillance and management in the emergency response to the COVID-19 pandemic.

Prof Thomas Erb (UKBB) and his team aim to integrate innovative pressure sensors in low-cost ventilators to improve patient care and outcomes and to help overcome the global shortage of ventilators.

Prof Randall Platt (ETH Zurich) and his team seek to utilize a CRISPR-based screening approach to identify host factors that are important for SARS-CoV-2 infection to identify novel therapeutic targets for COVID-19.

“The FTC projects represent a multi-prong approach by Basel and Zurich researchers and clinicians to contribute outstanding science with the goal to apply and translate results worldwide. This is a global fight against the virus and the solutions should be global in scope as well.” – Prof Marcel Tanner, member of the Fondation Botnar Board

More details on the FTC can be found on the BRCCH website: brc.ch/ftc
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Background: The Botnar Research Centre for Child Health (BRCCH) was jointly opened in 2019 by the University of Basel and ETH Zurich. Based in Basel, Switzerland, the Centre is dedicated to advancing global child and adolescent health by developing new translational and scalable solutions in paediatrics. It combines the complementary expertise from its founding universities and the University Children's Hospital Basel (UKBB) and the Swiss Tropical and Public Health Institute. In addition to its focused research activities in paediatrics, the BRCCH launches for the first time an emergency initiative to promote immediate and pragmatic approaches to combat the global health crisis caused by COVID-19. The BRCCH is generously supported by [Fondation Botnar](#). Fondation Botnar is a Swiss-based foundation which champions the use of AI and digital technology to improve the health and well-being of children and young people in growing urban environments.

BRCCH: FTC-related questions can be directed to contact@brc.ch and communication-related questions can be directed to Dr Maressa Takahashi (maressa.takahashi@brc.ch).

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