

Leads



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Key Objectives of WP5

- Develop a combination of complementary OMICS-based approaches to characterize the molecular mechanisms of coronaviruses/host cell interactions, to understand and characterize the host response during the course of infection, and decipher how coronaviruses manipulate/hijack some of these responses
- Conduct longitudinal immunological and virological analysis on samples obtained from the COVID-19 cohorts
- Provide a comprehensive platform of assays and technologies to monitor and fully characterize the innate and adaptive immune responses induced by the novel therapeutics developed under CARE
- Perform data integration of phenotypic, serum, genetic, clinical, virological and immunological parameters to identify signatures of the infection predictive of clinical profiles or prognosis, as well as immune correlates associated with treatment efficacy

CONNECTIONS

with other work packages

Work packages 1 and 2

Identification of essential cellular pathways for replication which may lead to novel inhibitors of virus replication

Work package 4

Provision of guidance for selection of SARS-CoV-2 patient cohorts for antibody isolation from B cells

Work package 7

Transcriptomic analyses on samples from CARE clinical trial



BREAKTHROUGH moments

2020

Identification of CD177 as specific neutrophil activation marker and thus as a hallmark of COVID-19 severe disease

2022

Identification of a "core gene signature" associated with a history of thrombotic events in convalescent COVID-19

2024

Observation that **CoV infection leads to increased nucleotide levels and rewiring of glycolysis**

Identification of several lipid pathway modifying cellular proteins as pan-coronavirus host factors



Publication of **web application to visualize genes linked to human genetic associations to COVID-19**

KEY STATISTICS

OMICS approaches used	6
Human proteins interacting with SARS-CoV-2 proteins identified	1,143
Deregulated proteins identified	83
Proviral genes identified in RNAi screening for SARS-CoV-2	392
Antiviral genes identified in RNAi screening for SARS-CoV-2	403
Variants of concern studied	9

Partner Organisations

