

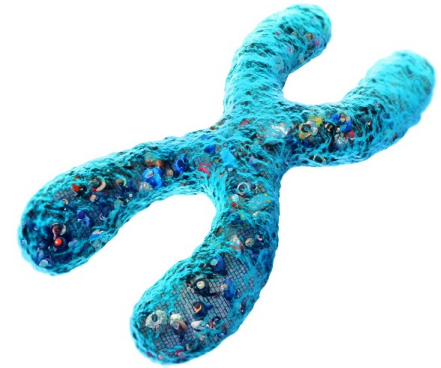
COVID-19: RAPID GLOBAL HOST RESPONSE GENETICS INITIATIVE

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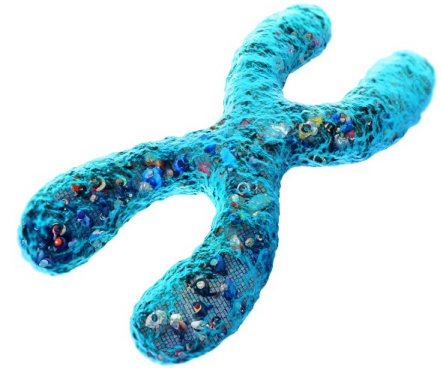
Background

- Genetic variation associated to severity/outcome (or infection) might provide clues to effective points of therapeutic attack...and perhaps clues to where existing drugs might be effectively reused...or identify individuals/groups at unusually high risk or protection



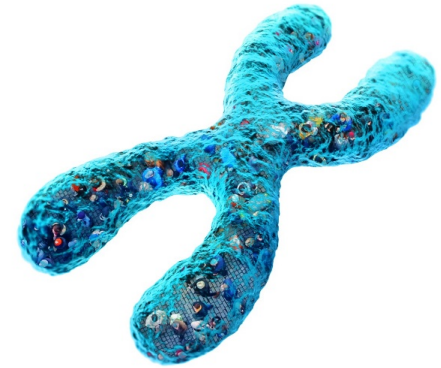
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- 2 types of studies possible:
 - Biobanks with existing genotypes and active connection to health care systems can in principle get 'real time' updates of infection status and severity from their cohorts
 - New studies have been launched to consent positive and hospitalized patients and track outcomes with rapid genotyping



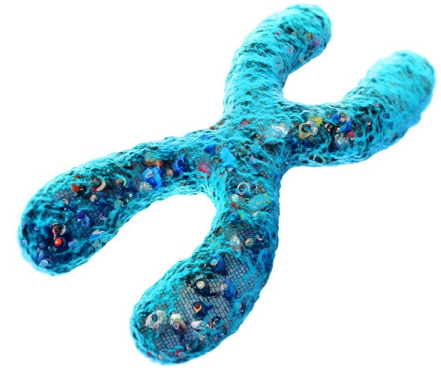
Three weeks ago

- We launched a collaboration with Alessandra Renieri (Siena) and clinical genetics network in N. Italy to study up to several thousand patients in Lombardy hospitals
- Markus Perola (THL) developed a proposal within Finland to enroll and study COVID-19 patients from all hospital districts in Finland
- FIMM offered to do free genotyping for these projects
- We began to explore how to update COVID-19 related phenotype in real time in FinnGen
- **...but we realized that this needed to be a global effort**



COVID-19 Host Genetics Initiative

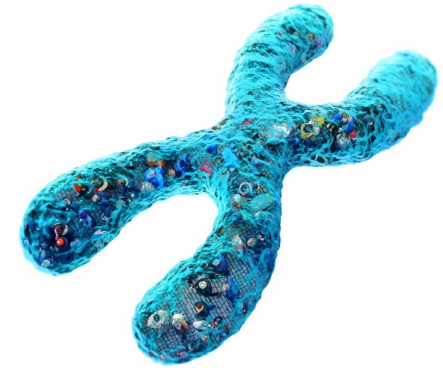
<https://www.covid19hg.org/>



The COVID-19 host genetics initiative is a bottom-up collaborative effort that has three main aims:

1. Provide an environment to foster the sharing of resources to facilitate COVID-19 host genetics research (e.g. protocols, questionnaires).
2. Organize analytical activities across studies to identify genetic determinants of COVID-19 susceptibility and severity.
3. Provide a platform to share the results from such activities, as well as the individual-level data where possible, to benefit the broader scientific community.

COVID-19 Host Genetics Initiative



7 Principles of Collaboration:

1. Collaborate in an environment of honesty, fairness and trust
2. Promote early-career researchers
3. Respect other group's data
4. Operate transparently with a goal of no surprises
5. Seek permission from each group to use results prior to public release
6. Do not share another group's results with other parties without permission
7. We should not inhibit any work being done within an individual studies (or between pairs of studies)

Analysts

Data contributors

<https://www.covid19hg.org/register/>



Study characteristics

ICDA (international common disease alliance)
admin support

Summary statistics

Individual-level data

[covid19-hg-upload](#)
[covid19-hg-analysis](#)



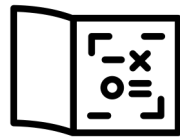
Every week



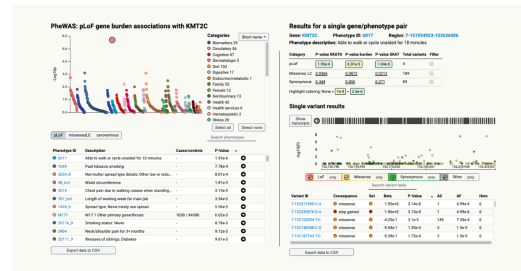
Questionnaire sharing



Protocol/consent sharing



Analysis plan (TBD)

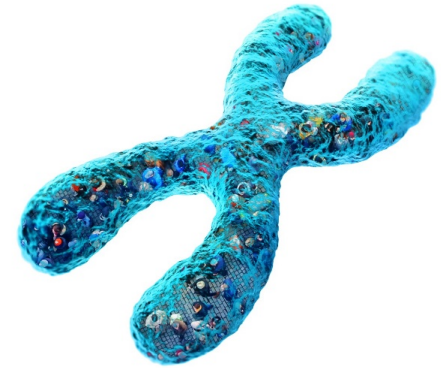


<https://www.covid19hg.org/>



https://twitter.com/covid19_hgi

COVID-19 Host Genetics Initiative



- > 40 studies registered
- ~ 250 users in the main slack channel
- > 5 questionnaires/IRB shared
- Several institute agreed helping with sequencing/genotyping including FIMM, Illumina, Regeneron, Erasmus MC

Ongoing:

- "matchmaking" between study interest
- Phenotype group led by James Priest (Stanford) will propose few phenotypes for GWAS meta-analysis
- Questionnaire harmonization led by Stefano Ceri (POLIMI)