

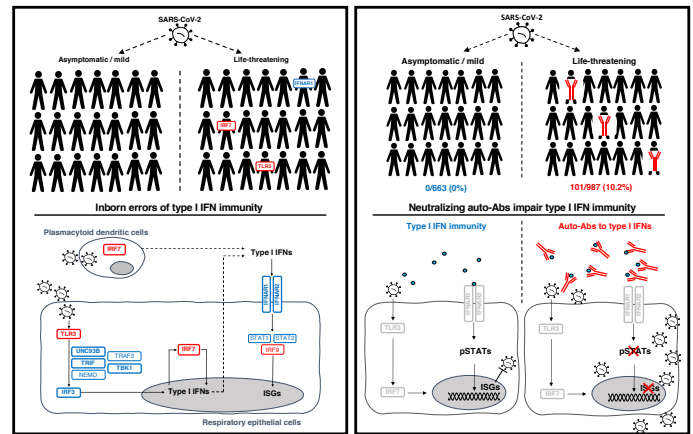
Scientists discover common genetic and immunological causes of life-threatening COVID-19

More than 10 percent of young and healthy people who develop severe COVID-19 have misguided antibodies that attack not the virus, but the immune system itself, new research shows. Another 3.5 percent, at least, carry a specific kind of genetic mutation. The study participants included various nationalities from Asia, Europe, Latin America, and the Middle East.

In both groups, the upshot is basically the same: The patients lack type I interferon, a set of 17 proteins crucial for protecting cells and the body from viruses. Whether the proteins have been neutralized by so-called auto-antibodies, or were not produced in sufficient amounts in the first place due to a faulty gene, their missing-in-action appears to be a common theme among a subgroup of COVID-19 sufferers whose disease has thus far been a mystery.

These findings help explain why some people develop a disease much more severe than others in their age group—including, for example, individuals who required admission to the ICU despite being in their 20s and free of underlying conditions. They may also provide the first molecular explanation for why more men than women die from the disease.

Published in two Science papers, these are the first results out of the [COVID Human Genetic Effort](#), an ongoing international project spanning over 50 research centres and hundreds of hospitals around the world, coordinated by The Rockefeller University (prof. JL Casanova) and the National Institute of Allergy and Infectious Diseases (prof. Helen Su) in the USA.



The Hellenic Pasteur Institute (HPI) (Bioinformatics and Applied Genomics Unit, headed by Dr. Timokratis Karamitros), is the only Greek research center participating in this consortium, supported by the “Sotiria Thoracic Diseases Hospital of Athens” (Infectious Diseases Clinic A’, Dr. G. Lourida and Dr. K. Argiraki). In the dedicated infrastructure that has developed, the HPI undertook the laboratory preparation of the samples (library preparation for exome sequencing), the analysis of all human genes based on next generation sequencing technology but also the downstream bioinformatics analysis for the identification of mutated genes, supporting this international effort and constantly pioneering in the international research against SARS-CoV-2 and COVID19.

Relevant links:

<https://science.sciencemag.org/content/early/2020/09/23/science.abd4570.full>

<https://science.sciencemag.org/content/early/2020/09/23/science.abd4585.full>

<https://www.theguardian.com/world/2020/sep/24/genetic-immune-defects-may-impair-ability-fight-covid-19>