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Covid-19: £8.4m announced to fund new immune response research in UK

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UK research bodies have committed £8.4m (€9.4m; $11.1m) to fund three new studies examining immune responses to covid-19.

Two studies will focus on key questions about covid-19 immunity, including how long it lasts, cross immunity, and the role of antibodies in immunity. A third study will examine covid-19's effects on vital organs.

The funding has been provided by UK Research and Innovation and the National Institute for Health Research. It will allow researchers to develop better tests to define immunity and to understand why some people suffer from life threatening covid-19 while others have mild or asymptomatic infections but can still transmit the virus.

The studies will also look at reinfection. This comes after the world's first covid-19 reinfection case was reported by scientists in Hong Kong.[1]

Fiona Watt, executive chair of the Medical Research Council (part of UK Research and Innovation), said, "The UK is funding a collaboration of world leading immunologists to investigate the major unanswered questions related to coronavirus immunity. Finding out more about the immune response to covid-19 will be key to developing better treatments and vaccines and improving public health strategies."

From the funding pot the UK Coronavirus Immunology Consortium will receive £6.5m to investigate immunity, particularly the T cell response, and find targets for new therapies to treat covid-19 and inform efforts in vaccine development.

The project will use samples and data from major UK covid-19 projects already under way, including the ISARIC-4C consortium (which is characterising and following more than 75 000 hospitalized patients with covid-19) and the genomic studies COG-UK (sequencing the SARS-CoV-2 virus genomes) and GenOMICC (sequencing the genomes of people with covid-19).

Separately, the Humoral Immune Correlates of Covid-19 consortium will receive £1.5m to study the humoral immune response—molecules produced by the immune system to fight infection, including antibodies. They will look at two cohorts: NHS workers and hospital patients.

The researchers are hoping to understand the differences between beneficial or protective antibody responses and those that cause disease. This could help determine why early indications are that people with stronger antibody responses may have had more life threatening disease, as well as what types of antibody responses are more effective at preventing serious infection.

Wilhelm Schwaeble and Jonathan Heeney, from the University of Cambridge, and Helen Baxendale, from Royal Papworth Hospital NHS Foundation Trust, are leading this research. They said, "Understanding the role of antibody responses to SARS-CoV-2, and the role that the overactivation of the immediate innate immune response to the virus plays through complement activation in the initiation and maintenance of inflammatory disease, is critical to improve the clinical management of life threatening cases of covid-19."

The third study, which has received £394 000 in funding, is focusing on the key features of fatal covid-19 and how the lungs and other vital organs are affected. The project, titled Inflammation in Covid-19: Exploration of Critical Aspects of Pathogenesis (ICECAP), will use authorised hospital postmortem examinations of covid-19 patients to locate the presence of the virus in multiple organs across the body and gain a deeper understanding of how the body's immune system is responding to the virus.

1 Parry J. Covid-19: Hong Kong scientists report first confirmed case of reinfection. *BMJ* 2020;370:m3340. doi: 10.1136/bmj.m3340 pmid: 32847834