The pandemic's silver lining? Widespread COVID immunity could provide platform for future cancer treatment

Steve McKinley

THE GOAL: To determine whether someone's immune response to the coronavirus can be repurposed to attack cancer tumours, given the premise that a large portion of the global population is expected to develop that immune response — through infection or potential vaccination — in the coming years.

THE TEAM: Dr. Shashi Gujar, a scientist in the Department of Pathology, Faculty of Medicine at Dalhousie University in Halifax, who is leading an international collaboration with partners in France, Denmark, Germany, the United States and India. Also on the team are Youra Kim, also with Dalhousie's Department of Pathology, and Jonathan Pol and Guido Kroemer, both of France.

THE TIMELINE: Using the immune response to COVID-19 to battle tumours is still many years down the line, but given the widespread distribution of the coronavirus, it's expected that hundreds of millions of people globally will have the immune response tools to be repurposed to fighting cancer. Cancer immunotherapy is already being used to treat melanoma, the deadliest form of skin cancer.

What brought on this idea?

Gujar's team has been working for several years on cancer immunotherapy as an alternative to chemical and radioactive treatments. He likes to refer to cancer immunotherapy as "retraining the immune system so it can go after cancer."

His work until now has been focused on using reoviruses for that purpose. Reoviruses are common RNA viruses that result in either asymptomatic infections or mild gastrointestinal symptoms in humans.

About 50 per cent of the human population has antibodies to the reovirus in their system. That means that at some point about 50 per cent of the world's population has been infected by a reovirus.

Those reovirus antibodies can be re-tasked to attack cancer cells, Gujar's team will argue in a soon-to-be-released paper. And if that can be accomplished using reovirus antibodies, it can likely be accomplished with coronavirus antibodies, too.

How would it work?

When the human body encounters an invader — called an antigen — it mounts an immune response. The response involves identifying the intruder, mounting a defence and killing the intruder.

T-cells are a major component in that process. The version that Gujar works with is