Source : www.thehindu.com Date : 2020-05-31

MONOCLONAL ANTIBODY TO BLOCK CORONAVIRUS INFECTION IDENTIFIED

Relevant for: Developmental Issues | Topic: Health & Sanitation and related issues

Useful discovery: The antibody could help block infection in cultured human cells. | Photo Credit: Utrecht University

When the news of the pandemic reached a team of researchers in the Netherlands, their first reaction was to go back and look at frozen antibodies that recognised the 2002 Severe Acute Respiratory Syndrome (SARS-CoV), which they had stored in the early 2000s during the outbreak. And surprisingly one of the antibodies was found to recognise the infection due to the novel coronavirus, SARS- CoV-2. Further study showed that it can help block infection in cultured human cells.

Berend-Jan Bosch from Utrecht University explained in a release that the antibody binds to a domain that is conserved in both SARS-CoV and SARS-CoV-2, explaining its ability to neutralise both viruses. He is one of the lead authors of the paper published in *Nature Communications.*

The paper adds that this antibody can help develop antigen detection tests and serological assays. “This antibody — either alone or in combination — offers the potential to prevent and/or treat COVID-19, and possibly also other future emerging diseases in humans caused by viruses from the *Sarbecovirus* subgenus,” the team writes.

Frank Grosveld, co-lead author of the study from Erasmus Medical Center explained to *The Hindu* in an email what a human monoclonal antibody is and the group’s previous work on it.

“We set out to make antibodies against SARS, MERS and HCoV-OC43 [another coronavirus] with the aim to get antibodies that would recognise all three coronaviruses. Parts of the proteins of these viruses are highly conserved (which means they are very similar) and we hoped to get antibodies that recognised these conserved parts. And indeed we found such antibodies [details of which] which were published some time ago.” He adds that the newly identified antibody was found among previously identified ones that did not recognise all three viruses and were put in the freezer.

“With new infections it is a race between the body making new antibodies versus the virus replicating, destroying cells and doing its damage. The antibodies that are made in humans or in the mice can be isolated by several tricks. The classic one is to fuse the B-cells with leukemic cells to make them immortal,” explains Dr. Grosveld.

“The fused B-cells called hybridomas are grown individually and tested whether they make an antibody that would recognise the target. Because they come from single B-cells hybridomas, they make only one specific antibody which is called a monoclonal antibody. When a monoclonal-like [antibody that] we have generated is given to patients it does its work immediately, that is, much faster that the body could make its own antibodies,” he adds.

Dr. Grosveld said that the team is currently testing the antibody in animal models and also collaborating with a pharmaceutical company to develop the antibody further. “On the more academic side we are studying how the antibody acts on the protein that the virus uses to infect cells.”

Dear reader,

We have been keeping you up-to-date with information on the developments in India and the world that have a bearing on our health and wellbeing, our lives and livelihoods, during these difficult times. To enable wide dissemination of news that is in public interest, we have increased the number of articles that can be read free, and extended free trial periods. However, we have a request for those who can afford to subscribe: please do. As we fight disinformation and misinformation, and keep apace with the happenings, we need to commit greater resources to news gathering operations. We promise to deliver quality journalism that stays away from vested interest and political propaganda.

A video explainer on the anti-body test and RT-PCR test

END