

DBT-NCCS partners with IIT-Indore, Bharat Biotech, PredOmix and AFMC in a joint initiative against COVID-19

Scientists at DBT's autonomous institution, the National Centre for Cell Science (NCCS), Pune, will work towards generating high-affinity human antibodies against SARS-CoV-2. They will work in association with partners from the Indian Institute of Technology (IIT), Indore, PredOmix Technologies Private Limited, Bharat Biotech International Limited, and the Armed Forces Medical College, Pune. Team aims to jointly explore strategies to produce the antibodies initially on a small scale in the research laboratories, for subsequent manufacture on a larger scale by the industry partners. This joint initiative is funded by the New Millennium Indian Technology Leadership Initiative (NMITLI), a flagship programme of the Council for Scientific and Industrial Research (CSIR). This partnership aims to help tackle the current pandemic more efficiently by leveraging the complementary expertise of academia and industry, as well as clinicians involved in frontline response to COVID-19.

There is an urgent and huge unmet need for novel therapeutic interventions to tackle the COVID-19 pandemic, given that no specific antiviral drugs or vaccines are available at present. Generally, the body's immune system helps fight diseases by producing proteins called antibodies. These antibodies can neutralize viruses by binding to them and preventing them from entering into the host's cells, which is necessary for the virus to survive and multiply. Antibodies thus block the spread of the virus and make them ineffective.

Strategies like vaccination protect us from disease by inducing our immune system to produce antibodies against specific viruses before somebody is exposed to the disease-causing virus. However, the development of a vaccine takes time and also relies on the ability of the individual to produce an immune response. The latter might present challenges in certain populations that often show an inadequate immune response, such as the elderly, and individuals with underlying health problems such as diabetes, in which COVID-19 can be more fatal. Furthermore, while vaccines work well for preventing infections, they provide little benefit once the infection is established. Therefore, alternative strategies are also necessary; especially to meet the immediate need to control COVID-19.

The passive transfer of highly-specific neutralizing antibodies against SARS-CoV2 could serve as a valuable option for the prevention and treatment of COVID-19. Therefore, the use of convalescent plasma, the antibody-rich component obtained from the blood of individuals who have recovered from COVID-19, is being much talked about as a possible intervention. However, meeting the high demand for convalescent plasma merely from blood donors who have recovered from the disease poses obvious challenges.

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