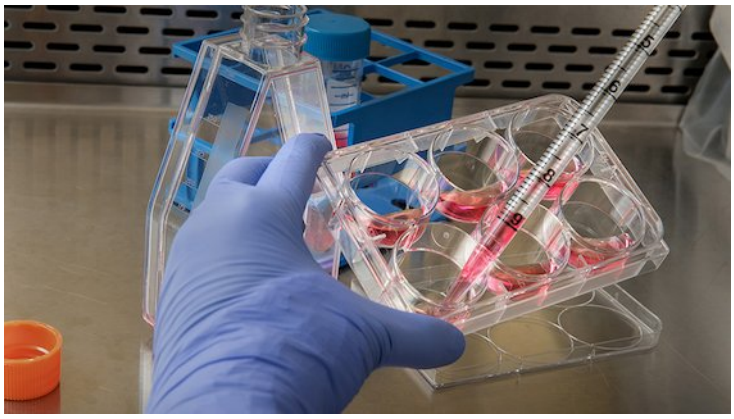
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Singapore identifies five potent Abs to fight COVID-19

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Human trials for the lead antibody, AOD01, are planned to commence in the upcoming months



Scientists from Defense Science Organisation National Laboratories (DSO) and the National University of Singapore (NUS) Yong Loo Lin School of Medicine have developed five human monoclonal antibodies with potent neutralising activity for SARS-CoV-2 virus.

These represent powerful new therapeutic or prophylactic candidate medicines to combat COVID-19. The five antibodies were isolated from blood samples taken from recovered COVID-19 patients.

This ground-breaking achievement comes after months of intensive research using an innovative screening technique jointly developed by DSO, NUS Yong Loo Lin School of Medicine and NUS Life Sciences Institute. Tens of thousands of individual antibody-secreting B cells were screened to identify antibodies with the strongest neutralising properties against SARS-CoV-2.

“By combining our complementary strengths in antibody biology, protein engineering, advanced informatics and automated high throughput screening, we have identified five antibodies that have demonstrated better neutralising activity on the coronavirus than any other antibodies or small molecule drugs reported thus far. These antibodies have been tested against live virus and verified in the laboratory to negate its ability to infect and multiply in human cells. They have also been tested against different strains of the COVID-19 virus, and were found to retain full efficacy against key mutations,” said Associate Professor Paul MacAry from the School’s Department of Microbiology and Immunology. He is leading the NUS research team in this collaboration.

Added Professor Chong Yap Seng, Dean of the NUS Yong Loo Lin School of Medicine, “This could well be the game-changer we have all been waiting for. This could be the magic bullet for treating COVID-19 although it is early days yet. These are fully human antibodies produced by human B-cells that are able to completely neutralise the SARS-CoV-2 wild type virus. Beyond its use for treatment of COVID-19 patients, it may be possible to use them as a form of passive vaccination while awaiting the elusive active vaccines the world is pining for.”

With this promising discovery, DSO, as part of a Whole-of-Government collaborative effort involving agencies such as the Ministry of Defence, Ministry of Health and the Economic Development Board, has brought together a Singapore-based consortium comprising government agencies, research institutes and biomedical companies to quickly advance the research

towards clinical trials. Human trials for the lead antibody, **AOD01**, are planned to commence in the upcoming months, pending approval from the Health Sciences Authority. Manufacturing capabilities have also been provisioned to scale up therapeutic antibody treatment for COVID-19 patients upon the successful completion of clinical trials.