Monoclonal antibody against SARS-CoV-2 with applications in diagnosis and treatment of COVID-19 disease

The CSIC has developed a new neutralizing monoclonal antibody against SARS-CoV-2 that can be used in the diagnosis and/or treatment for this viral infection. Industrial partners are being sought to collaborate through a patent license agreement or co-development.

An offer for Patent Licensing

New IgM monoclonal antibody to fight against COVID-19 that binds to a conformational epitope of RBD of Spike protein

The worldwide pandemic of COVID-19 has posed huge challenges to health systems. Since no effective therapy is available to date, and the disease is associated with high morbidity and mortality, there is a great need for therapeutic interventions for those who are ill as well as for prophylactic measures to contain outbreaks.

The entry of SARS-CoV-2 into an infected cell is mediated by binding of the viral spike protein via its receptor binding domain (RBD) to the human angiotensin converting enzyme-2 (ACE2) target receptor. Blocking this interaction by antibodies leads to a neutralization of the virus in patients and thus to a healing of the infection.

Inventors of CSIC have developed an IgM monoclonal antibody (mAb) that binds to a conformational epitope located in the receptor binding domain (RBD) of the SARS-CoV-2 spike protein and have an in vitro neutralizing capacity against SARS-CoV-2 much higher than other known commercially available monoclonal anti-SARS-CoV-2 antibody.

Main innovations and advantages

- In an in vitro system, the antibody is capable of neutralizing infection of mammalian cells by the SARS-CoV-2 virus with a 50% neutralization titer (NT50) of 0.07 nM or lower.
- In their studies, the antibody can recognize under no-reducing conditions different variants of SARS-CoV-2 (Wuhan, Alpha (B.1.1.7), Beta (B.1.351), Gamma (P.1), Delta (B.1.617.2), Epsilon (B.1.427/B1.429)).
- Useful as method of diagnosis of COVID-19. These new antibodies can be of interest for companies of diagnosis tests or molecular biology reagents, to be used to detect SARS-CoV-2 (S protein) under no-reducing condition techniques, such as confocal or electronic microscopy.

Patent Status

European patent application filed suitable for international extension

For more information, please contact:
Raquel Ballestero Lozano
Deputy Vice-Presidency for Knowledge Transfer
Spanish National Research Council (CSIC)
Tel.: 91 568 1919
E-mail: raquel.ballestero@csic.es
ana.sanz@csic.es
comercializacion@csic.es