Product Information

Anti-SARS-COV-2-Spike-RBD Region Antibody

Mouse Monoclonal, Clone Sp-10, Purified from Hybridoma Cell Culture

SAB4200875

Product Description

Monoclonal Anti-SARS-COV-2-Spike-RBD region antibody (mouse IgG1 isotype) is derived from the SP-10 hybridoma, produced by the fusion of mouse myeloma cells and splenocytes from a mouse immunized with synthetic peptide corresponding to the SARS-CoV-2 Spike protein RBD region (GeneID: QHD43416.1), conjugated to KLH as immunogen. The isotype is determined by ELISA using Mouse Monoclonal Antibody Isotyping Reagents (Sigma ISO-2). The antibody is purified from culture supernatant of hybridoma cells.

Monoclonal Anti-SARS-COV-2-Spike-RBD region antibody specifically recognizes Spike from COVID-19 virus origin. The antibody may be used in various immunochemical techniques including immunoblotting and ELISA. Detection of the Spike RBD protein band by immunoblotting is specifically inhibited by the immunogen.

Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) or (2019-nCoV) is a novel coronavirus that had spread on December 2019 in Hubei province of China and infected millions of people worldwide.[1] The causative agent of COVID-19, the SARS-CoV-2 virus is a positive-strand RNA virus. The mature SARS-CoV-2 contains 4 structural proteins: Envelope (E), Membrane (M), Nucleocapsid (N), and the Spike protein (S), E and M proteins help in viral assembly and N protein is needed for RNA synthesis. The main receptor for SARS-CoV and SARS-CoV-2 on the membrane of the target cells is the Angiotensin 2 Converting Enzyme (ACE2). ACE2 is a metallopeptidase present on the membrane of many cells, including type-I and -II pneumocytes, small intestine enterocytes, kidney proximal tubules cells, the endothelial cells of arteries and veins, and the arterial smooth muscle, among other tissues.[15-16]

It has been shown that SARS-CoV-2 virus employs transmembrane protease serine 2 (TMPRSS2) for S protein priming and it is speculated that furin-mediated cleavage at the S1/S2 site in infected cells, may promote subsequent TMPRSS2-dependent entry into target cells. The Spike protein (S) is responsible for virus binding and entry into the host cells. SARS-CoV-2 S protein precursor is cleaved into S1 subunit (685 amino acids), and S2 (588 amino acids) subunits. S1 subunit harbor the receptor binding domain (RBD) that mediates virus entry into susceptible cells through the peptidase domain of host ACE2 with high affinity (Kd = 15 nM). S2 protein, which is reported to be well-conserved and showing 99% identity with bat coronavirus, is responsible for the membrane fusion. The Spike protein is the most studied between the coronaviruses proteins, due to its crucial role in the host cell entry, it contains the RBD for the ligand on the host cell membrane (the ACE2 protein), and also has epitopes recognized by T and B cells, which induce the production of neutralizing antibodies.[2]

Anti-SARS-CoV-2-Spike protein antibodies are important tools in the COVID-19 research field and can be used for detection of Spike protein in different samples and in cell culture assays.[17]

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline pH 7.4, containing 15 mM sodium azide as a preservative.

Antibody Concentration: ~ 1.0 mg/mL

Precautions and Disclaimer

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Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

Product Profile

Immunoblotting

A working concentration of 0.1-0.2 µg/mL is recommended using SARS-CoV-2 RBD (Cat. No. SAE1000).

ELISA

A working concentration of 0.25-0.5 µg/mL is recommended using SARS-CoV-2 RBD (Cat. No. SAE1000) for coating.

Neutralizing ELISA

A working concentration of 20-40 µg/mL is recommended blocking the Spike RBD-ACE2 interaction using 2 µg/mL SARS-CoV-2 RBD (Cat. No. SAE1000) for coating and 2 µg/mL ACE2-Biotin (Cat. No. SAE0171) for competition. Applying antibody concentration of 20 µg/mL on a Spike RBD-coated well, will reduce > 65% of ACE2-Biotin binding signal, added to the well after Spike RBD-antibody incubation.

Note: In order to obtain best results in different techniques and preparations it is recommended to determine optimal working concentration by titration test.

References

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