# SARS-CoV-2 Spike RBD Antibody

Monoclonal Mouse $IgG_1$ Clone # 1049417

Catalog Number: MAB11294

## DESCRIPTION

| | |
|---|---|
| **Species Reactivity** | SARS-CoV-2 |
| **Specificity** | Detects SARS-CoV-2 Spike RBD in ELISA. |
| **Source** | Monoclonal Mouse $IgG_1$ Clone # 1049417 |
| **Purification** | Protein A or G purified from hybridoma culture supernatant |
| **Immunogen** | Human embryonic kidney cell, HEK293-derived sars-cov-2 Spike S1 Subunit protein<br>Val16-Pro681<br>Accession # YP_009724390.1 |
| **Formulation** | Lyophilized from a 0.2 μm filtered solution in PBS with Trehalose. See Certificate of Analysis for details.<br>*Small pack size (-SP) is supplied either lyophilized or as a 0.2 μm filtered solution in PBS. |

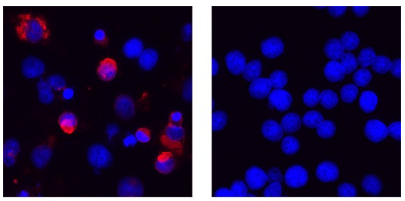
## APPLICATIONS

**Please Note:** *Optimal dilutions should be determined by each laboratory for each application. General Protocols are available in the Technical Information section on our website.*

| | Recommended Concentration | Sample |
|---|---|---|
| **Immunocytochemistry** | 8-25 µg/mL | Immersion fixed Transfected & Wild Type HEK293 Human Embryonic Kidney Cell Line |
| **Neutralization** | In a functional ELISA, 20.0 - 200 ng/mL of this antibody will block 50% of the binding of 50 ng/mL Recombinant Human ACE-2 (Catalog # 933-ZN) to Recombinant SARS-CoV-2 20A.EU2 Spike S1 Subunit His-tag (Catalog # 10780-CV) immobilized at 0.2 ug/mL (100 µL/well). | |
| **Blockade of Receptor-ligand Interaction** | In a functional flow cytometry test, 25 µg/mL of MsxSARS2-20A.EU2 S1 Antibody (Catalog # MAB11294) will block the binding of Recombinant SARS-CoV2 20A.EU2 S1 Protein (Catalog # 10780-CV) to HEK293 human embryonic kidney cell line transfected with recombinant human ACE-2. | |

## DATA

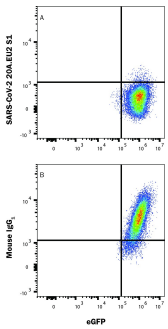
### Immunocytochemistry



Transfected HEK293 cells | WT HEK293 cells

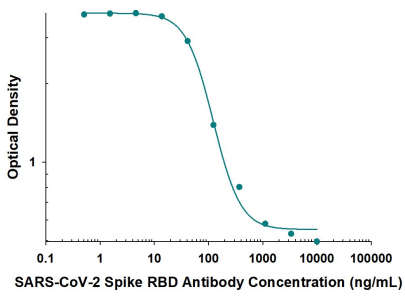
**Detection of Spike RBD in Transfected & Wild Type HEK293 Human Embryonic Kidney Cell Line.** Spike RBD was detected in immersion fixed Transfected & absent in Wild Type HEK293 Human Embryonic Kidney Cell Line using Mouse Anti-SARS-CoV-2 Spike RBD Monoclonal Antibody (Catalog # MAB11294) at 8 µg/mL for 3 hours at room temperature. Cells were stained using the NorthernLights™ 557-conjugated Anti-Mouse IgG Secondary Antibody (red; Catalog # NL007) and counterstained with DAPI (blue). Specific staining was localized to cytoplasm. View our protocol for Fluorescent ICC Staining of Cells on Coverslips.

### Blockade of Receptor-ligand Interaction




**SARS-CoV-2 variant protein (named 20A.EU2) binding to ACE-2-transfected Human Cell Line is Blocked by SARS2-20A.EU2 S1 Antibody.** In a functional flow cytometry test, Recombinant SARS-CoV2 20A.EU2 S1 His-tagged protein (Catalog # 10780-CV) binds to HEK293 human embryonic kidney cell line transfected with recombinant human ACE-2 and eGFP. (A) Binding is completely blocked by 25 µg/mL of Mouse Anti-SARS2-20A.EU2 S1 Antibody (Catalog # MAB11294) but not by (B) Mouse IgG1 Isotype Control (Catalog # MAB002). Protein binding was detected with Mouse Anti-His APC-conjugated Monoclonal Antibody (Catalog # IC050A). Staining was performed using our Staining Membrane-associated Proteins protocol.

### Neutralization




**SARS-CoV-2 Spike RBD ELISA Standard Curve** In a functional ELISA, 20.0 - 200 ng/mL of this antibody will block 50% of the binding of 50 ng/mL Recombinant Human ACE-2 (Catalog # 933-ZN) to Recombinant SARS-CoV-2 20A.EU2 Spike S1 Subunit His-tag (Catalog # 10780-CV) immobilized at 0.2 ug/mL (100 µL/well).



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Monoclonal Mouse $IgG_1$ Clone # 1049417

Catalog Number: MAB11294

## PREPARATION AND STORAGE

| | |
|---|---|
| **Reconstitution** | Reconstitute at 0.5 mg/mL in sterile PBS. |
| **Shipping** | The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.<br>*Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C |
| **Stability & Storage** | **Use a manual defrost freezer and avoid repeated freeze-thaw cycles.**<br>• 12 months from date of receipt, -20 to -70 °C as supplied.<br>• 1 month, 2 to 8 °C under sterile conditions after reconstitution.<br>• 6 months, -20 to -70 °C under sterile conditions after reconstitution. |

## BACKGROUND

SARS-CoV-2, which causes the global pandemic coronavirus disease 2019 (Covid-19), belongs to a family of viruses known as coronaviruses that are commonly comprised of four structural proteins: Spike protein (S), Envelope protein (E), Membrane protein (M), and Nucleocapsid protein (N) (1). SARS-CoV-2 Spike Protein (S Protein) is a glycoprotein that mediates membrane fusion and viral entry. The S protein is homotrimeric, with each ~180-kDa monomer consisting of two subunits, S1 and S2 (2). In SARS-CoV-2, as with most coronaviruses, proteolytic cleavage of the S protein into the S1 and S2 subunits is required for activation. The S1 subunit is focused on attachment of the protein to the host receptor while the S2 subunit is involved with cell fusion (3-5). The S1 protein of SARS-CoV-2 shares 65% and 22% amino acid (aa) sequence identity with the S1 protein of SARS-CoV-1 and MERS, respectively. The S Protein of the SARS-CoV-2 virus, like the SARS-CoV-1 counterpart, binds Angiotensin-Converting Enzyme 2 (ACE2), but with much higher affinity and faster binding kinetics through the receptor binding domain (RBD) located in the C-terminal region of S1 (6). Based on structural biology studies, the RBD can be oriented either in the up/standing or down/lying state with the up/standing state associated with higher pathogenicity (7). Polyclonal antibodies to the RBD of the SARS-CoV-2 S1 protein have been shown to inhibit interaction with the ACE2 receptor, confirming RBD as an attractive target for vaccinations or antiviral therapy (8). It has been demonstrated that the S Protein can invade host cells through the CD147/EMMPRIN receptor and mediate membrane fusion (9, 10). A SARS-CoV-2 variant (named 20A.EU2) carrying the S1 subunit amino acid (aa) change S477N and D614G emerged presumably in France and becomes the second most common variant in western Europe (11).

**References:**

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