PRODUCT INFORMATION
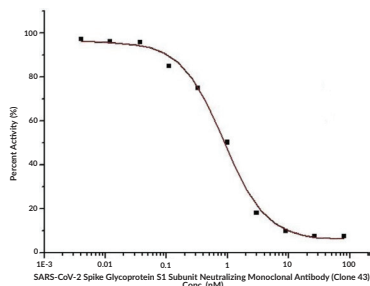
SARS-CoV-2 Spike Glycoprotein S1 Subunit Neutralizing Monoclonal Antibody (Clone 43)

Item No. 31999

Overview and Properties

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Contents:	This vial contains 100 µg of protein A-affinity purified monoclonal antibody.
Synonyms:	SARS-CoV-2 Spike S1 Subunit, SARS-CoV-2 Surface Glycoprotein S1 Subunit, Severe Acute Respiratory Syndrome Coronavirus 2 Spike Glycoprotein S1 Subunit, Severe Acute Respiratory Syndrome Coronavirus 2 Surface Glycoprotein S1 Subunit
Immunogen:	Recombinant SARS-CoV-2 spike glycoprotein S1 subunit (C-terminal mouse IgG1 Fc-tagged)
Cross Reactivity:	See page 2
Species Reactivity:	See page 2
Form:	Liquid
Storage:	-80°C (as supplied)
Stability:	≥1 year
Storage Buffer:	0.2 µm filtered solution in PBS
Clone:	43
Host:	Mouse
Isotype:	IgG1
Applications:	ELISA, Flow cytometry (FC), Immunohistochemistry (IHC; paraffin), and Microneutralization (MN) assays; the recommended starting concentration is 0.5-1 µg/ml for ELISA, 10-40 µg/ml for FC, and 10-50 µg/ml for IHC; paraffin. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Images

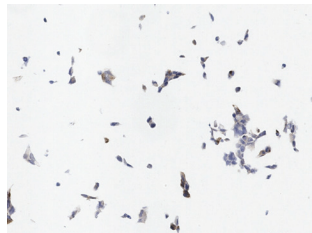**SARS-CoV-2 Spike Glycoprotein S1 Subunit Neutralizing Monoclonal Antibody (Clone 43)**
Conc. (nM)

Serial dilutions of SARS-CoV-2 Spike Glycoprotein S1 Subunit Neutralizing Monoclonal Antibody (Clone 43) was detected by SARS-CoV-2 (2019-nCoV) Inhibitor Screening ELISA Kit. The IC_{50} value is typically 0.5-5 nM for the wild-type protein.

Conc. (µg/mL)	Inhibition%
100	96.39%
10	94.57%
1	42.24%
0.1	-5.53%

The neutralization activity is measured by microneutralization (MN) assay *in vitro*. The virus MN test was performed on 293T-ACE2 cells infected with SARS-CoV-2 Spike Pseudovirus under treatment of log dilutions of neutralizing antibody. The infection was neutralized by increasing concentrations of SARS-CoV-2 Spike Glycoprotein S1 Subunit Neutralizing Monoclonal Antibody (Clone 43). Rate of inhibition was determined by comparing the Relative Light Unit (RLU) of luciferase reporter in different antibody concentrations. The IC_{50} value is typically 1.41 µg/ml for the wild-type protein.

SARS-CoV-2 Spike Glycoprotein S1 Subunit Neutralizing Monoclonal Antibody (Clone 43) with negative control
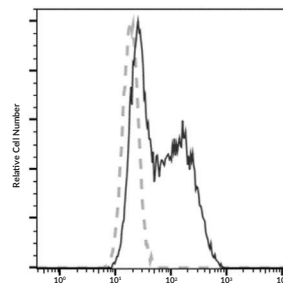
Flow cytometric analysis of SARS-CoV-2 spike overexpressed in HEK293 cells. Cells were stained with purified SARS-CoV-2 Spike Glycoprotein S1 Subunit Neutralizing Monoclonal Antibody (Clone 43), followed by a FITC-conjugated second step antibody. The fluorescence histograms were derived from gated events with the forward and side light-scatter characteristics of intact cells.

Immunochemical analysis of SARS-CoV-2 spike overexpressed in HEK293 cells. Cells were stained with purified SARS-CoV-2 Spike Glycoprotein S1 Subunit Neutralizing Monoclonal Antibody (Clone 43), followed by a HRP-conjugated second step antibody.

Cross Reactivity:	(+) SARS-CoV-2 Delta (B.1.617.2) spike glycoprotein S1+S2 trimer, SARS-CoV-2 Delta (B.1.617.2) spike glycoprotein RBD, SARS-CoV-2 spike glycoprotein RBD; (-) SARS-CoV-2 Omicron (BA.1.1) spike glycoprotein S1+S2 trimer, SARS-CoV-2 Omicron (BA.1.1) spike glycoprotein RBD, SARS-CoV-2 Omicron (B.1.1.529) S1+S2 trimer, SARS-CoV-2 Omicron (B.1.1.529) spike glycoprotein RBD, SARS-CoV-2 Omicron (BA.2) spike glycoprotein S1+S2 trimer, SARS-CoV-2 Omicron (BA.2) spike glycoprotein RBD, SARS-CoV-2 Omicron (BA.2) spike glycoprotein S1 subunit-NTD, SARS-CoV-2 Omicron (BA.2.12.1) spike glycoprotein RBD, SARS-CoV-2 Omicron (BA.4) spike glycoprotein RBD, SARS-CoV-2 Omicron (BA.5) spike glycoprotein RBD, SARS-CoV-2 XD (BA.1 x AY.4) spike glycoprotein S1+S2 trimer, SARS-CoV-2 Delta (B.1.617.2) spike glycoprotein S1 subunit-NTD, SARS-CoV-2 spike glycoprotein S1 subunit-NTD (C-terminal human IgG1 Fc- and AVItagged), SARS-CoV spike glycoprotein S1 subunit (mouse Fc-tagged), SARS-CoV spike glycoprotein RBD (His-tagged), MERS-CoV spike glycoprotein S1 subunit, HCoV-HKU1 (isolate N1) spike glycoprotein S1 subunit, HCoV-HKU1 (isolate N5) spike glycoprotein S1 subunit, HCoV-NL63 spike glycoprotein S1 subunit, HCoV-229E spike glycoprotein S1 subunit, HCoV-OC43 spike glycoprotein S1+S2 ECD
Species Reactivity:	(+) SARS-CoV-2 Delta (B.1.617.2) spike glycoprotein S1+S2 trimer, SARS-CoV-2 Delta (B.1.617.2) spike glycoprotein RBD, SARS-CoV-2 spike glycoprotein RBD; (-) SARS-CoV-2 Omicron (BA.1.1) spike glycoprotein S1+S2 trimer, SARS-CoV-2 Omicron (BA.1.1) spike glycoprotein RBD, SARS-CoV-2 Omicron (B.1.1.529) S1+S2 trimer, SARS-CoV-2 Omicron (B.1.1.529) spike glycoprotein RBD, SARS-CoV-2 Omicron (BA.2) spike glycoprotein S1+S2 trimer, SARS-CoV-2 Omicron (BA.2) spike glycoprotein RBD, SARS-CoV-2 Omicron (BA.2) spike glycoprotein S1 subunit-NTD, SARS-CoV-2 Omicron (BA.2.12.1) spike glycoprotein RBD, SARS-CoV-2 Omicron (BA.4) spike glycoprotein RBD, SARS-CoV-2 Omicron (BA.5) spike glycoprotein RBD, SARS-CoV-2 XD (BA.1 x AY.4) spike glycoprotein S1+S2 trimer, SARS-CoV-2 Delta (B.1.617.2) spike glycoprotein S1 subunit-NTD, SARS-CoV-2 spike glycoprotein S1 subunit-NTD (C-terminal human IgG1 Fc- and AVI-tagged), SARS-CoV spike glycoprotein S1 subunit (mouse Fc-tagged), SARS-CoV spike glycoprotein RBD (His-tagged), MERS-CoV spike glycoprotein S1 subunit, HCoV-HKU1 (isolate N1) spike glycoprotein S1 subunit, HCoV-HKU1 (isolate N5) spike glycoprotein S1 subunit, HCoV-NL63 spike glycoprotein S1 subunit, HCoV-229E spike glycoprotein S1 subunit, HCoV-OC43 spike glycoprotein S1+S2 ECD

PRODUCT INFORMATION

Description

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is an enveloped positive-stranded RNA virus, a member of the *Betacoronavirus* genus, and the causative agent of COVID-19.[1-5] The SARS-CoV-2 spike glycoprotein, also known as the surface glycoprotein, is located on the outer envelope of the virion.[1] It is composed of an S1 and S2 subunit divided by a furin S-cleavage site not found in other SARS-CoVs.[6,7] The S1 subunit contains the receptor-binding domain (RBD), which binds to the carboxypeptidase angiotensin-converting enzyme 2 (ACE2), and the S1 and S2 subunits are cleaved by the protease TMPRSS2 to facilitate viral fusion with the host cell membrane.[8-10] In this way, ACE2 acts as the functional receptor for SARS-CoV-2. The SARS-CoV-2 spike glycoprotein S1 subunit induces inflammatory gene expression in the frontal cortex, hippocampus, and hypothalamus, as well as activates toll-like receptor 2 (TLR2) and TLR4 signaling and increases social avoidance in the juvenile social exploration test in rats.[11] SARS-CoV-2 infection can result in the production of neutralizing antibodies, which bind to the SARS-CoV-2 spike RBD preventing further viral entry and infection, starting approximately 4-10 days after symptom onset.[12,13] Cayman's SARS-CoV-2 Spike Glycoprotein S1 Subunit Neutralizing Monoclonal Antibody (Clone 43) disrupts the spike glycoprotein S1 subunit-ACE2 interaction and can be used for ELISA, flow cytometry (FC), and immunohistochemistry (IHC; paraffin) applications, as well as microneutralization (MN) assays.

References

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