PRODUCT INFORMATION

SARS-CoV/SARS-CoV-2 Spike Glycoprotein RBD Chimeric Monoclonal Antibody (Clone D004)

Item No. 31991

Overview and Properties

Contents: This vial contains 50 or 100 µl of protein A-affinity purified monoclonal antibody.

Synonyms: SARS-CoV/SARS-CoV-2 Spike RBD, SARS-CoV/SARS-CoV-2 Spike Receptor Binding Domain, SARS-CoV/SARS-CoV-2 Surface Glycoprotein RBD, SARS-CoV/SARS-CoV-2 Surface Glycoprotein Receptor Binding Domain, Severe Acute Respiratory Syndrome Coronavirus/Severe Acute Respiratory Syndrome Coronavirus 2 Spike Glycoprotein Receptor Binding Domain

Immunogen: Recombinant C-terminal His-tagged SARS-CoV spike glycoprotein RBD

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 S1+S2, SARS-CoV-2 Delta (B.1.617.2) spike glycoprotein S1 subunit, SARS-CoV-2 (BA.2.75) spike glycoprotein S1+S2 trimer, SARS-CoV-2 Omicron (BA.1.1) spike glycoprotein S1+S2 trimer, SARS-CoV-2 Omicron (B.1.1.529) S1+S2 trimer, SARS-CoV-2 Omicron (B.1.1.529) spike glycoprotein S1 subunit, SARS-CoV-2 Omicron (BA.2) spike glycoprotein S1 subunit, SARS-CoV-2 Omicron (BA.2) spike glycoprotein S1+S2 trimer, SARS-CoV-2 Omicron (BA.2.75.2) spike glycoprotein S1+S2 trimer, SARS-CoV-2 (BA.4.6) spike glycoprotein S1+S2 trimer, SARS-CoV-2 Omicron (BF.7) spike glycoprotein S1+S2 trimer, SARS-CoV-2 Omicron (BQ.1.1) spike glycoprotein S1+S2 trimer, SARS-CoV-2 XD (BA.1 x AY.4) spike glycoprotein S1+S2 trimer, SARS-CoV-2 spike glycoprotein S1 subunit, SARS-CoV spike glycoprotein S1 subunit; (-) SARS-CoV-2 Omicron (BA.2) spike glycoprotein S1 subunit NTD, SARS-CoV-2 Delta (B.1.617.2) spike glycoprotein S1 subunit NTD, 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, SARS-CoV-2, SARS-CoV-2 Delta (B.1.617.2), SARS-CoV-2 Omicron (B.1.1.529), SARS-CoV-2 Omicron (BA.1.1), SARS-CoV-2 Omicron (BA.2), SARS-CoV-2 Omicron (BA.2.12.1), SARS-CoV-2 (BA.2.3.20), SARS-CoV-2 (BA.2.75), SARS-CoV-2 Omicron (BA.2.75.2), SARS-CoV-2 Omicron (BA.4), SARS-CoV-2 Omicron (BA.4.6/BF.7), SARS-CoV-2 Omicron (BA.5), SARS-CoV-2 Omicron (BQ.1.1), SARS-CoV-2 Omicron (XBB); other species not tested

Form: Liquid

Storage: -80°C (as supplied)

Stability: ≥1 year

Storage Buffer: 0.2 µm filtered solution in PBS

Clone: D004

Host: Chimeric monoclonal antibody combining the constant domains of human IgG1κ with variable regions from a mouse immunized with purified recombinant SARS-CoV spike glycoprotein RBD

Isotype: Human IgG1κ

Applications: ELISA, Flow cytometry (FC), Immunocytochemistry (ICC), Immunofluorescence (IF); the recommended starting dilution is 1:5,000-1:10,000 for ELISA, 1:25-1:100 for FC, and 1:20-1:100 for IF. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM

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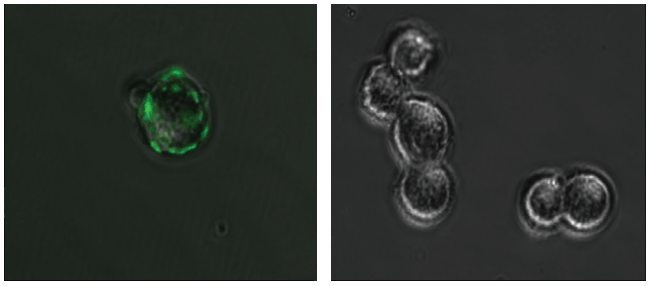
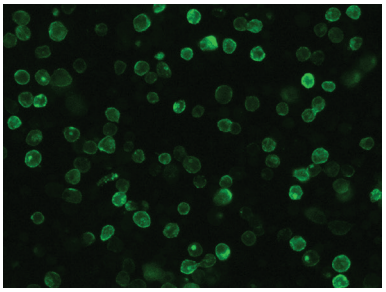
Images

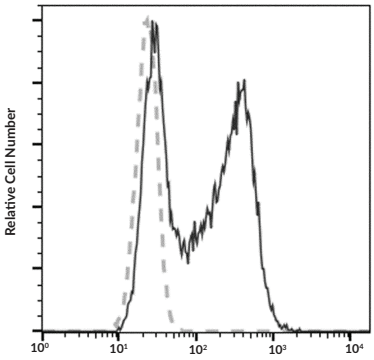


A B

Immunofluorescence labeling of the SARS-CoV-2 spike glycoprotein in ACE2-overexpressed 293T cells infected (A) or noninfected (B) by 2019-nCoV-spike pseudovirus (PSV). Cells were blocked with 10% serum and incubated with SARS-CoV/SARS-CoV-2 Spike Glycoprotein RBD Chimeric Monoclonal Antibody (Clone D004) at a dilution of 1:60 at 37°C for 1 hour. Cells were then labeled with a FITC-conjugated goat anti-human IgG secondary antibody (green).



Immunofluorescent analysis of HEK293 cells overexpressing the spike glycoprotein. Cells were labeled with purified SARS-CoV/SARS-CoV-2 Spike Glycoprotein RBD Chimeric Monoclonal Antibody (Clone D004) followed by a FITC-conjugated secondary antibody.



SARS-CoV/SARS-CoV-2 Spike Glycoprotein RBD Chimeric Monoclonal Antibody (Clone D004) with negative control

Flow cytometric analysis of the SARS-CoV-2 spike glycoprotein overexpressed in HEK293 cells. Cells were labeled with purified SARS-CoV/SARS-CoV-2 Spike Glycoprotein RBD Chimeric Monoclonal Antibody (Clone D004) followed by a FITC-conjugated secondary antibody. The fluorescence histograms were derived from gated events with the forward and side light-scatter characteristics of intact cells.

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Description

Severe acute respiratory syndrome coronavirus (SARS-CoV) spike glycoprotein, also known as the surface glycoprotein, is a viral structural protein encoded by the *S* gene in SARS-CoV RNA that contains the receptor binding domain (RBD).[1] SARS-CoV is a member of the *Betacoronavirus* genus of viruses and has an approximately 79% sequence identity with SARS-CoV-2, the causative agent of COVID-19.[2,3] SARS-CoV spike glycoprotein is a transmembrane glycoprotein that assembles into homotrimers on the virus surface and is composed of an N-terminal S1 subunit, which contains the receptor binding domain (RBD), and a C-terminal S2 subunit, which facilitates fusion between viral and host cell membranes.[4-6] The 193-amino acid RBD of the SARS-CoV spike protein is a target for neutralizing antibodies.[5,7] The SARS-CoV RBD, which spans amino acid residues 318 to 510, is 73% identical to that of SARS-CoV-2 and can bind to human angiotensin-converting enzyme 2 (ACE2), which is the host cell surface receptor for both SARS-CoV and SARS-CoV-2.[4-7] SARS-CoV is the causative agent of SARS, a primarily respiratory illness characterized by fever, cough, shortness of breath, and an approximately 10% fatality rate.[3] Cayman's SARS-CoV/SARS-CoV-2 Spike Glycoprotein RBD Chimeric Monoclonal Antibody (Clone D004) is composed of human IgG1κ constant domains and variable regions from a mouse immunized with purified recombinant SARS-CoV spike glycoprotein RBD. It can be used for ELISA, flow cytometry (FC), immunocytochemistry (ICC), and immunofluorescence (IF) applications.

References

1. Kandeel, M., Ibrahim, A., Fayez, M., *et al.* From SARS and MERS CoVs to SARS-CoV-2: Moving toward more biased codon usage in viral structural and nonstructural genes. *J. Med. Virol.* **92(6),** 660-666 (2020).
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3. Meo, S.A., Alhowikan, A.M., Al-Khlaiwi, T., *et al.* Novel coronavirus 2019-nCoV: Prevalence, biological and clinical characteristics comparison with SARS-CoV and MERS-CoV. *Eur. Rev. Med. Pharmacol. Sci.* **24(4),** 2012-2019 (2020).
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5. He, Y., Zhou, Y., Liu, S., *et al.* Receptor-binding domain of SARS-CoV spike protein induces highly potent neutralizing antibodies: Implication for developing subunit vaccine. *Biochem. Biophys. Res. Commun.* **324(2),** 773-781 (2004).
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7. Tian, X., Li, C., Huang, A., *et al.* Potent binding of 2019 novel coronavirus spike protein by a SARS coronavirus-specific human monoclonal antibody. *Emerg. Microbes Infect.* **9(1),** 382-385 (2020).

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