Purified anti-SARS-CoV-2 S Protein S1 Antibody

Catalog# / Size	945101 / 25 µg 945102 / 100 µg
Clone	A20103O
Regulatory Status	RUO
Other Names	S1, Spike Protein
Isotype	Rat IgG2a, κ
Description	SARS-CoV-2 is a respiratory virus which causes coronavirus disease 2019 (COVID-19). The coronavirus spike (S) glycoprotein is a class I viral fusion protein on the outer envelope of the virion that plays a critical role in viral infection by recognizing host cell receptors and mediating fusion of the viral and cellular membranes. The S glycoprotein is synthesized as a precursor protein consisting of ~1,300 amino acids that is then cleaved into an amino (N)-terminal S1 subunit (~700 amino acids) and a carboxyl (C)-terminal S2 subunit (~600 amino acids). Three S1/S2 heterodimers assemble to form a trimer spike protruding from the viral envelope. The S1 subunit contains a receptor-binding domain (RBD) that can specifically bind to angiotensin-converting enzyme 2 (ACE2), the receptor on target cells. Triggered by receptor binding, proteolytic processing and/or acidic pH in the cellular compartments, the class I viral fusion protein undergoes a transition from a metastable pre-fusion state to a stable post-fusion state during infection, in which the receptor-binding subunit is cleaved, and the fusion subunit undergoes large-scale conformational rearrangements to expose the hydrophobic fusion peptide, induce the formation of a six-helix bundle, and bring the viral and cellular membranes close for fusion. The trimeric SARS coronavirus (SARS-CoV-2) S glycoprotein consisting of three S1-S2 heterodimers binds the cellular receptor angiotensin-converting enzyme 2 (ACE2) and mediates fusion of the viral and cellular membranes through a pre- to post-fusion conformation transition.

Product Details

Verified Reactivity	SARS-CoV-2
Antibody Type	Monoclonal
Host Species	Rat
Immunogen	Partial recombinant SARS-CoV-2 S protein corresponding to S1 subunit
Formulation	Phosphate-buffered solution, pH 7.2, containing 0.09% sodium azide
Preparation	The antibody was purified by affinity chromatography.
Concentration	0.5 mg/mL
Storage & Handling	The antibody solution should be stored undiluted between 2°C and 8°C.
Application	WB - Quality tested Direct ELISA, FC - Verified
Recommended Usage	Each lot of this antibody is quality control tested by western blotting. For western blotting, the suggested use of this reagent is 1.0 µg/mL. For Direct ELISA, a concentration of 114.9 ng/mL is recommended. For flow cytometric staining, the suggested use of this reagent is ≤ 0.5 µg per million cells in 100 µL volume. It is recommended that the reagent be titrated for optimal performance for each application.
Application Notes	BioLegend offers multiple clones that recognize SARS-CoV-2 S protein S1. Clone A20103H displayed the strongest performance for western blot of all clones validated for the application.
Product Citations	1. Mamedov T, *et al.* 2021. Viruses. 13:. PubMed
RRID	AB_2890875 (BioLegend Cat. No. 945101) AB_2890875 (BioLegend Cat. No. 945102)

Antigen Details

Structure	Spike glycoprotein is a homotrimer. Each monomer consists of 1,273 amino acids with a theoretical molecular weight of 141 kD, and consists of S1 and S2 subunits.
Distribution	Viral envelope protein, host cell membrane, host cell endoplasmic reticulum-Golgi intermediate compartment membrane
Function	Mediates fusion between virus and host cell membranes
Interaction	ACE2
Ligand/Receptor	ACE2
Biology Area	COVID-19
Antigen References	1. Walls AC, *et al.* 2020. *Cell.* 181(2):281-292. 2. Yan R, *et al.* 2020. *Science.* 367 (6485):1444-1448. 3. Wrapp D, *et al.* 2020. *Science.* 367 (6483):1260-1263. 4. Shang J, *et al.* 2020. *PNAS.* 117(21):11727-11734
Gene ID	43740568

Related Protocols

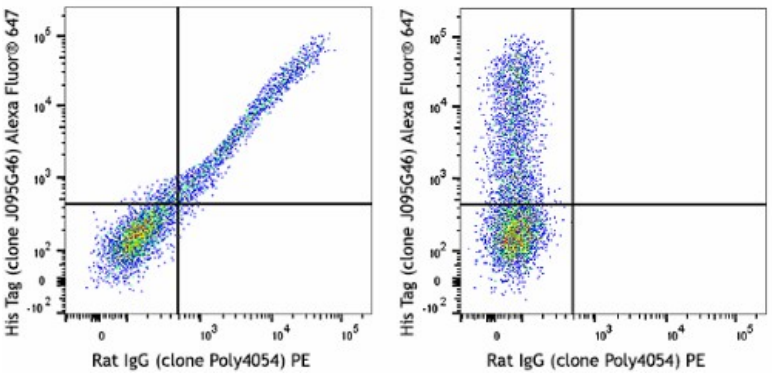
Cell Surface Flow Cytometry Staining Protocol

Western Blotting Protocol

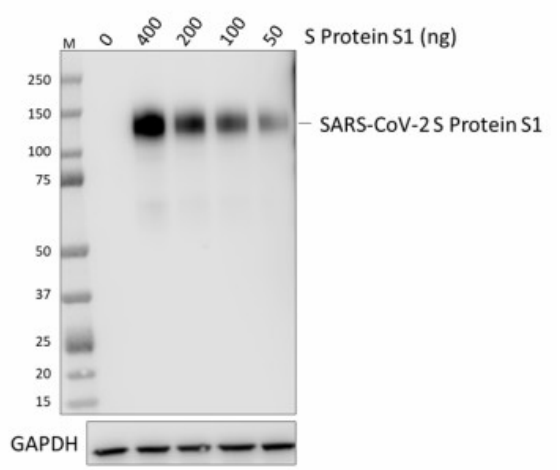
Other Formats

Purified anti-SARS-CoV-2 S Protein S1 Antibody

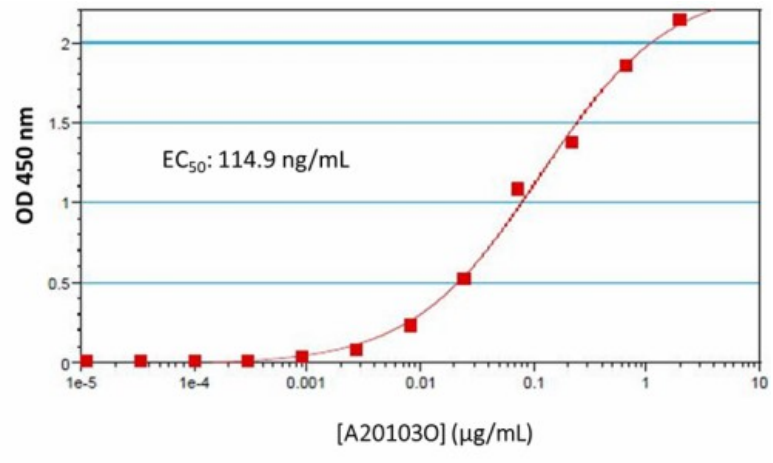
Product Data



His-tagged SARS-CoV-2 S protein S1 transfected CHO cells were stained with anti-S1 (clone A20103O) purified (left) or rat IgG2a, κ isotype control (clone RTK2758) purified (right) followed by anti-rat IgG PE (clone Poly4054) and Alexa Fluor® 647 anti-His Tag (clone J095G46).



Whole cell extracts (15 µg total protein) from HeLa cells mixed with the indicated amount of His-tagged recombinant SARS-CoV-2 S Protein S1 (Cat. No. 792906) were resolved by 4-12% Bis-Tris gel electrophoresis, transferred to a PVDF membrane, and probed with 1.0 µg/mL (1:500 dilution) purified anti-SARS-CoV-2 S Protein S1 antibody (clone A20103O) overnight at 4°C. Proteins were visualized by chemiluminescence detection using HRP goat anti-human IgG antibody at a 1:3000 dilution. Direct-Blot™ HRP anti-GAPDH antibody (Cat. No. 607904) was used as a loading control at a 1:25000 dilution (lower). Lane M: Molecular weight marker.



200 ng of recombinant SARS-CoV-2 S protein S1 + S2 (Cat. No. 793704) was coated onto a Costar™ 96-well high binding assay plate and incubated with a dilution series of purified anti-SARS-CoV-2 S protein S1 antibody (clone A20103O). Bound antibodies were detected with HRP goat anti-mouse IgG antibody (Cat. No. 405306) followed by TMB substrate solution. Absorbance was measured at 450 nm.

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