Datasheet for ABIN6952546

Recombinant anti-SARS-CoV-2 Spike S1 antibody (RBD)

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Overview

Quantity:	200 µg
Target:	SARS-CoV-2 Spike S1
Binding Specificity:	RBD
Reactivity:	SARS Coronavirus-2 (SARS-CoV-2), SARS Coronavirus (SARS-CoV), SARS CoV-2 Alpha, SARS CoV-2 Gamma, SARS CoV-2 Beta, SARS CoV-2 Epsilon, SARS CoV-2 Kappa, SARS CoV-2 Eta, SARS CoV-2 Omicron, SARS CoV-2 Delta
Host:	Human
Antibody Type:	Recombinant Antibody
Clonality:	Monoclonal
Conjugate:	This SARS-CoV-2 Spike S1 antibody is un-conjugated
Application:	ELISA, Immunofluorescence (IF), Surface Plasmon Resonance (SPR), Crystallization (Crys)

Product Details

Purpose:	Recombinant monoclonal antibody CR3022 to SARS-CoV S Glycoprotein.
Immunogen:	The original monoclonal antibody was generated through an scFv library derived from a peripheral blood lymphocytes of a patient exposed to the SARS-CoV.
Clone:	CR3022
Isotype:	IgG1 kappa
Specificity:	The antibody CR3022 binds the amino acids 318-510 in the S1 domain of the SARS-CoV Spike protein as well as SARS-CoV-2 (COVID-19) Spike protein. The antibody also binds to P462L-substituted S318-510 fragments of the SARS spike protein. The binding epitope is only

Product Details

	accessible in the "open" conformation of the spike protein (Joyce et al. 2020). While most S-protein RBD binding antibodies compete for antigen binding with ACE2, the CR3022 epitope does not overlap with the ACE2-binding site. It does thus not hinder binding of neutralizing antibodies. While CR3022 on its own exhibits only a weak neutralizing effect, it has been shown to synergize with other S-protein RBD binding antibodies to neutralize SARS-CoV. This effect still has to be confirmed in context with SARS-CoV-2 (Yuan et al. 2020).
Cross-Reactivity (Details):	The anti-SARS-CoV-2 antibody CR3022 was originally discovered in a SARS patient, but it was shown to be a potent binder of SARS-CoV-2 spike protein (S1).
Characteristics:	Original Species of Ab: Human Original Format of Ab: IgG1
Purification:	Protein A affinity purified

Target Details

Target:	SARS-CoV-2 Spike S1
Abstract:	SARS-CoV-2 Spike S1 Products
Target Type:	Viral Protein
Background:	Spike protein, COVID19, COVID 19, S protein, SARS-CoV S protein, S glycoprotein, E2, Peplomer protein, Spike protein S1, SARS Coronavirus, SARS-CoV-2, SARS CoV 2, 2019-nCoV, Ab1680.10, Ab1680.15, Ab1680.16
UniProt:	P59594

Application Details

Application Notes:	This antibody binds to both SARS-CoV and SARS-CoV-2 with high affinity (PMID: 16796401 & 32065055). The initial characterization of the binding of this antibody was performed by ELISA and indicates potential for the development of diagnostic assays, as both virus-capture assays, or as controls in serological assays measuring immune-responses to virus exposure. Human IgG1, IgG3, IgM and IgA isotypes are available to mimic antibody responses seen in COVID19 < a href="https://www.medrxiv.org/content/10.1101/2020.03.17.20037713v1" target="_blank">(Amanat et al. 2020). Human IgG2 and IgG4 subtypes, which are also seen in a small subset of COVID-19 patients, are also available to investigate their role in the response to SARS-CoV-2. The original human IgG1 version of the antibody works synergistically in combination with another non-ompeting SARS antibody CR3014 and is a potential candidate

Application Details

	for passive immune prophylaxis of SARS-CoV infection (Meulen et al., 2006). The original antibody (human IgG1) was also reported to bind the 2019-nCoV RBD (KD of 6.3 nM). This antibody has been attributed a potential to be developed as a therapeutic agent, alone or in combination with other neutralizing antibodies for treatment of 2019-nCoV infections (Tian et al., 2020). Bates et al. 2021 (PMID: 32766589) used CR3022 in a immunofluorescence assay.
Restrictions:	For Research Use only

Handling

Format:	Liquid
Concentration:	1 mg/mL
Buffer:	PBS with 0.02 % Proclin 300.
Preservative:	ProClin
Precaution of Use:	This product contains ProClin: a POISONOUS AND HAZARDOUS SUBSTANCE which should be handled by trained staff only.
Storage:	4 °C,-20 °C
Storage Comment:	Store at 4°C for up to 3 months. For longer storage, aliquot and store at -20°C.

Publications

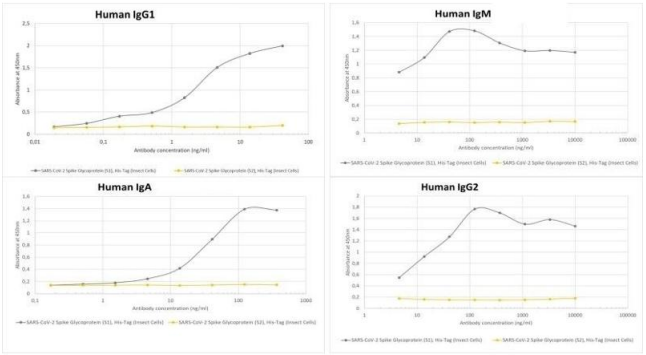
Product cited in:	Kannenberg, Trawinski, Henschler, Buhmann, Hönemann, Jassoy: "Antibody course and memory B-cell response in the first year after SARS-CoV-2 infection." in: **The Journal of infectious diseases**, (2022) (PubMed). Jacobsen, Fabricius, Class, Topfstedt, Lorenzetti, Janowska, Schmidt, Staniek, Zernickel, Stamminger, Dietz, Zellmer, Hecht, Rauch, Blum, Ludwig, Jahrsdörfer, Schrezenmeier, Heeg, Mayer, Seidel, Groß et al.: "High antibody levels and reduced cellular response in children up to one year after SARS-CoV-2 infection. ..." in: **Nature communications**, Vol. 13, Issue 1, pp. 7315, (2022) (PubMed). Hennrich, Sawatsky, Santos-Mandujano, Banda, Oberhuber, Schopf, Pfaffinger, Wittwer, Riedel, Pfaller, Conzelmann: "Safe and effective two-in-one replicon-and-VLP minispike vaccine for COVID-19: Protection of mice after a single immunization." in: **PLoS pathogens**, Vol. 17, Issue 4, pp. e1009064, (2021) (PubMed).

Tian, Li, Huang, Xia, Lu, Shi, Lu, Jiang, Yang, Wu, Ying: "Potent binding of 2019 novel coronavirus spike protein by a SARS coronavirus-specific human monoclonal antibody." in: **Emerging microbes & infections**, Vol. 9, Issue 1, pp. 382-385, (2020) (PubMed).

Stadlbauer, Amanat, Chromikova, Jiang, Strohmeier, Arunkumar, Tan, Bhavsar, Capuano, Kirkpatrick, Meade, Brito, Teo, McMahon, Simon, Krammer: "SARS-CoV-2 Seroconversion in Humans: A Detailed Protocol for a Serological Assay, Antigen Production, and Test Setup." in: **Current protocols in microbiology**, Vol. 57, Issue 1, pp. e100, (2020) (PubMed).

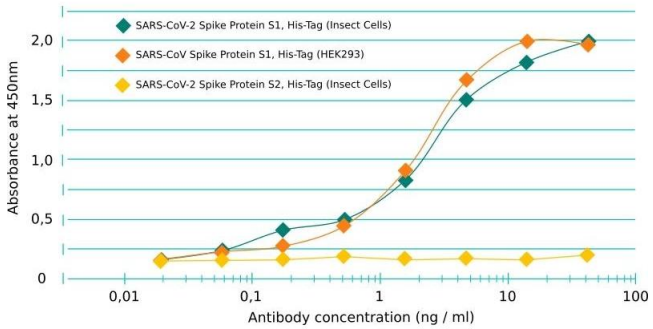
There are more publications referencing this product on: Product page

Validation report #104441 for Multiplex Immunohistochemistry (mIHC)



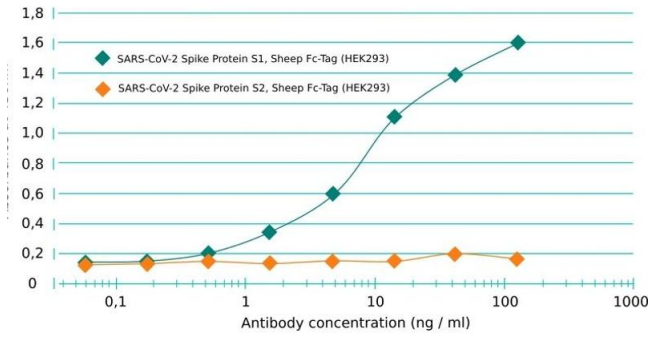
ELISA

Image 1. Binding curve of four different formats of anti-COVID-19 & SARS-CoV S glycoprotein antibody CR3022 (ABIN6952546) to SARS-CoV-2 Spike Glycoprotein domains S1 and S2 (His-Tag (Insect Cells)). ELISA plate coated with SARS-CoV-2 Spike Glycoprotein (S1), His-Tag (Insect Cells, grey line) and SARS-CoV-2 Spike Glycoprotein (S2), His-Tag (Insect Cells, yellow line) (Native Antigen) at concentrations of 5 µg/mL. A 3-fold serial dilution from 41.6 ng/mL was performed using ABIN6952546, from 370 ng/mL for ABIN6953047 and from 10000 ng/mL for ABIN6953042 and . Human IgM, human IgA and human IgG2 were HRP-conjugated and for the detection of human IgG1 a 1:4000 dilution of HRP-labelled anti-human IgG antibody was used.



ELISA

Image 2. Binding curve of anti-COVID-19 & SARS-CoV S glycoprotein antibody CR3022 (ABIN6952546) to SARS-CoV-2 Spike Glycoprotein domains S1 and S2 of various origin. ELISA plate coated with SARS-CoV-2 Spike Glycoprotein (S1), His-Tag (Insect Cells; green line), SARS-CoV-2 Spike Glycoprotein (S2), His-Tag (Insect Cells; yellow line) and SARS Coronavirus Spike Glycoprotein (S1), His-Tag (HEK293 cells; orange line) at concentrations of 5 µg/ml. A 3-fold serial dilution from 41.6 ng/ml was performed using ABIN6952546. For detection, a 1:4000 dilution of HRP-labelled anti-human IgG antibody was used.



ELISA

Image 3. Binding curve of anti-COVID-19 & SARS-CoV S glycoprotein antibody CR3022 (ABIN6952546) to SARS-CoV-2 Spike Glycoprotein (S1), Sheep Fc-Tag and SARS-CoV-2 Spike Glycoprotein (S2), Sheep Fc-Tag from HEK293 cells. ELISA plate coated with SARS-CoV-2 Spike Glycoprotein (S1), Sheep Fc-Tag (green line) or SARS-CoV-2 Spike Glycoprotein (S2), Sheep Fc-Tag (orange line) from HEK293 cells at concentrations of 5 µg/ml. A 3-fold serial dilution from 125 ng/ml was performed using ABIN6952546. For detection, a 1:4000 dilution of HRP-labelled anti-human IgG antibody was used.

Please check the product details page for more images. Overall 15 images are available for ABIN6952546.

Validation report #104441 for Multiplex Immunohistochemistry (mIHC)

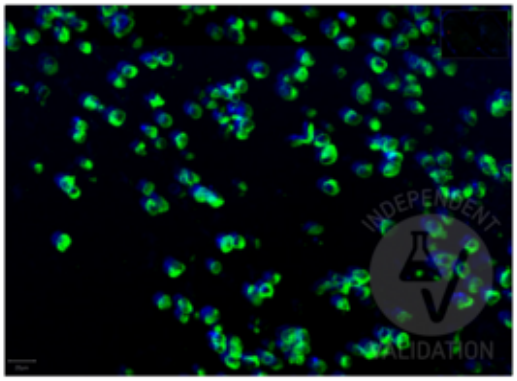
Successfully validated (Multiplex Immunohistochemistry (mIHC))

by Akoya Biosciences

Report Number: 104441

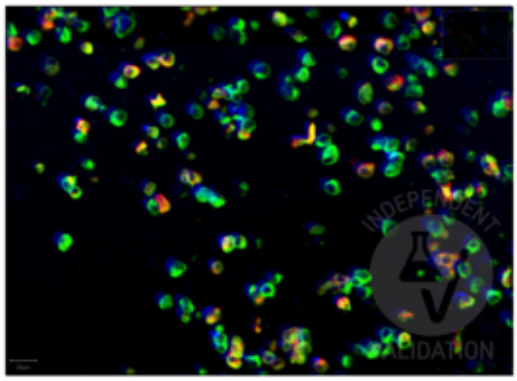
Date: Sep 13 2022

Target:	SARS-CoV-2 Spike S1
Lot Number:	T2023B03
Method validated:	Multiplex Immunohistochemistry (mIHC)
Positive Control:	FFPE cell pellets from in vitro cultured human lung cells infected with SARS-CoV-2
Negative Control:	SARS-CoV-2-negative placenta patient sample
Notes:	Passed. The anti-SARS-CoV-2 Spike S1 antibody RBD antibody ABIN6952546 produced staining in FFPE cell pellets from in vitro cultured human lung cells infected with SARS-CoV-2.
Primary Antibody:	ABIN6952546
Protocol:	• Protocol details are described in the Akoya Biosciences CODEX® User Manual (see https://www.akoyabio.com/wp-content/uploads/2021/01/CODEX-User-Manual.pdf). • Tissue preparation as outlined in the Akoya Biosciences CODEX® User Manual FFPE tissue protocol. • Conjugation of the anti-SARS-CoV-2 Spike S1 antibody RBD antibody ABIN6952546 as described in Chapter 4 of the Akoya Biosciences CODEX® User Manual. • Autofluorescence quenching according to the Autofluorescence Quenching Protocol for CODEX® (see https://www.akoyabio.com/wp-content/uploads/2020/07/Customer-Demonstrated-Protocol-Autofluorescence-Quenching-Mar2020.pdf).



Validation image no. 1 for anti-SARS-CoV-2 Spike S1 (RBD) antibody (ABIN6952546)

Immunofluorescence of SARS-CoV-2 infection in FFPE cell pellets from in vitro cultured human lung cells infected with SARS-CoV-2. Anti-SARS-CoV-2 Spike S1 antibody RBD antibody ABIN6952546 is visualized with PhenoCycler reporters in green and DAPI-stained chromatin in blue.



Validation image no. 2 for anti-SARS-CoV-2 Spike S1 (RBD) antibody (ABIN6952546)

Immunofluorescence of SARS-CoV-2 infection in FFPE cell pellets from in vitro cultured human lung cells infected with SARS-CoV-2. Costaining with anti-SARS-CoV-2 Spike S1 antibody RBD antibody ABIN6952546 (green) and anti-SARS-CoV-2 Nucleocapsid Protein antibody ABIN6952544 (red).