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Anti-S protein (RBD) [aRBD-2] Bulk size M, 1 mg, Ab03531-1.159-BS

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Anti-S protein (RBD) [aRBD-2] Bulk size M Ab03531-1.159-BS

Isotype and Format: Mouse IgG1-Fc fusion

Clone Number: aRBD-2

Alternative Name(s) of Target: SARS CoV 2 S glycoprotein; COVID-19 Spike protein; RBD; Receptor Binding Domain; E2 glycoprotein; E2; Human coronavirus 2 spike glycoprotein; Peplomer protein; S glycoprotein; SARS coronavirus 2 S protein; SARS coronavirus 2 Spike Protein; SARS CoV 2 Spike protein; SARS CoV 2; SARS-CoV-2 S protein; SARSCoV2; SARS-COV-2 S protein; SARS-COV-2 Spike glycoprotein; SARSCOV2 Spike protein; Severe acute respiratory syndrome 2 spike glycoprotein; Severe acute respiratory syndrome virus 2 spike glycoprotein; Spike glycoprotein; 2019-nCoV; SARS-CoV2

UniProt Accession Number of Target Protein: P0DTC2

Published Application(s): Blocking, neutralizing, SPR, ELISA

Published Species Reactivity: SARS-CoV-2

Immunogen: The original antibody was generated by immunizing two alpacas with highly purified recombinant SARS-CoV-2 RBD, and developing a VHH library. The antibody was isolated by panning against SARS-CoV-2 RBD.

Specificity: The antibody binds the Spike protein of the SARS-CoV-2.

Application Notes: The VHH and VHH with IgG1 Fc formats demonstrated strong binding to both RBD and the entire ectodomain (S1+S2) of SARS-CoV-2 spike in ELISA, with a low nanomolar 50% effective concentration (EC50 respectively 1.338 nM and 1.521 nM). The binding affinity of the VHH format and VHH-Fc formats to RBD were also measured using surface plasmon resonance, with KD values of 2.60 nM and 1.57 nM respectively. Both VHH and Fc fusion formats could block RBD-ACE2 interaction in a dose-dependent manner, as characterized by competitive ELISA. Furthermore, the fusion of two VHHs with nonoverlapping epitopes resulted in two hetero-bivalent VHHs, aRBD-2-5 and aRBD-2-7, showed significantly higher RBD binding affinities (KD of 59.2 pM and 0.25 nM). Similarly, their Fc fusions also showed enhanced binding affinities, with KD values of 12.3 pM and 0.22 nM, respectively. The homo- and hetero-bivalent VHHs exhibited potent neutralizing ability against SARSCoV-2 inoculated onto Vero E6 cells. The 50% neutralization doses were 0.092mg/ml (1.12 nM) for aRBD-2-Fc, 1.22 ng/ml (0.043 nM) for aRBD-2-5 and 3.18 ng/ml (0.111 nM) for aRBD-2-7. Finally, the ND50s for aRBD-2-5-Fc and aRBD-2-7-Fc were 11.8 ng/ml (0.107 nM) and 6.76 ng/ml (0.0606 nM), respectively (Ma et al, 2021; PMID:33658349).

Antibody First Published in: Ma et al. Potent Neutralization of SARS-CoV-2 by Hetero-bivalent Alpaca Nanobodies Targeting the Spike Receptor-Binding Domain *J Virol.* 2021 Mar 3;95(10):e02438-20.

[PMID:33658349](https://pubmed.ncbi.nlm.nih.gov/33658349/)

Note on publication: The original paper describes the generation and characterization of the antibody

Product Form

Size: 1 mg Purified antibody in bulk size.

Purification:

Protein A affinity purified

Supplied In: PBS only.

Storage Recommendation: Store at 4°C for up to 3 months. Note, this antibody is provided without added preservatives, it is therefore recommended this antibody be handled under sterile conditions. For longer storage, aliquot and store at -20°C.

Concentration: See vial label

Important note – This product is for research use only. It is not intended for use in therapeutic or diagnostic procedures for humans or animals.