

Store at
-80°C

#17862

SARS-CoV-2 Spike RBD (multimeric) (319-591) Recombinant Protein (8xHis-Tag)

100 µg



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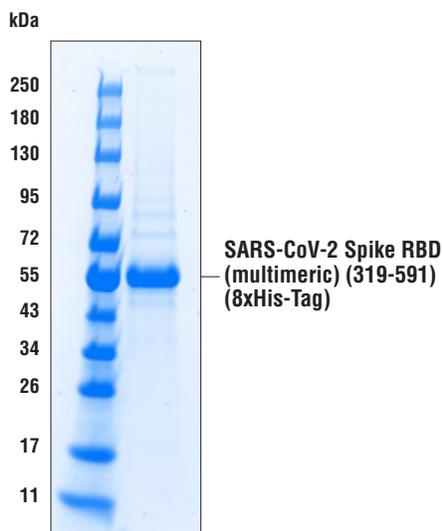
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Entrez-Gene ID #43740568
UniProt ID #P0DTC2

For Research Use Only. Not for Use in Diagnostic Procedures.

Description: SARS-CoV-2 Spike RBD (multimeric) (319-591) Recombinant Protein (8xHis-Tag) is a fusion protein containing an exogenous oligomerization domain, enabling expression of SARS-CoV-2 Spike RBD as a multimer. The multimeric form provides increased binding avidity to its cognate receptor (ACE2), and may also increase the avidity of antibody binding. The expressed protein contains an 8xHis-Tag at its carboxy terminus, and may be biotinylated using the Avitag™ system.

Background: The cause of the COVID-19 pandemic is a novel and highly pathogenic coronavirus, termed SARS-CoV-2 (severe acute respiratory syndrome coronavirus-2). SARS-CoV-2 is a member of the Coronaviridae family of viruses (1). The genome of SARS-CoV-2 is similar to other coronaviruses, and is comprised of four key structural proteins: S, the spike protein, E, the envelope protein, M, the membrane protein, and N, the nucleocapsid protein (2). Coronavirus spike proteins are class I fusion proteins and harbor an ectodomain, a transmembrane domain, and an intracellular tail (3,4). The highly glycosylated ectodomain projects from the viral envelope surface and facilitates attachment and fusion with the host cell plasma membrane. The ectodomain can be further subdivided into host receptor-binding domain (RBD) (S1) and membrane-fusion (S2) subunits, which are produced upon proteolysis by host proteases at S1/S2 and S2' sites. S1 and S2 subunits remain associated after cleavage and assemble into crown-like homotrimers (2,4). In humans, both SARS-CoV and SARS-CoV-2 spike proteins utilize the angiotensin-converting enzyme 2 (ACE2) protein as a receptor for cellular entry (5-7). Spike protein subunits represent a key antigenic feature of coronavirus virions, and therefore represent an important target of vaccines, novel therapeutic antibodies, and small-molecule inhibitors (8,9).



The purity of SARS-CoV-2 Spike RBD (multimeric) (319-591) Recombinant Protein (8xHis-Tag) was determined by densitometry after SDS-PAGE (in reducing conditions) of 2 µg of protein followed by staining with Coomassie Blue.

Molecular Weight: 55 kDa (reduced)

Formulation:

Expression Host: Human (HEK293 cells)
Supplied in 50 mM Bicine 150 mM potassium glutamate, pH 9.

Purity: ≥ 80%, determined by SDS-PAGE.

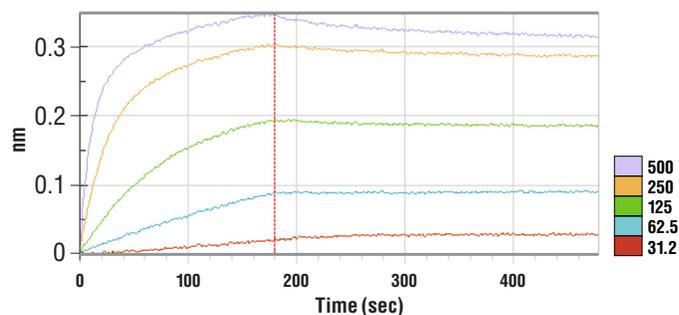
Storage: Stable at -80°C for 3 years after receipt. Avoid repeated freeze-thaw cycles.

Background References:

- (1) Zhou, P. et al. (2020) *Nature* 579, 270-3.
- (2) Tortorici, M.A. and Veesler, D. (2019) *Adv Virus Res* 105, 93-116.
- (3) Li, F. et al. (2006) *J Virol* 80, 6794-800.
- (4) Li, F. (2016) *Annu Rev Virol* 3, 237-61.
- (5) Shang, J. et al. (2020) *Nature* 581, 221-4.
- (6) Wrapp, D. et al. (2020) *Science* 367, 1260-3.
- (7) Yan, R. et al. (2020) *Science* 367, 1444-8.
- (8) Yuan, Y. et al. (2017) *Nat Commun* 8, 15092.
- (9) Amanat, F. and Krammer, F. (2020) *Immunity* 52, 583-9.

Immobilized SARS-CoV-2 Spike Protein (CR3022 Chimeric)

In Solution SARS-CoV-2 Spike RBD (multimeric) (319-591)



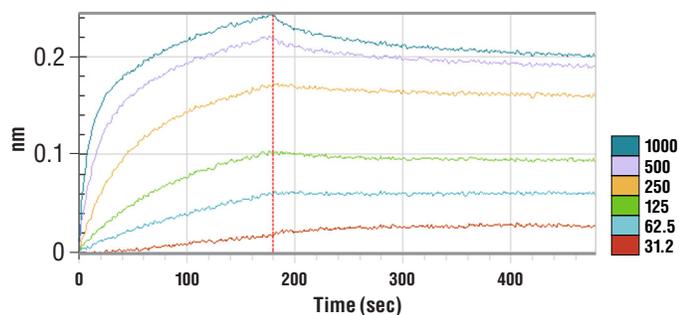
Binding kinetics between SARS-CoV-2 Spike Protein (CR3022 Chimeric) Mouse IgG2a mAb #24387 (immobilized) and SARS-CoV-2 Spike RBD (multimeric) (319-591) Recombinant Protein (8xHis-Tag) (in solution, at indicated concentrations). The vertical red line (180 sec) indicates addition of PBS to induce dissociation. Binding was detected with an anti-mouse Fc biosensor. Values on y-axis indicate binding response signals recorded for 5 different concentrations of SARS-CoV-2 Spike RBD (multimeric) (319-591) Recombinant Protein (8xHis-Tag) (31.2, 62.5, 125, 250, and 500 nM).

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Immobilized **Human ACE2 (18-652)**

In Solution **SARS CoV-2 Spike RBD (319-591)**

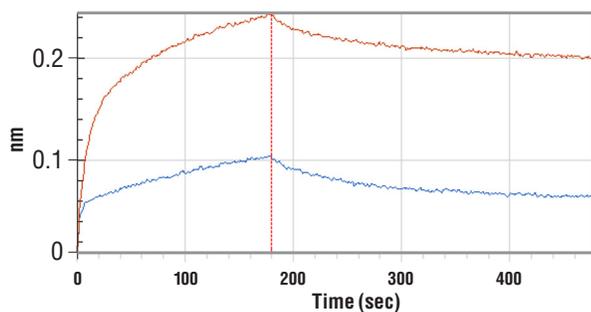


Binding kinetics between Human ACE2 (18-652) Recombinant Protein (mFc-Tag) #83986 (immobilized) and SARS-CoV-2 Spike RBD (multimeric) (319-591) Recombinant Protein (8xHis-Tag) (in solution, at indicated concentrations). The vertical red line (180 sec) indicates addition of PBS to induce dissociation. Binding was detected with an anti-mouse Fc biosensor. Values on y-axis indicate binding response signals recorded for 6 different concentrations of SARS-CoV-2 Spike RBD (multimeric) (319-591) Recombinant Protein (8xHis-Tag) (31.2, 62.5, 125, 250, 500, and 1000 nM).

Immobilized **Human ACE2 (18-652)**

In Solution **SARS CoV-2 Spike RBD (318-541) (blue)**

SARS CoV-2 Spike RBD (multimeric) (318-541) (red)



Binding kinetics between Human ACE2 (18-652) Recombinant Protein (mFc-Tag) #83986 (immobilized), SARS-CoV-2 Spike RBD (318-541) Recombinant Protein (8xHis-Tag) #48801 (250 nM, blue) and SARS CoV-2 RBD (multimeric) (319-591) Recombinant Protein (8xHis-Tag) (250 nM, red). The vertical red line (180 sec) indicates addition of PBS to induce dissociation. Values on y-axis indicate binding response signals (nm) detected with an anti-mouse Fc biosensor.