Active Recombinant SARS-CoV-2 Spike protein, His/Avi-tagged, Biotinylated

Cat. No. Spike-049V **Lot. No.** (See product label)

SPECIFICATION

Product Overview	Biotinylated Recombinant SARS-CoV-2 Spike(Val16-Lys1211(Arg682Ser, Arg685Ser, Lys986Pro, Val987Pro)) protein, fused to His/Avi tag at the C-terminus, was expressed in CHO cells .
Species	SARS-CoV-2
Source	CHO
ProteinLength	Val16-Lys1211
Description	SARS-CoV-2, which causes the global pandemic coronavirus disease 2019 (Covid-19), belongs to a family of viruses known as coronaviruses that are commonly comprised of four structural proteins: Spike protein (S), Envelope protein (E), Membrane protein (M), and Nucleocapsid protein (N) (1). SARS-CoV-2 Spike Protein (S Protein) is a glycoprotein that mediates membrane fusion and viral entry. The S protein is homotrimeric, with each ~180-kDa monomer consisting of two subunits, S1 and S2 (2). In SARS-CoV-2, as with most coronaviruses, proteolytic cleavage of the S protein into the S1 and S2 subunits is required for activation. The S1 subunit is focused on attachment of the protein to the host receptor while the S2 subunit is involved with cell fusion (3-5). The S protein of SARS-CoV-2 shares 75% and 29% amino acid (aa) sequence identity with the S protein of SARS-CoV-1 and MERS, respectively.The S Protein of the SARS-CoV-2 virus, like the SARS-CoV-1 counterpart, binds Angiotensin-Converting Enzyme 2 (ACE2), but with much higher

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	affinity and faster binding kinetics through the receptor binding domain (RBD) located in the C-terminal region of S1 (6). Based on structural biology studies, the RBD can be oriented either in the up/standing or down/lying state with the up/standing state associated with higher pathogenicity (7). Polyclonal antibodies to the RBD of the SARS-CoV-2 protein have been shown to inhibit interaction with the ACE2 receptor, confirming RBD as an attractive target for vaccinations or antiviral therapy (8). It has been demonstrated that the S Protein can invade host cells through the CD147/EMMPRIN receptor and mediate membrane fusion (9, 10). A SARS-CoV-2 variant carrying the S protein aa change D614G has become the most prevalent form in the global pandemic and has been associated with greater infectivity and higher viral load (11, 12). Our Avi-tag Biotinylated SARS-CoV-2 Spike protein features biotinylation at a single site contained within the Avi-tag, a unique 15 amino acid peptide. Protein orientation will be uniform when bound to streptavidincoated surface due to the precise control of biotinylation and the rest of the protein is uncharged so there is no interference in the protein's bioactivity
Predicted N Terminal	Val16
Form	Lyophilized from a 0.2 μm filtered solution in PBS with Trehalose.
Bio-activity	The biotin to protein ratio is greater than 0.7 as determined by the HABA assay. Measured by its binding ability in a functional ELISA with Recombinant Human ACE2 Fc Chimera.
Molecular Mass	155-175 kDa, under reducing conditions
Endotoxin	<0.10 EU per 1 μg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.

Applications	Bioactivity
Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles.12 months from date of receipt, -20 to -70 °C as supplied.1 month, 2 to 8 °C under sterile conditions after reconstitution.3 months, -20 to -70 °C under sterile conditions after reconstitution.
Reconstitution	Reconstitute at 500 µg/mL in PBS.
Conjugation	Biotin

GENE INFORMATION

Gene Name	S surface glycoprotein [Severe acute respiratory syndrome coronavirus 2]
Official Symbol	S
Synonyms	coronavirus spike Protein, 2019-nCoV; cov spike Protein, 2019-nCoV; ncov RBD Protein, 2019-nCoV; ncov s1 Protein, 2019-nCoV; ncov s2 Protein, 2019-nCoV; ncov spike Protein, 2019-nCoV; NCP-CoV RBD Protein, 2019-nCoV; NCP-CoV s1 Protein, 2019-nCoV; NCP-CoV s2 Protein, 2019-nCoV; NCP-CoV Spike Protein, 2019-nCoV; novel coronavirus RBD Protein, 2019-nCoV; novel coronavirus s1 Protein, 2019-nCoV; novel coronavirus s2 Protein, 2019-nCoV; novel coronavirus spike Protein, 2019-nCoV; RBD Protein, 2019-nCoV; S1 Protein, 2019-nCoV; S2 Protein, 2019-nCoV; Spike RBD Protein, 2019-nCoV
Gene ID	43740568
Protein Refseq	YP_009724390.1
UniProt ID	P0DTC2

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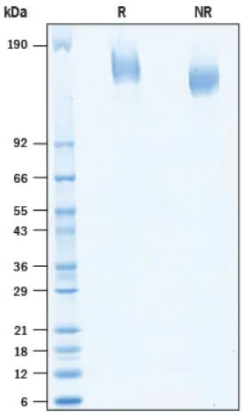
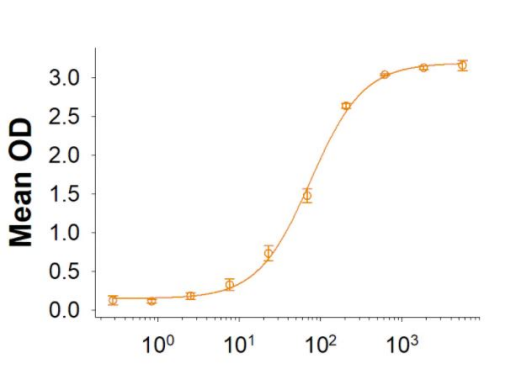
SDS-PAGE	 2 μg/lane Protein was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining.
Binding Activity	

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