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

**Cat. No.** Spike-051V **Lot. No.** (See product label)

## SPECIFICATION

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| **Product Overview** | Biotinylated Recombinant SARS-CoV-2 Spike RBD(Arg319-Phe541) protein, fused to His/Avi tag at the C-terminus, was expressed in HEK293 cells . |
| **Species** | SARS-CoV-2 |
| **Source** | HEK293 |
| **ProteinLength** | Arg319-Phe541 |
| **Description** | SARS-CoV-2, which causes the global pandemic coronavirus disease 2019 (Covid-19), belongs to a family of viruses known as coronaviruses that also include MERS-CoV and SARS-CoV-1. Coronaviruses are commonly comprised of four structural proteins: Spike protein (S), Envelope protein (E), Membrane protein (M) and Nucleocapsid protein (N) (1). The SARS-CoV-2 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 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). A receptor binding domain (RBD) in the C-terminus of the S1 subunit has been identified and the RBD of SARS-CoV-2 shares 73% amino acid (aa) identity with the RBD of the SARS-CoV-1, but only 22% aa identity with the RBD of MERS-CoV (6,7). The low aa sequence homology is consistent with the finding |

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| | that SARS and MERS-CoV bind different cellular receptors (8). The RBD of SARS-CoV-2 binds a metallopeptidase, angiotensin-converting enzyme 2 (ACE-2), similar to SARS-CoV-1, but with much higher affinity and faster binding kinetics (9). Before binding to the ACE-2 receptor, structural analysis of the S1 trimer shows that only one of the three RBD domains is in the "up" conformation. This is an unstable and transient state that passes between trimeric subunits but is nevertheless an exposed state to be targeted for neutralizing antibody therapy (10). Polyclonal antibodies to the RBD of the SARS-CoV-2 protein have been shown to inhibit interaction with the ACE-2 receptor, confirming RBD as an attractive target for vaccinations or antiviral therapy (11). There is also promising work showing that the RBD may be used to detect presence of neutralizing antibodies present in a patient's bloodstream, consistent with developed immunity after exposure to the SARS-CoV-2 (12). Our Avi-tag Biotinylated SARS-CoV-2 Spike RBD 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 streptavidin-coated surface due to the precise control of biotinylation and the rest of the protein is unchanged so there is no interference in the protein's bioactivity. |
| **Predicted N Terminal** | Arg319 |
| **Form** | Lyophilized from a 0.2 μm filtered solution in PBS with Trehalose. |
| **Bio-activity** | Measured by its binding ability in a functional ELISA with Recombinant Human ACE-2 Fc Chimera. |
| **Molecular Mass** | 34-41 kDa, under reducing conditions |
| **Endotoxin** | <0.10 EU per 1 μg of the protein by the LAL method. |

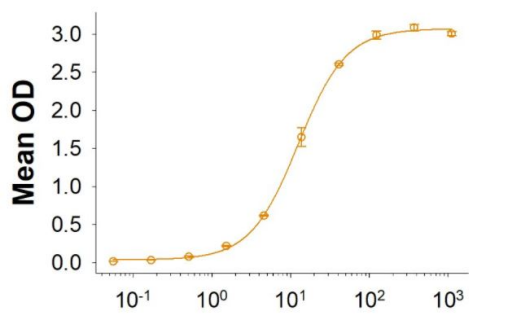
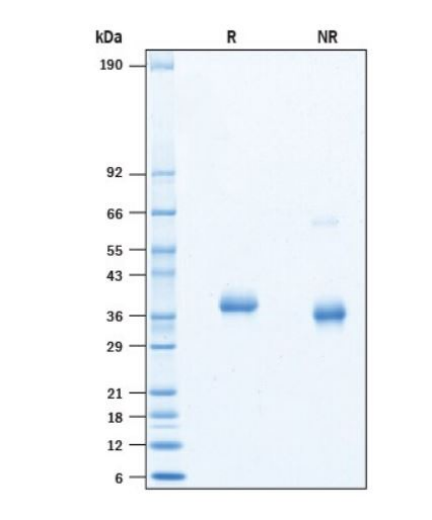
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| **Purity** | >95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining. |
| **Storage** | Use a manual defrost freezer and avoid repeated freeze-thaw cycles.12 months from date of receipt, -20 to -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

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| **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 |

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| **UniProt ID** | P0DTC2 |
| **Binding Activity** |  |
| **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.

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