

**Spike Protein RBD**  
Catalog # PVGS1583

**Specification**

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**Spike Protein RBD - Product Information**

Primary Accession [P0DTC2](#)

**Species**  
SARS-CoV-2

**Sequence**  
Arg319-Ser591 (E484K, K417T, N501Y)

**Purity**  
> 90% as analyzed by SDS-PAGE

**Endotoxin Level**  
< 0.2 EU/ µg of protein by gel clotting method

**Biological Activity**  
SARS-CoV-2 Spike protein (RBD, E484K, K417T, N501Y, Avi & His Tag) can bind with human ACE2 in functional ELISA assay.

**Expression System**  
CHO

**Theoretical Molecular Weight**  
33.7 kDa

Formulation **Supplied as a solution in PBS, pH 7.4.**

**Storage & Stability**  
Upon receiving, this product remains stable for up to 6 months at -20°C or below. Please avoid repeated freeze-thaw cycles.

**Spike Protein RBD - Additional Information**

**Gene ID** 43740568

**Other Names**  
Spike glycoprotein {ECO:0000255|HAMAP-Rule:MF\_04099}, S glycoprotein {ECO:0000255|HAMAP-Rule:MF\_04099}, E2 {ECO:0000255|HAMAP-Rule:MF\_04099}, Peplomer protein {ECO:0000255|HAMAP-Rule:MF\_04099}, Spike protein S1 {ECO:0000255|HAMAP-Rule:MF\_04099}, Spike protein S2 {ECO:0000255|HAMAP-Rule:MF\_04099}, Spike protein S2' {ECO:0000255|HAMAP-Rule:MF\_04099}, S {ECO:0000255|HAMAP-Rule:MF\_04099}

**Target Background**  
SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus 2) also known as 2019-nCoV (2019 Novel Coronavirus) is a virus that causes illnesses ranging from the common cold to severe diseases. Lineage P.1, also known as the Brazil(ian) variant is one of the variants of SARS-CoV-2.

This variant has 17 amino acid changes, ten of which are in its spike protein, including these three designated to be of particular concern: N501Y, E484K and K417T. SARS-CoV-2 Spike protein (RBD, E484K, K417T, N501Y, Avi & His Tag) carries a Avi Tag followed by a polyhistidine tag at the C-terminus. It has high binding affinity to human chimeric ACE2.

## Spike Protein RBD - Protein Information

**Name** S {ECO:0000255|HAMAP-Rule:MF\_04099}

### Function

[Spike protein S1]: Attaches the virion to the cell membrane by interacting with host receptor, initiating the infection. The major receptor is host ACE2 (PubMed:<a href="http://www.uniprot.org/citations/32142651" target="\_blank">32142651</a>, PubMed:<a href="http://www.uniprot.org/citations/32155444" target="\_blank">32155444</a>, PubMed:<a href="http://www.uniprot.org/citations/33607086" target="\_blank">33607086</a>). When S2/S2' has been cleaved, binding to the receptor triggers direct fusion at the cell membrane (PubMed:<a href="http://www.uniprot.org/citations/34561887" target="\_blank">34561887</a>). When S2/S2' has not been cleaved, binding to the receptor results in internalization of the virus by endocytosis leading to fusion of the virion membrane with the host endosomal membrane (PubMed:<a href="http://www.uniprot.org/citations/32075877" target="\_blank">32075877</a>, PubMed:<a href="http://www.uniprot.org/citations/32221306" target="\_blank">32221306</a>). Alternatively, may use NRP1/NRP2 (PubMed:<a href="http://www.uniprot.org/citations/33082294" target="\_blank">33082294</a>, PubMed:<a href="http://www.uniprot.org/citations/33082293" target="\_blank">33082293</a>) and integrin as entry receptors (PubMed:<a href="http://www.uniprot.org/citations/35150743" target="\_blank">35150743</a>). The use of NRP1/NRP2 receptors may explain the tropism of the virus in human olfactory epithelial cells, which express these molecules at high levels but ACE2 at low levels (PubMed:<a href="http://www.uniprot.org/citations/33082293" target="\_blank">33082293</a>). The stalk domain of S contains three hinges, giving the head unexpected orientational freedom (PubMed:<a href="http://www.uniprot.org/citations/32817270" target="\_blank">32817270</a>).

### Cellular Location

Virion membrane {ECO:0000255|HAMAP-Rule:MF\_04099, ECO:0000269|PubMed:32979942}; Single-pass type I membrane protein {ECO:0000255|HAMAP-Rule:MF\_04099, ECO:0000269|PubMed:34504087}. Host endoplasmic reticulum-Golgi intermediate compartment membrane {ECO:0000255|HAMAP-Rule:MF\_04099, ECO:0000269|PubMed:34504087}; Single-pass type I membrane protein {ECO:0000255|HAMAP-Rule:MF\_04099}. Host cell membrane {ECO:0000255|HAMAP-Rule:MF\_04099, ECO:0000269|PubMed:34504087}; Single-pass type I membrane protein {ECO:0000255|HAMAP-Rule:MF\_04099}. Note=Accumulates in the endoplasmic reticulum-Golgi intermediate compartment, where it participates in virus particle assembly. Some S oligomers are transported to the host plasma membrane, where they may mediate cell-cell fusion (PubMed:34504087). An average of 26 +/-15 S trimers are found randomly distributed at the surface of the virion (PubMed:32979942) {ECO:0000255|HAMAP-Rule:MF\_04099, ECO:0000269|PubMed:32979942, ECO:0000269|PubMed:34504087}

## Spike Protein RBD - Protocols

Provided below are standard protocols that you may find useful for product applications.

- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)

- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

**Spike Protein RBD - Images**