

**Spike Protein RBD**  
Catalog # PVGS1575**Specification**

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**Spike Protein RBD - Product Information**Primary Accession [P0DTC2](#)**Species**  
SARS-CoV-2**Sequence**  
Arg319-Ser591**Biological Activity**

This protein is validated to bind with human ACE2 (Cat. No. [https://www.abcepta.com/protein/Z03516-ACE\\_2\\_Fc\\_Chimera\\_Human\\_CHO\\_expressed\\_.html](https://www.abcepta.com/protein/Z03516-ACE_2_Fc_Chimera_Human_CHO_expressed_.html) target="\_blank">Z03516</a>) in functional ELISA assay.

**Expression System**

Human Cells

Formulation

**Supplied as a solution in PBS, pH 7.4, 0.1% ProClin 300.****Storage & Stability**

Upon receiving, this product remains stable for up to 3 months at 2-8°C. Protect from light.

**Spike Protein RBD - Additional Information****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**

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is the virus that causes coronavirus disease 2019 (COVID-19), the respiratory illness responsible for the COVID-19 pandemic. SARS-CoV-2 also known as 2019-nCoV, is a positive-sense single-stranded RNA virus and is believed to have zoonotic origins and has close genetic similarity to bat coronaviruses. The receptor binding domain (RBD) of spike protein of the SARS-CoV-2 virus binds Angiotensin-Converting Enzyme 2 (ACE2) to invade the host cells. 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.

**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