

**Spike Protein S1**  
Catalog # PVGS1587**Specification**

---

**Spike Protein S1 - Product Information**Primary Accession [P0DTC2](#)**Species**  
SARS-CoV-2**Sequence**  
Gln14-Arg685 (Q52R, del 69-70, E484K, Q677H, D614G)**Purity**  
> 90% as analyzed by SDS-PAGE**Endotoxin Level**  
< 0.2 EU/ µg of protein by gel clotting method**Biological Activity**  
This protein is validated to bind with human ACE2 in functional ELISA assay.**Expression System**  
CHO**Theoretical Molecular Weight**  
75.7 kDaFormulation **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 S1 - 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. The new variant B.1.525 was first detected by genome sequence in mid-December in Nigeria but was also quickly found in cases in the United Kingdom, France, and elsewhere. The

mutation of B.1.525 may increase transmissibility, virulence, and immune escape, the amino acid substitutions Q52R, E484K, Q677H, D614G are located in the spike protein with the deletions at positions 69-70.

## Spike Protein S1 - 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 using host TFRC and GRM2 and 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>, PubMed:<a href="http://www.uniprot.org/citations/34903715" target="\_blank">34903715</a>, PubMed:<a href="http://www.uniprot.org/citations/36779763" target="\_blank">36779763</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>). Uses also ASGR1 as an alternative receptor in an ACE2-independent manner (PubMed:<a href="http://www.uniprot.org/citations/34837059" target="\_blank">34837059</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 S1 - 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 S1 - Images**