

Spike protein RBD

Catalog # PVGS1680

Product Information

Primary Accession Species	P0DTC2 SARS-CoV-2
Sequence	Arg319-Phe541 (G339D, S371L, S373P, S375F, K417N, N440K, G446S, S477N, T478K, E484A, Q493R, G496S, Q498R, N501Y, Y505H)
Biological Activity	This protein is validated to bind with human ACE2 in functional ELISA assay.
Expression System	Human Cells
Formulation Storage & Stability	Supplied as a solution in PBS, pH 7.4, 0.1% ProClin 300. Upon receiving, this product remains stable for up to 3 months at 2-8 °C. Protect from light.

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. Recently, the new B.1.1.529 variant was confirmed in South Africa and preliminary evidence suggests an increased risk of reinfection with this variant. The B.1.1.529 variant was first reported to WHO on 24 November 2021 and WHO has designated this variant as a VOC (Variant of Concern), named Omicron. There are more than 30 mutations in the spike protein.

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:[32142651](#), PubMed:[32155444](#), PubMed:[33607086](#)). When S2/S2' has been cleaved, binding to the receptor triggers direct fusion at the cell membrane (PubMed:[34561887](#)). 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:[32075877](#), PubMed:[32221306](#), PubMed:[34903715](#), PubMed:[36779763](#)). Alternatively, may use NRP1/NRP2 (PubMed:[33082294](#), PubMed:[33082293](#)) and integrin as entry receptors (PubMed:[35150743](#)). 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:[33082293](#)). The stalk domain of S contains three hinges, giving the head unexpected orientational freedom (PubMed:[32817270](#)).

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}

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.