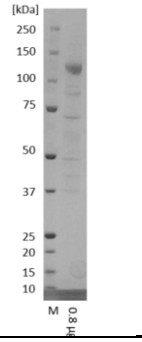
PRODUCT DATASHEET

Catalog No:	BSV-COV-PR-31
Pack Size	500 µg
Product Name:	SARS-CoV-2 Spike Glycoprotein (S2), Sheep Fc-Tag
Description:	SARS-CoV-2 (formerly known as Novel Coronavirus 2019-nCoV) Spike Glycoprotein (S2) is a recombinant antigen which contains the Spike subunit 2 protein, amino acids 685-1211. Spike S2 is manufactured in mammalian HEK293 cells to ensure the most authentic post-translational modifications. Recombinant SARS-CoV-2 S2 glycoprotein (NCBI accession number YP_009724390.1, AA685-1211), C-terminally tagged with a predominantly monomeric sheep Fc-tag.
Species:	2019-nCoV, COVID-19
Molecular weight:	
Purification:	Protein G chromatography.
Accession No.:	YP_009724390.1
Tag:	Fc-tag
Source:	HEC293
Buffer:	Dulbecco's phosphate buffered saline (DPBS) pH 7.4.
Storage:	Store at -80ºC.

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Background:	In late December, 2019, a number of patients with viral pneumonia (now called 2019-nCoV acute respiratory disease) were found to be epidemiologically associated with the Huanan seafood market in Wuhan, in the Hubei province of China. A novel, human-infecting coronavirus, provisionally named 2019 Novel Coronavirus (2019-nCoV) and since named SARS-CoV-2, was identified by genomic sequencing (Lu et al., 2020). SARS-CoV-2 is closely related (88% identity) to two bat-derived severe acute respiratory syndrome (SARS)-like coronaviruses, collected in 2018 in Zhoushan, eastern China, but were more distant from SARS-CoV (~79% identity) and MERS-CoV (~50% identity). However, although bats might be the original host of this virus, an animal sold at the seafood market in Wuhan may have acted as an intermediate host (Lu et al., 2020). Relative synonymous codon usage (RSCU) analysis suggests that SARS-CoV-2 is a recombinant between the bat coronavirus and an origin-unknown coronavirus, and it has been proposed that a snake could have acted as the reservoir. The recombination event occurred within the viral spike glycoprotein (Ji et al., 2020). Homology modelling shows that SARS-CoV-2 has a similar receptor-binding domain structure to that of SARS-CoV, despite amino acid variation at some key residues. Therefore, SARS-CoV-2 may be able to bind to the angiotensin-converting enzyme 2 (ACE2) receptor in humans (Lu et al., 2020). SARS-CoV-2 is a respiratory virus which causes coronavirus disease 2019 (COVID-19); it spreads primarily through contact with an infected person through respiratory droplets generated when a person coughs or sneezes, or through droplets of saliva or discharge from the nose. The incubation period is believed to range from 2-11 days. Infection with SARS-CoV-2 can cause mild symptoms including a runny nose, sore throat, cough, and fever. However, it can be more severe for some people and can lead to pneumonia or breathing difficulties. The elderly, and people with pre-existing medical conditions (such as, diabetes and heart disease) appear to be more vulnerable to becoming severely ill with the virus. There are currently more than 40,000 confirmed cases from 24 countries, although the vast majority are still within China, with more than 900 deaths to date (WHO, 2020). The coronavirus spike (S) glycoprotein is a class I viral fusion protein on the outer envelope of the virion that plays a critical role in viral infection by recognizing host cell receptors and mediating fusion of the viral and cellular membranes (Li, 2016). The S glycoprotein is synthesized as a precursor protein consisting of ~1,300 amino acids that is then cleaved into an amino (N)-terminal S1 subunit (~700 amino acids) and a carboxyl (C)-terminal S2 subunit (~600 amino acids). Three S1/S2 heterodimers assemble to form a trimer spike protruding from the viral envelope. The S1 subunit contains a receptor-binding domain (RBD), while the S2 subunit contains a hydrophobic fusion peptide and two heptad repeat regions. Triggered by receptor binding, proteolytic processing and/or acidic pH in the cellular

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