

Datasheet

2019 nCoV/COVID19 Spike Protein S Recombinant (S1+S2), His-tag

Catalogue No:	BSV-COV-PR-40	BSV-COV-PR-41
Pack Size	100 µg	500 µg
Product Name:	2019 nCoV/COVID19 Spike Protein S Recombinant (S1+S2), His-tag	
Description:	The recombinant 2019-nCoV Spike S protein is consisting of the S1 and S2 subunits. DNA sequence encoding the COVID-19 Spike (S) protein extracellular domain, [16-1210] including a C-terminal His-Tag was expressed in HEK Cells	
Species:	2019-nCoV, SARS-CoV-2	
Sequence:	DNA sequence encoding the COVID-19 Spike S protein extracellular domain,[16-1210] accession #QIC53204.1 including a C-terminal His tag was expressed in HEK Cells.	
Accession No:	YP_009724390.1 (GenBank), P0DTC2 (UniProt).	
Tag:	C-terminal His-Tag	
Host:	HEK293 Cells	
Purity:	>95% as determined by SDS-PAGE and HPLC.	
Predicted Molecular Mass:	The recombinant 2019-nCoV S protein is consisting of the S1+S2 subunits and contains 1210 amino acid residues. Due to glycosylation, it migrates as an approximately 120 kDa protein on SDS-PAGE.	
Formulation:	Recombinant nCoV-2019 Spike S protein was lyophilized from 0.2 µm filtered 20 mM Tris, 300 mM NaCl, 10 % glycerol, pH 8.0.	
Reconstitution:	A quick spin of the vial followed by reconstitution in distilled water to a concentration not less than 0.1 mg/mL. This solution can then be diluted into other buffers.	
Endotoxin:	Endotoxin content was assayed using a LAL gel clot method. Endotoxin level was found to be less than 0.1 ng/µg(1EU/µg).	
Shipping, Storage & Stability:	Lyophilized protein – shipped at ambient temperature. The lyophilized protein is stable for at least 2 years from date of receipt at -20°C. It is recommended that the protein be aliquoted for optimal storage. Repeated freeze-thaw cycles should be avoided.	

Background:

The spike (S) glycoprotein of coronaviruses contains protrusions that will only bind to certain receptors on the host cell. It has been reported that 2019-nCoV can infect the human Respiratory Epithelial cells through interaction with the human ACE2 receptor. The S protein is a large type I transmembrane protein containing two subunits, S1 and S2. S1 mainly contains a receptor binding domain (RBD), which is responsible for recognizing the cell surface receptor. S2 contains basic elements needed for the membrane fusion. So, S protein has a key role in the induction of neutralizing-antibody and T-cell responses, as well as protective immunity.

Known receptors binding S1 are ACE2, Angiotensin-Converting Enzyme 2; DPP4, Dipeptidyl Peptidase-4; APN, Aminopeptidase N; CEACAM, Carcinoembryonic antigen-related cell adhesion molecule 1; Sia, Sialic acid; O-ac Sia, O-acetylated Sialic acid.

The S protein is essential for both host specificity and viral infectivity. The term 'peplomer' is typically used to refer to a grouping of heterologous proteins on the virus surface that function together. Besides, the S protein is known to be essential in the binding of the virus to the host cell at the advent of the infection process.

The main functions for the S protein are summarized as: Mediate receptor binding and membrane fusion; Defines the range of the hosts and specificity of the virus; Main component to bind with the neutralizing antibody; Key target for vaccine design; Can be transmitted between different hosts through gene recombination or mutation of the receptor binding domain (RBD), leading to a higher mortality rate.
