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# Recombinant SARS-CoV-2 (2019-nCoV) Spike S1 Subunit protein

Catalog Number: ATGP3961

### PRODUCT INFORMATION

# **Expression system**

**HEK293** 

#### **Domain**

16-685aa

#### UniProt No.

PODTC2

#### **NCBI Accession No.**

QHD43416.1

### **Alternative Names**

Spike glycoprotein, S glycoprotein, E2, Peplomer protein, covid19, COVID-19, COVID-19 virus, HCoV-19, Human coronavirus 2019, SARS2, Spike protein S1, Severe acute respiratory syndrome coronavirus 2, 2019-nCoV, S

# **PRODUCT SPECIFICATION**

# **Molecular Weight**

76.2kDa (680aa)

#### Concentration

0.25mg/ml (determined by Absorbance at 280nm)

#### **Formulation**

Liquid in. Phosphate-Buffered Saline (pH 7.4) containing 10% glycerol

#### **Purity**

> 85% by SDS-PAGE

### **Endotoxin level**

< 1 EU per 1ug of protein (determined by LAL method)

# **Biological Activity**

Measured by its binding ability in a functional ELISA with Human ACE-2 (CAT# ATGP3963)

# Tag

His-Tag

# **Application**

SDS-PAGE, Bioactivity

# **Storage Condition**

Can be stored at +2C to +8C for 1 week. For long term storage, aliquot and store at -20C to -80C. Avoid repeated freezing and thawing cycles.

# **BACKGROUND**



# Recombinant SARS-CoV-2 (2019-nCoV) Spike S1 Subunit protein

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# **Description**

An epidemic of acute respiratory syndrome in humans, which appeared in Wuhan, China in December 2019, was caused by a novel coronavirus (SARS-CoV-2). This disease was named as "Coronavirus Disease 2019" (COVID-19). This virus shares highly homological sequence with SARS-CoV, and causes acute, highly lethal pneumonia coronavirus disease 2019 (COVID-19) with clinical symptoms similar to those reported for SARS-CoV and MERS-CoV. The genome of this and other emerging pathogenic human CoVs encodes four major structural proteins [spike (S), envelope (E), membrane (M), and nucleocapsid (N)], approximately 16 nonstructural proteins (nsp1-16), and five to eight accessory proteins. Among them, the S protein plays an essential role in viral attachment, fusion, entry, and transmission. It comprises an N-terminal S1 subunit responsible for virus-receptor binding and a C-terminal S2 subunit responsible for virus-cell membrane fusion. S1 is further divided into an Nterminal domain (NTD) and a receptor-binding domain (RBD). SARS-CoV-2 and SARS-CoV bind angiotensinconverting enzyme 2 (ACE2) while MERS-CoV binds dipeptidyl peptidase 4 (DPP4), as receptors on the host cell expressing ACE2 (e.g., pneumocytes, enterocytes) or DPP4 (e.g., liver or lung cells including Huh-7, MRC-5, and Calu-3). During infection, CoV first binds the host cell through interaction between its S1-RBD and the cell membrane receptor, triggering conformational changes in the S2 subunit that result in virus fusion and entry into the target cell. Recombinant SARS-CoV-2 (2019-nCoV) Spike S1 Subunit, fused to His-tag at C-terminus, was expressed in HEK293 cell and purified by using conventional chromatography techniques.

### **Amino acid Sequence**

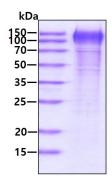
<DGSM>VNLTTR TQLPPAYTNS FTRGVYYPDK VFRSSVLHST QDLFLPFFSN VTWFHAIHVS GTNGTKRFDN PVLPFNDGVY FASTEKSNII RGWIFGTTLD SKTQSLLIVN NATNVVIKVC EFQFCNDPFL GVYYHKNNKS WMESEFRVYS SANNCTFEYV SQPFLMDLEG KQGNFKNLRE FVFKNIDGYF KIYSKHTPIN LVRDLPQGFS ALEPLVDLPI GINITRFQTL LALHRSYLTP GDSSSGWTAG AAAYYVGYLQ PRTFLLKYNE NGTITDAVDC ALDPLSETKC TLKSFTVEKG IYQTSNFRVQ PTESIVRFPN ITNLCPFGEV FNATRFASVY AWNRKRISNC VADYSVLYNS ASFSTFKCYG VSPTKLNDLC FTNVYADSFV IRGDEVRQIA PGQTGKIADY NYKLPDDFTG CVIAWNSNNL DSKVGGNYNY LYRLFRKSNL KPFERDISTE IYQAGSTPCN GVEGFNCYFP LQSYGFQPTN GVGYQPYRVV VLSFELLHAP ATVCGPKKST NLVKNKCVNF NFNGLTGTGV LTESNKKFLP FQQFGRDIAD TTDAVRDPQT LEILDITPCS FGGVSVITPG TNTSNQVAVL YQDVNCTEVP VAIHADQLTP TWRVYSTGSN VFQTRAGCLI GAEHVNNSYE CDIPIGAGIC ASYQTQTNSP RRAR

# **General References**

Wu, F. et al. (2020) Nature. 579:265-269.
Ortega, J.T. et al. (2020) EXCLI J. 19:410-417.
Wanbo T., et al, (2020) Cell. Mol. Immunol. 17:613-620.
Gorbalenya A., et al (2020) Nat. Microbiol. 5:536-544.
Tortorici, M.A. and D. Veesler (2019). Adv. Virus Res. 105:93-116.

#### **DATA**

#### **SDS-PAGE**



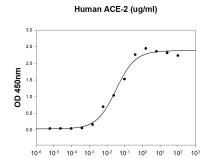
3ug by SDS-PAGE under reducing condition and visualized by coomassie blue stain



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# **Biological Activity**



SARS-CoV-2 Spike S1 Subunit is coated at 5ug/ml (100 ul/well) can bind ACE-2 (CAT# ATGP3963) in a Functional ELISA assay.

