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

Catalog Number: ATGP3961

PRODUCT INFORMATION

Expression system
HEK293

Domain
16-685aa

UniProt No.
P0DTC2

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

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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 N-terminal domain (NTD) and a receptor-binding domain (RBD). SARS-CoV-2 and SARS-CoV bind angiotensin-converting 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

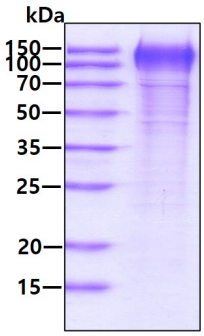
<DGSM>VNLTTR TQLPPAYTNS FTRGVYYPDK VFRSSVLHST QDLFLPFFSN VTWFHAIHVS GTNGTKRFDN PVLPFNDGVY FASTEKSNII RGWIFGTTLD SKTQSLLIVN NATNVVIKVC EFQFCNDPFL GVYYHKNNKS WMESEFRVYS SANNCTFEYV SQPFLMDLEG KQGNFKNLRE FVFKNIDGYF KIYSKHTPIN LVRDLPQGFS ALEPLVDLPI GINITRFQTL LALHRSYLTP GDSSSGWTAG AAAYYVGYLQ PRTFLLKYNE NGTITDAVDC 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<HHHHHH>

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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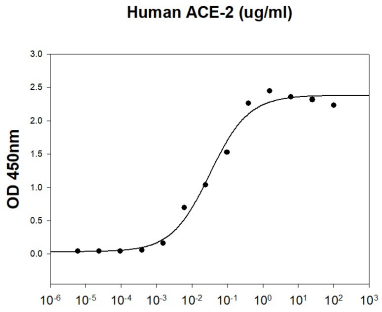
Biological Activity



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.