



Daresbury Proteins

Product description

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Name: Recombinant SARS-CoV-2 Spike protein, B.1.617 variant (Indian variant, R21T, E154K, Q218H, L452R, E484Q, D614G, P681R and H1101D). Full-length soluble with foldon trimerization motif, mutated Furin recognition site and 6 stabilising mutations (F817P, A892P, A899P, A942P, K986P and V987P), based on/modified from Amanat *et al*, 2020 and Hsieh *et al*, 2020.

Synonyms: Indian mutant Spike glycoprotein, Delta mutant S protein.

Species: Severe Acute Respiratory Syndrome Coronavirus 2

Source: HEK293

Amino Acids: 16-1211

Tag: 8xHis at the C terminus.

Predicted Molecular Weight: 137 kDa

Protein ID: P0DTC2

Sequence:

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VNLTTTTTQLP PAYTNSFTRG VYYPDKVFERS SVLHSTQDLF LPFFSNVTWF HAIHVS GTNG TKRFDNPVLP
FNDGVYSSANN EKSNIIRGWI FGTTLD SKTQ SLLIVNNATN VVIKVC EFQF CNDPFLGVYY HKNNKSWMKS
EFRVYSSANN CTFEYVSQPF LMDLEGKQGN FKNLREFVFK NIDGYFKIYS KHTPINLVRD LPHGFSALEP
LVDLPIGINI TRFQTLALH RSYLTPGDSS SGWTAGAAAY YVGYLQPRTF LLKYNENGTI TDAVDCALDP
LSETKCTLKS FTVEKGIYQT SNFRVQPTES IVRFPNITNL CPFGEVFNAT RFASVYAWNR KRISNCVADY
SVLYNSASFSTFKCYGVSP KLNDLCFTNV YADSFVIRGD EVRQIAPGQT GKIADYNYKL PDDFTGCVIA
WNSNNLDSKV GGNYNRYRL FRKSNLKPFE RDISTEIYQA GSTPCNGVQG FNCYFPLQSY GFQPTNGVGY
QPYRVVLSF ELLHAPATVC GPKKSTNLVK NKC VNFNFNG LTGTGVLTES NKKFLPFQQF GRDIADTTDA
VRDPQTLLEIL DITPCSFGGV SVITPGTNTS NQVAVLYQGV NCTEVPVAIH ADQLTPTWRV YSTGSNVFQT
RAGCLIGA EH VNNSYEC DIP IGAGICASYQ TQTNSRRGAG SVASQSIAY TMSLGAENSV AYSNNSIAIP
TNFTISVTTE ILPVSMTKTS VDCTMYICGD STECSNLLLQ YGSFCTQLNR ALTGIAVEQD KNTQEVFAQV
KQIYKTPPIK DFGGFNFSQI LPDPSKPSKR SPIEDLLENK VTLADAGFIK QYGDCLGDIA ARDLICAQKF
NGLTVLPLL TDEMIAQYTS ALLAGTITSG WTFGAGPALQ IPFPMQMAYR FNGIGVTQNV LYENQKLIAN
QFNSAIGKIQ DLSLSTPSAL GKLQDVVNQN AQALNTLVKQ LSSNFGAISS VLNDILSRLD PPEA EVQIDR
LITGRLQSLQ TYVTQQLIRA AEIRASANLA ATKMSECVLG QSKRVDFCGK GYHLMSEFPQS APHG VVFLHV
TYVPAQEKNF TTAPAICH DG KAHFPREGVF VSNGTDWFVT QRNFYEPQII TTDNTFVSGN CDVVIGIVNN
TVYDPLQPEL DSFKEELDKY FKNHTSPDVD LGDISGINAS VVNIQKEIDR LNEVAKNLNE SLIDLQELGK
YEQYIKGSGS GYIPEAPRDG QAYVRKDGEW VLLSTFLGSG HHHHHHHH
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Product specifications

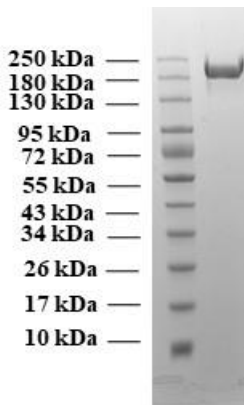
Estimated Molecular Weight, SDS-PAGE: ≈190 kDa

Grade & Purity: >90% as estimated by SDS-PAGE stained with Instant Blue Stain (Expedeon).

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Endotoxins: Less than 0.1 ng/ μ g (1 IEU/ μ g), as measured by LAL method.

Formulation: PBS 20% Glycerol

Shipping

Product is shipped either on dry or wet ice or frozen gel packs. Upon receipt, store at -20°C to -70°C .

Product application and Storage

Storage: The protein should be stored at -20°C to -70°C preferably in small aliquots to avoid repeated freeze-thaw cycles.

Stability: At least 12 months at -20°C to -70°C and at least 1 month at 2°C to 8°C .

Application Note: For research purposes only. Not for use in humans.

Background Information

The first reports of atypical pneumonia in China were announced at the very end of 2019, in the city of Wuhan, Hubei province. Its cause was identified in January 2020 as a novel β -CoV (1), named SARS-CoV-2, which started spreading very quickly causing a global pandemic COVID-19.

Spike protein attaches the virion to the cell membrane by interacting with host receptor, initiating the infection. Binding to human ACE2 receptor and internalization of the virus into the endosomes of the host cell induces conformational changes in the Spike glycoprotein (2, 3). The protein forms a trimer *in vivo* mediating receptor binding and membrane fusion (4). It has been demonstrated by Florian Krammer's group that certain mutations and the inclusion of trimerization motif can stabilize recombinant Spike protein (5, 6).

The original Wuhan strain of the virus has become quickly replaced by its more transmissible variant, mainly determined by a single amino acid point mutation D614G (7). A novel SARS-CoV-2 variant, B.1.617, known as Indian variant, originated in India and quickly became dominant (8,9).

References:

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5. Amanat, F., Stadlbauer, D., Strohmeier, S., et al. A serological assay to detect SARS-CoV-2 seroconversion in humans. *Nat Med.*, 2020;26:1033-1036.
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7. Korber, B., W. Fischer, Gnanakaran, S., et al. Tracking Changes in SARS-CoV-2 Spike: Evidence that D614G Increases Infectivity of the COVID-19 Virus. *Cell*, 2020;182:1-16.
8. Hoffmann, M., H. Hofmann-Winkler, Kruger, N., et al. SARS-CoV-2 variant B.1.617 is resistant to Bamlanivimab and evades antibodies induced by infection and vaccination. *BioRxiv*, May 5, 2021.
9. Singh, J., S.A. Rahman, Ehtesham, N.Z., et al. SARS-CoV-2 variants of concern are emerging in India. *Nat Med.*, 2021;27:1131-1133.