SARS-CoV-2 S protein (L18F, T20N, P26S, D138Y, R190S, K417T, E484K, N501Y, D614G, H655Y, T1027I, V1176F), His Tag (MALS verified)

Catalog # SPN-C52Hg

Synonym

Spike,S protein,Spike glycoprotein,S glycoprotein

Source

SARS-CoV-2 S protein, His Tag (SPN-C52Hg) is the ectodomain of SARS-CoV-2 S protein that contains AA Val 16 - Pro 1213 (Accession # QHD43416.1) and mutations, which have become increasingly common in SARS-CoV-2 viruses from around the world. The recombinant protein is expressed from human 293 cells (HEK293) with T4 fibritin trimerization motif and a polyhistidine tag at the C-terminus. Proline substitutions (F817P, A892P, A899P, A942P, K986P, V987P) and alanine substitutions (R683A and R685A) are introduced to stabilize the trimeric prefusion state of SARS-CoV-2 S protein and abolish the furin cleavage site, respectively. The L18F/ T20N/ P26S/ D138Y/ R190S/ K417T/ E484K/ N501Y/ D614G/ H655Y/ T1027I/ V1176F mutations were identified in the SARS-CoV-2 Gamma variant (Pango lineage: P.1; other names: 20J/501Y.V3).
Predicted N-terminus: Val 16

Molecular Characterization

This protein carries a polyhistidine tag at the C-terminus.

The protein has a calculated MW of 138.1 kDa. The protein migrates as 150-200 kDa under reducing (R) condition (SDS-PAGE) due to glycosylation.

Endotoxin

Less than 1.0 EU per μg by the LAL method.

Purity

>95% as determined by SDS-PAGE.

>90% as determined by SEC-MALS.

Formulation

Lyophilized from 0.22 μm filtered solution in PBS with trehalose as protectant.

Contact us for customized product form or formulation.

Reconstitution

Please see Certificate of Analysis for specific instructions.

For best performance, we strongly recommend you to follow the reconstitution protocol provided in the CoA.

Storage

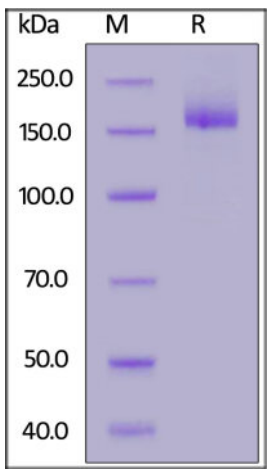
For long term storage, the product should be stored at lyophilized state at -20°C or lower.

Please avoid repeated freeze-thaw cycles.

This product is stable after storage at:

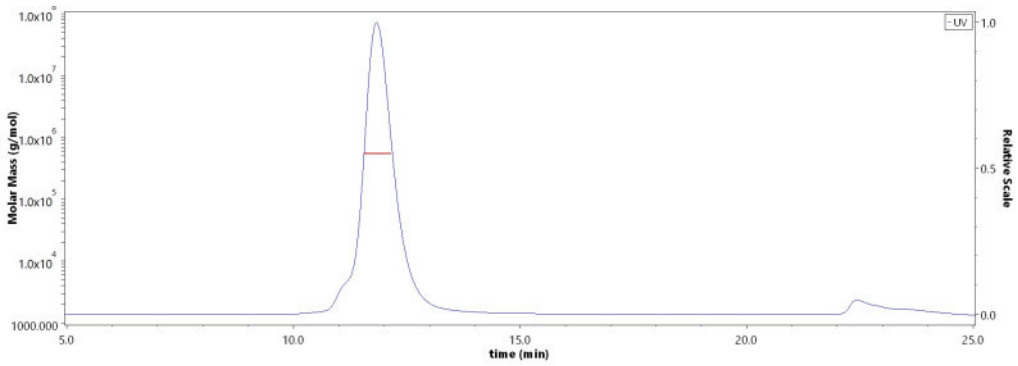
- -20°C to -70°C for 12 months in lyophilized state;
- -70°C for 3 months under sterile conditions after reconstitution.

SDS-PAGE



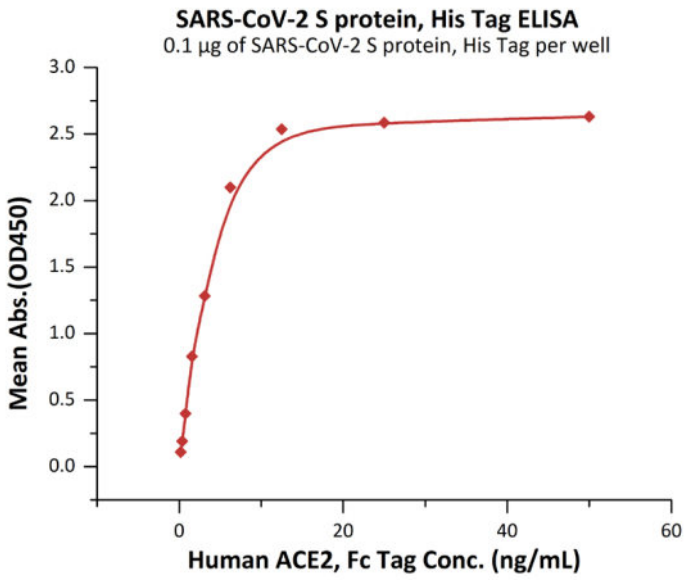
SARS-CoV-2 S protein, His Tag on SDS-PAGE under reducing (R) condition. The gel was stained with Coomassie Blue. The purity of the protein is greater than 95%.

SEC-MALS

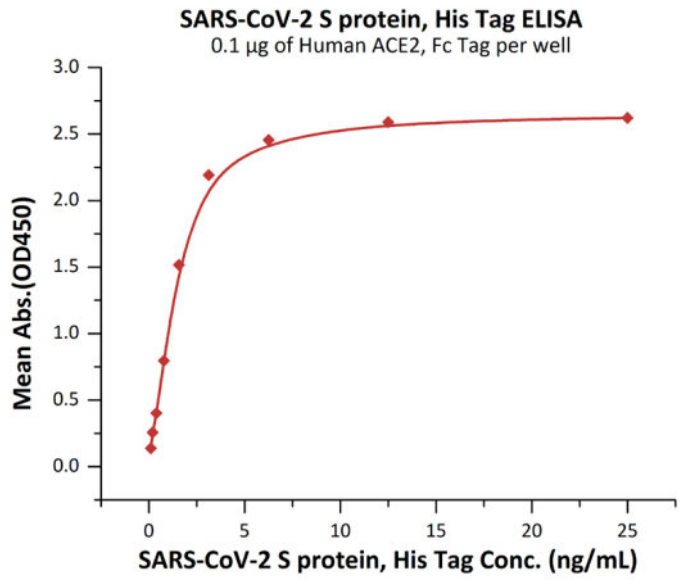


The purity of SARS-CoV-2 S protein, His Tag (Cat. No. SPN-C52Hg) is more than 90% and the molecular weight of this protein is around 530-570 kDa verified by SEC-MALS.
Report

Bioactivity-ELISA

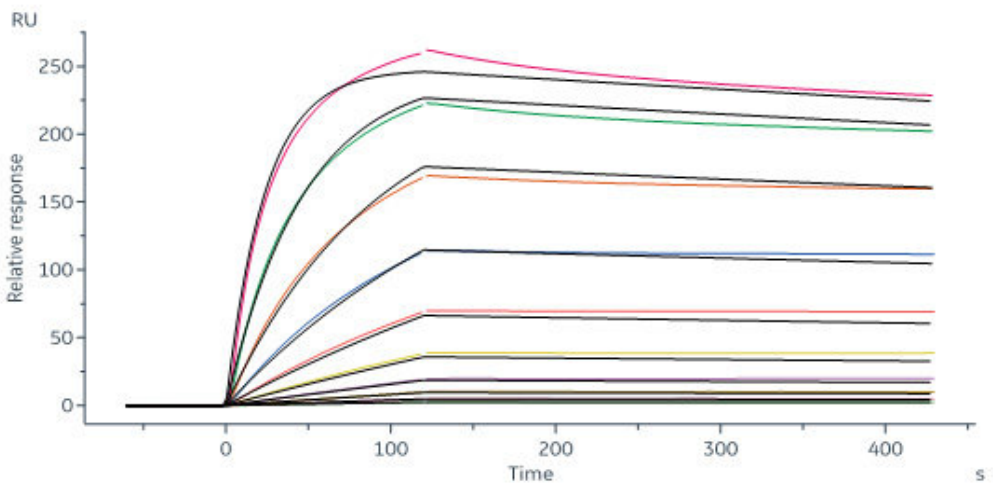


Immobilized SARS-CoV-2 S protein, His Tag (Cat. No. SPN-C52Hg) at 1 μg/mL (100 μL/well) can bind Human ACE2, Fc Tag (Cat. No. AC2-H5257) with a linear range of 0.2-6 ng/mL (QC tested).



Immobilized Human ACE2, Fc Tag (Cat. No. AC2-H5257) at 1 μg/mL (100 μL/well) can bind SARS-CoV-2 S protein, His Tag (Cat. No. SPN-C52Hg) with a linear range of 0.1-2 ng/mL (Routinely tested).

Bioactivity-SPR



Human ACE2, Fc Tag (Cat. No. AC2-H5257) captured on CM5 chip via Anti-human IgG Fc antibodies surface can bind SARS-CoV-2 S protein, His Tag (Cat. No. SPN-C52Hg) with an affinity constant of 1.78 nM as determined in a SPR assay (Biacore 8K) (Routinely tested).

Background

It's been reported that coronavirus can infect the human respiratory epithelial cells through interaction with the human ACE2 receptor. The spike 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.The S protein plays key parts in the induction of neutralizing-antibody and T-cell responses, as well as protective immunity.

Clinical and Translational Updates

Please contact us via TechSupport@acrobiosystems.com if you have any question on this product.