# Biotinylated SARS-CoV-2 S protein, His,Avitag™, Super stable trimer (MALS verified)

Catalog # SPN-C82E9

## Synonym

Spike,S protein,Spike glycoprotein,S glycoprotein

## Source

Biotinylated SARS-CoV-2 S protein, His, Avitag, Super stable trimer (SPN-C82E9) is the ectodomain of SARS-CoV-2 S protein which contains AA Val 16 - Pro 1213 (Accession # QHD43416.1). 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.
Predicted N-terminus: Val 16

## Molecular Characterization

This protein carries a polyhistidine tag at the C-terminus, followed by an Avi tag (Avitag™).

The protein has a calculated MW of 139.7 kDa. The protein migrates as 180-210 kDa under reducing (R) condition (SDS-PAGE) due to glycosylation.

## Labeling

***Biotinylation of this product is performed using Avitag™ technology. Briefly, the single lysine residue in the Avitag is enzymatically labeled with biotin.***

## Protein Ratio

Passed as determined by the HABA assay / binding ELISA.

## Purity

>95% as determined by SDS-PAGE.

>90% as determined by SEC-MALS.

## Formulation

Lyophilized from 0.22 μm filtered solution in 0.1 M Sodium citrate, pH5.5 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

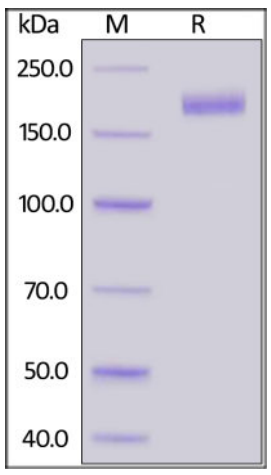
For long term storage, the product should be stored at lyophilized state at -20°C or lower.

***Please avoid repeated freeze-thaw cycles.***

This product is stable after storage at:

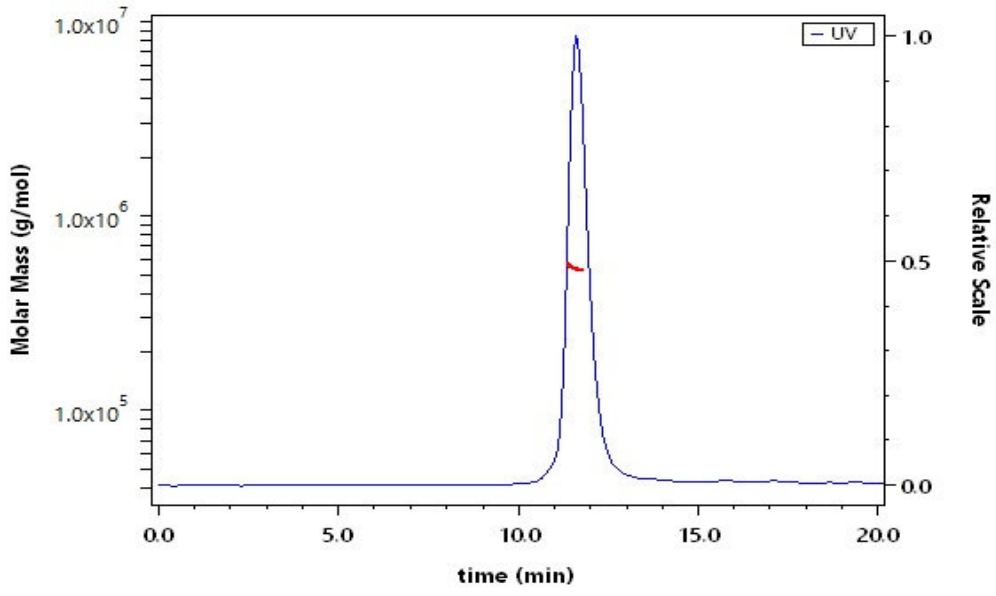
- -20°C to -70°C for 12 months in lyophilized state;
- -70°C for 3 months under sterile conditions after reconstitution.

## SDS-PAGE



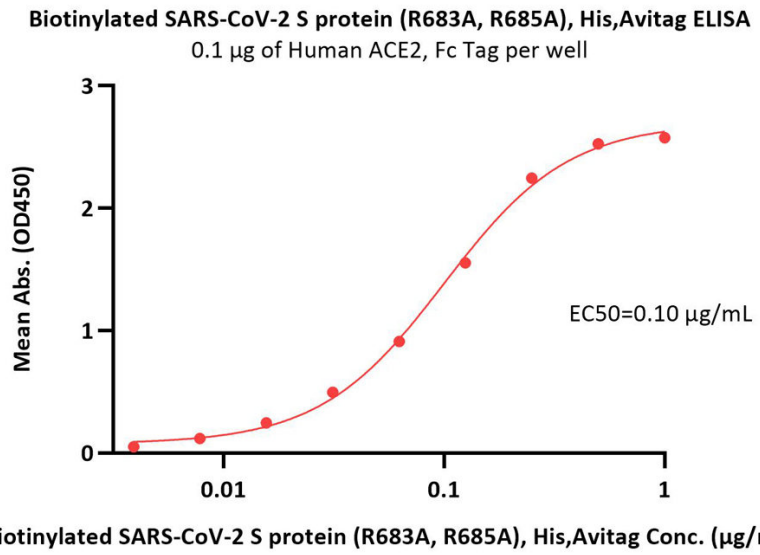

Biotinylated SARS-CoV-2 S protein, His,Avitag, Super stable trimer on SDS-PAGE under reducing (R) condition. The gel was stained with Coomassie Blue. The purity of the protein is greater than 95%.

## SEC-MALS

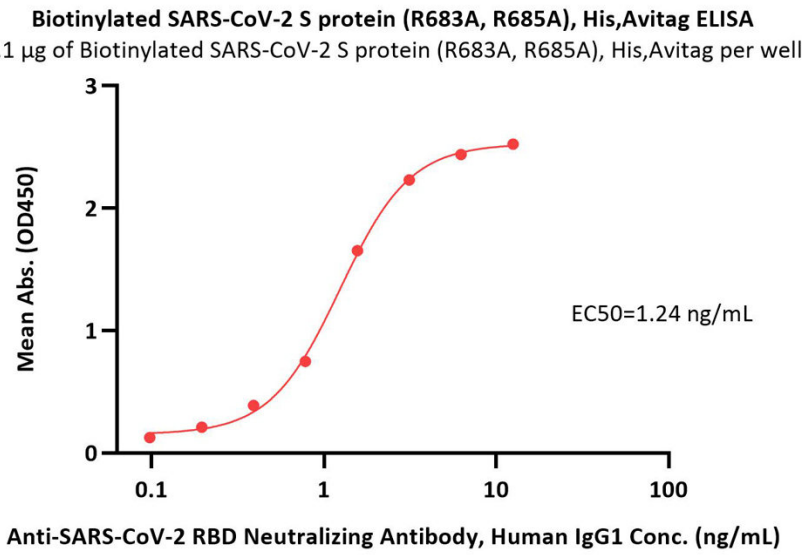



The purity of Biotinylated SARS-CoV-2 S protein, His,Avitag, Super stable trimer (Cat. No. SPN-C82E9) is more than 90% and the molecular weight of this protein is around 520-620 kDa verified by SEC-MALS.
Report

## Bioactivity-ELISA

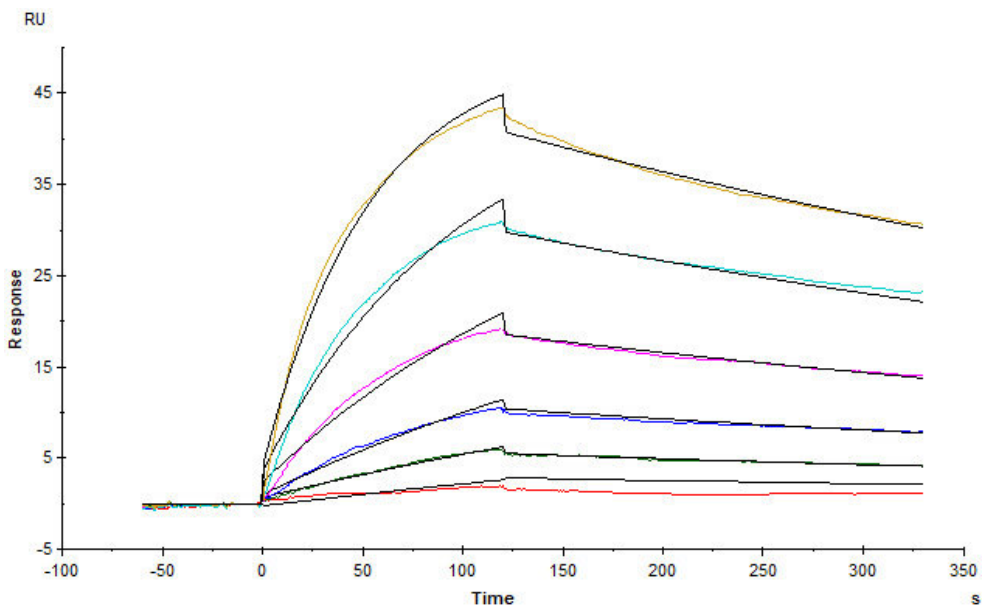



Immobilized Human ACE2, Fc Tag (Cat. No. AC2-H5257) at 1 μg/mL (100 μL/well) can bind Biotinylated SARS-CoV-2 S protein, His,Avitag, Super stable trimer (Cat. No. SPN-C82E9) with a linear range of 0.004-0.125 μg/mL (QC tested).




Immobilized Biotinylated SARS-CoV-2 S protein, His,Avitag, Super stable trimer (Cat. No. SPN-C82E9) at 1 μg/mL (100 μL/well)on Recombinant Streptavidin (Cat. No. STN-N5116) precoated (0.5 μg/well) plate. can bind Anti-SARS-CoV-2 RBD Neutralizing Antibody, Human IgG1 (Cat. No. SAD-S35) with a linear range of 0.1-2 ng/mL (Routinely tested).

## Bioactivity-SPR




Biotinylated SARS-CoV-2 S protein, His,Avitag, Super stable trimer (Cat. No. SPN-C82E9) captured on Biotin CAP - Series S sensor Chip can bind Human ACE2, His Tag (Cat. No. AC2-H52H8) with an affinity constant of 20.1 nM as determined in a SPR assay (Biacore T200).

## Background

It's been reported that SARS-CoV-2 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.

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