



## Synonym

Spike,S protein,Spike glycoprotein,S glycoprotein

## Source

SARS-CoV-2 Spike Trimer Protein, His Tag (JN.1/Omicron) (SPN-C5221) is expressed from human 293 cells (HEK293). It contains AA Val 16 - Pro 1213 (Accession # [QHD43416.1](#) (T19I,R21T,LPP24-26Del,A27S,S50L,H69del,V70del,V127F,G142D,Y144del,F157S,R158G,N211del,L212I,V213G,L216F,H245N,A264D,I332V,G339H,K356T,S371F,S373P,S375F,T376A,R403K,D405N,R408S,K417N,N440K,V445H,G446S,N450D,L452W,L455S,N460K,S477N,T478K,N481K,V483del,E484K,F486P,Q498R,N501Y,Y505H,E554K,A570V,D614G,P621S,H655Y,N679K,P681R,N764K,D796Y,S939F,Q954H,N969K,P1143L,R683A, R685A, F817P, A892P, A899P, A942P, K986P, V987P)). The spike mutations are identified on the SARS-CoV-2 Omicron variant (Pango lineage: JN.1/Omicron). The recombinant protein is expressed from human 293 cells (HEK293) with T4 fibrin 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.

The protein has a calculated MW of 137.5 kDa. The protein migrates as 150-180 kDa when calibrated against [Star Ribbon Pre-stained Protein Marker](#) under reducing (R) condition (SDS-PAGE) due to glycosylation.

## Endotoxin

Less than 1.0 EU per µg by the LAL method.

## Purity

>90% as determined by SDS-PAGE.

## 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

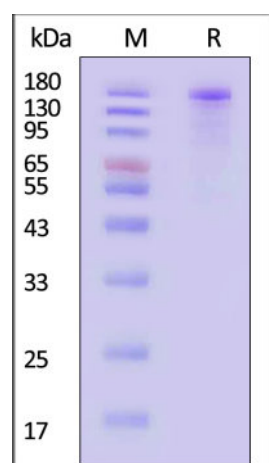
For long term storage, the product should be stored at lyophilized state at -20°C or lower.

*Please avoid repeated freeze-thaw cycles.*

This product is stable after storage at:

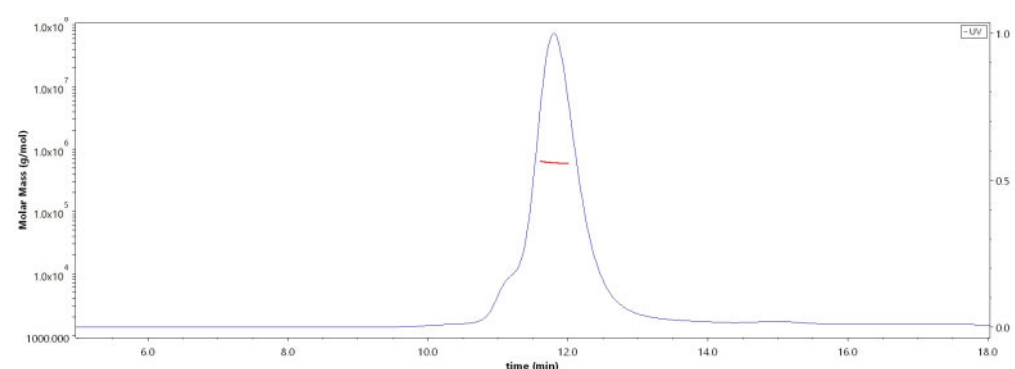
- -20°C to -70°C for 12 months in lyophilized state;
- -70°C for 3 months under sterile conditions after reconstitution.

## SDS-PAGE



SARS-CoV-2 Spike Trimer Protein, His Tag (JN.1/Omicron) on SDS-PAGE under reducing (R) condition. The gel was stained with Coomassie Blue. The purity of the protein is greater than 90% (With [Star Ribbon Pre-stained Protein Marker](#)).

## SEC-MALS



The purity of SARS-CoV-2 Spike Trimer Protein, His Tag (JN.1/Omicron) (Cat. No. SPN-C5221) is more than 85% and the molecular weight of this protein is around 570-620 kDa verified by SEC-MALS.

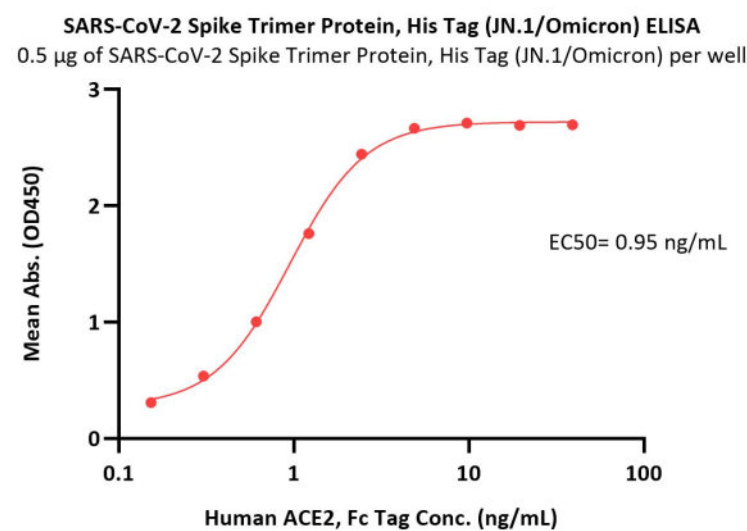
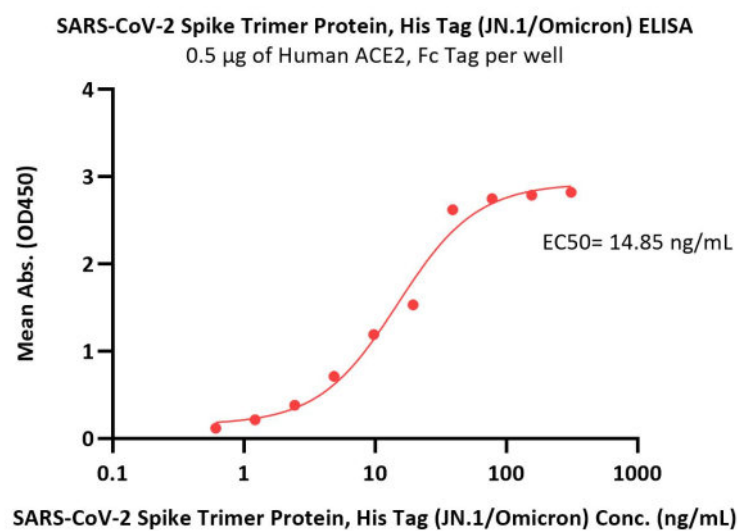
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## Bioactivity-ELISA



Immobilized Human ACE2, Fc Tag (Cat. No. AC2-H5257) at 5 µg/mL (100 µL/well) can bind SARS-CoV-2 Spike Trimer Protein, His Tag (JN.1/Omicron) (Cat. No. SPN-C5221) with a linear range of 0.6-20 ng/mL (QC tested).

Immobilized SARS-CoV-2 Spike Trimer Protein, His Tag (JN.1/Omicron) (Cat. No. SPN-C5221) at 5 µg/mL (100 µL/well) can bind Human ACE2, Fc Tag (Cat. No. AC2-H5257) with a linear range of 0.2-1 ng/mL (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

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