

### Synonym

Spike,S protein,Spike glycoprotein,S glycoprotein

### Source

SARS-CoV-2 Spike Trimer, His Tag (BA.3/Omicron) (SPN-C5225) is expressed from human 293 cells (HEK293). It contains AA Val 16 - Pro 1213 (Accession #

[QHD43416.1](#)

(A67V,H69del,V70del,T95I,G142D,V143del,Y144del,Y145del,N211del,L212I,G339D,S371F,S373P,S375F,D405N,K417N,N440K,G446S,S477N,T478K,E484A,Q493R,Q498R,N501Y,Y505H,D614G,H655Y,N679K,P681H,N764K,D796Y,Q954H,N969K,R683A, R685A, F817P, A892P, A899P, A942P, K986P, V987P)).

The spike mutations are identified on the SARS-CoV-2 Omicron variant (Pango lineage: BA.3; GISAID clade: GRA; Nextstrain clade: 21M). 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 137.7 kDa. The protein migrates as 160-200 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

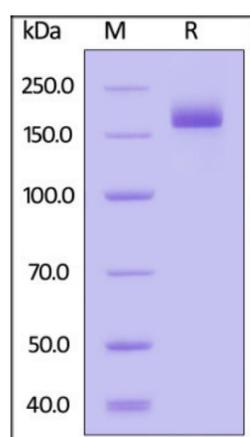
For long term storage, the product should be stored at lyophilized state at -20°C or lower.

*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.

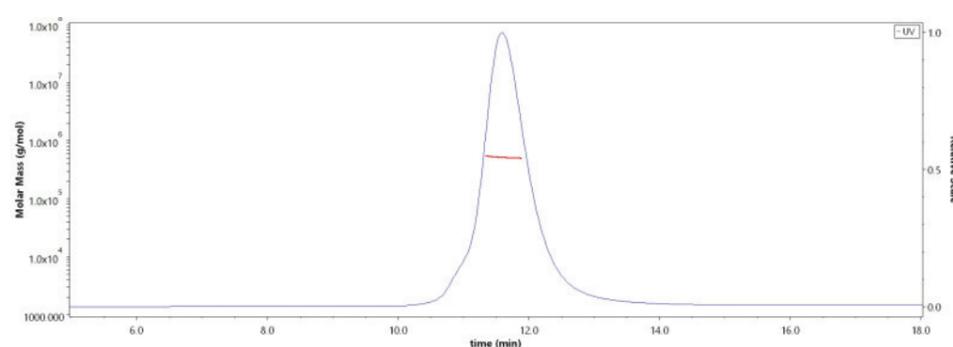
### SDS-PAGE



SARS-CoV-2 Spike Trimer, His Tag (BA.3/Omicron) on SDS-PAGE under reducing (R) condition. The gel was stained overnight with Coomassie Blue. The purity of the protein is greater than 95%.

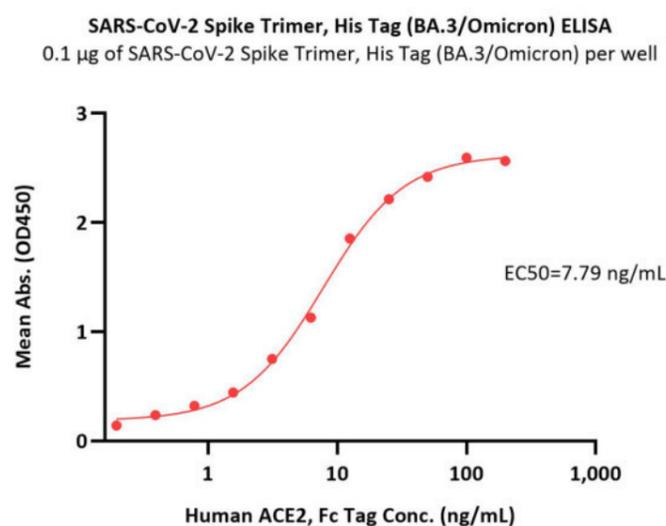
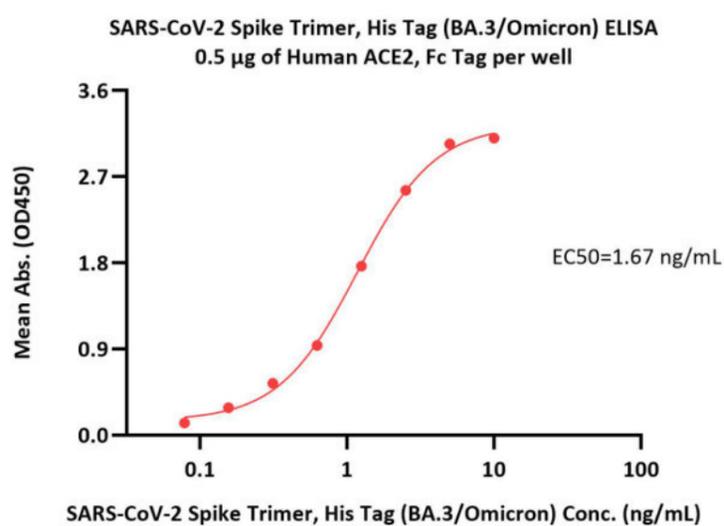
### Bioactivity-ELISA

### SEC-MALS



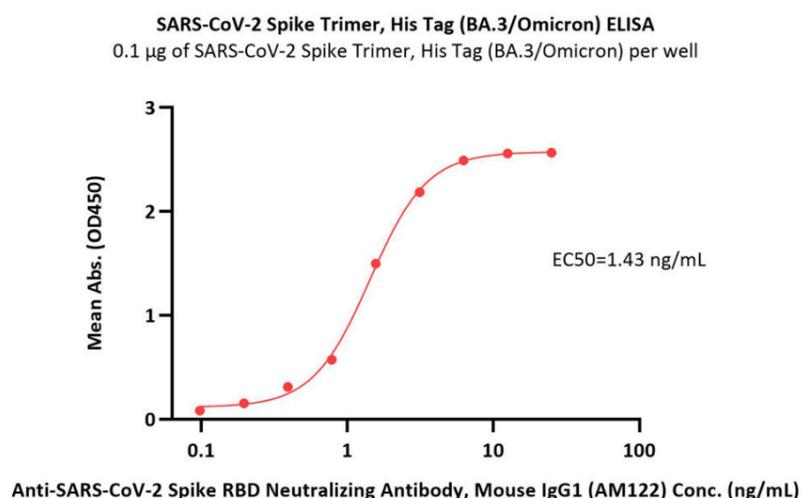
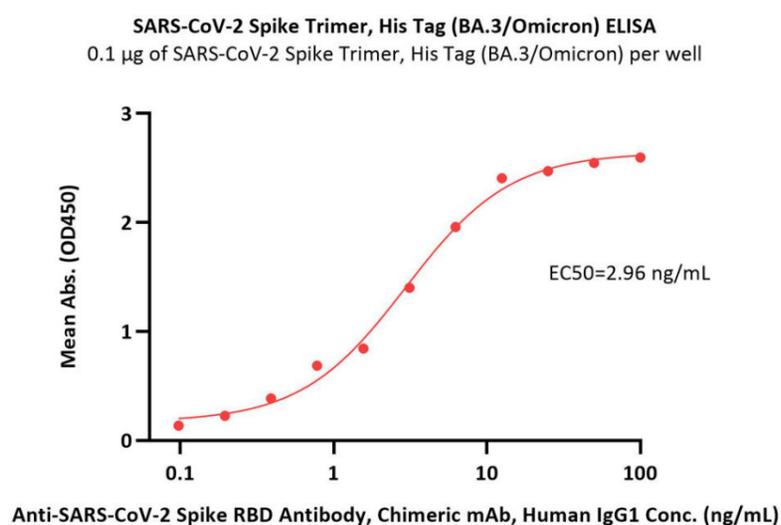
The purity of SARS-CoV-2 Spike Trimer, His Tag (BA.3/Omicron) (Cat. No. SPN-C5225) is more than 90% and the molecular weight of this protein is around 485-535 kDa verified by SEC-MALS.

[Report](#)



Immobilized Human ACE2, Fc Tag (Cat. No. AC2-H5257) at 5 µg/mL (100 µL/well) can bind SARS-CoV-2 Spike Trimer, His Tag (BA.3/Omicron) (Cat. No. SPN-C5225) with a linear range of 0.078-2.5 µg/mL (QC tested).

Immobilized SARS-CoV-2 Spike Trimer, His Tag (BA.3/Omicron) (Cat. No. SPN-C5225) at 1 µg/mL (100 µL/well) can bind Human ACE2, Fc Tag (Cat. No. AC2-H5257) with a linear range of 0.2-25 ng/mL (Routinely tested).



Immobilized SARS-CoV-2 Spike Trimer, His Tag (BA.3/Omicron) (Cat. No. SPN-C5225) at 1 µg/mL (100 µL/well) can bind Anti-SARS-CoV-2 Spike RBD Antibody, Chimeric mAb, Human IgG1 (Cat. No. S1N-M122) with a linear range of 0.1-13 ng/mL (Routinely tested).

Immobilized SARS-CoV-2 Spike Trimer, His Tag (BA.3/Omicron) (Cat. No. SPN-C5225) at 1 µg/mL (100 µL/well) can bind Anti-SARS-CoV-2 Spike RBD Neutralizing Antibody, Mouse IgG1 (AM122) (Cat. No. SCT-M369) with a linear range of 0.1-6 ng/mL (Routinely tested).

## 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.

## Clinical and Translational Updates

Please contact us via [TechSupport@acrobiosystems.com](mailto:TechSupport@acrobiosystems.com) if you have any question on this product.