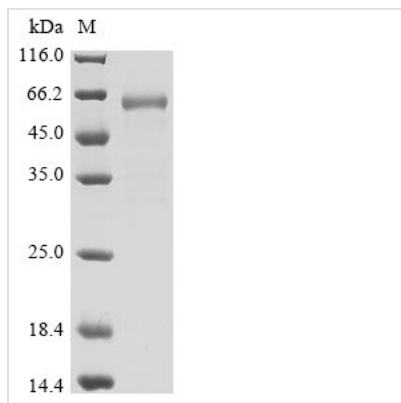


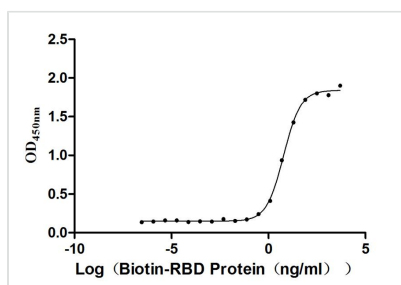


Recombinant Severe acute respiratory syndrome coronavirus 2 Spike glycoprotein (S), partial, Biotinylated (Active)

Product Code	CSB-MP3324GMY1-B
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.
Uniprot No.	P0DTC2
Form	Lyophilized powder
Storage Buffer	Lyophilized from a 0.2 µm sterile filtered PBS, 6% Trehalose, pH 7.4.
Product Type	Recombinant Protein
Immunogen Species	Severe acute respiratory syndrome coronavirus 2 (2019-nCoV) (SARS-CoV-2)
Biological Activity	Measured by its binding ability in a functional ELISA. Immobilized human ACE2 at 2 µg/ml can bind Biotinylated-SARS-CoV-2-S1-RBD (CSB-MP3324GMY1-B), the EC ₅₀ is 5.087-7.050 ng/ml.
Purity	Greater than 90% as determined by SDS-PAGE. Greater than 95% as determined by SEC-HPLC.
Sequence	RVQPTESIVRFPNITNLCPFGEVFNATRFASVYAWNRRKRISNCVADYSVLYNSA SFSTFKCYGVSPTKLNDLCFTNVYADSFVIRGDEVQRQIAPGQTGKIADYNYKLP DDFTGCVIAWNSNNLDSKVGGNYNLYRLFRKSNLKPFERDISTEIYQAGSTP CNGVEGFNCYFPLQSYGFQPTNGVGYPYRVVLSFELLHAPATVCGPKKST NLVKNKCVNF
Lead Time	3-7 business days
Research Area	Others
Source	Mammalian cell
Gene Names	S
Expression Region	319-541aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	C-terminal mFC-Avi-tagged
Mol. Weight	54.1 kDa
Protein Description	Partial
Image	

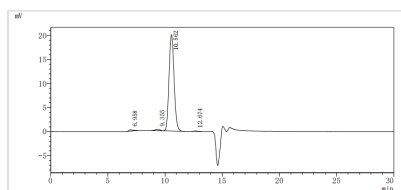


(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.



Activity

Measured by its binding ability in a functional ELISA. Immobilized human ACE2 at 2 μ g/ml can bind Biotinylated-SARS-CoV-2-S1-RBD (CSB-MP3324GMY1-B), the EC_{50} is 5.087-7.050 ng/ml



The purity of S was greater than 95% as determined by SEC-HPLC

Description

Recombinant severe acute respiratory syndrome coronavirus 2 Spike glycoprotein (S) production involves several steps starting with the isolation of the target gene that corresponds to the 319-541aa of the SARS-CoV-2 S protein. The gene is fused with a C-terminal mFC-Avi-tag gene and then cloned into an expression vector and introduced into mammalian cells via transformation. The mammalian cells express the recombinant protein, which is harvested from the cell lysate. The protein is purified using affinity chromatography. The final step involves validating the protein's purity and functionality. Its purity is determined through SDS-PAGE and SEC-HPLC, reaching over 90% and 95%, respectively. Its endotoxin content is less than 1.0 EU/ug as determined by the LAL method. This biotinylated recombinant SARS-CoV-2 S protein has been validated as an active protein in a functional ELISA.

The S protein of SARS-CoV-2 is a crucial component of the virus responsible for mediating host-cell entry. It is a type-1 transmembrane glycoprotein composed of two subunits, S1 and S2, responsible for attachment and entry of the virus, respectively [1][2]. The S protein is highly glycosylated and projects from the viral surface, facilitating attachment to the ACE2 receptor on host cells [3]. This protein is the main target for vaccine development and clinical diagnosis due to its antigenicity and role in virus entry [4][5]. Additionally, the S protein plays a key role in syncytia formation and virus entry by associating with the ACE2 receptor [5].



References:

- [1] Y. Huang, C. Yang, X. Xu, W. Xü, & S. Liu, Structural and functional properties of sars-cov-2 spike protein: potential antivirus drug development for covid-19, *Acta Pharmacologica Sinica*, vol. 41, no. 9, p. 1141-1149, 2020.
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- [2] M. Hussain, N. Jabeen, A. Amanullah, B. Aa, B. Aziz, S. Shabbiret al., Structural basis of sars-cov-2 spike protein priming by tmprss2,, 2020.
<https://doi.org/10.1101/2020.04.21.052639>
- [3] U. Shekhawat and A. Chowdhury, Computational and comparative investigation of hydrophobic profile of spike protein of sars-cov-2 and sars-cov, *Journal of Biological Physics*, vol. 48, no. 4, p. 399-414, 2022.
<https://doi.org/10.1007/s10867-022-09615-x>
- [4] J. Zhou, J. Sun, G. Lu, W. Wang, & W. Lin, Sars-cov-2 spike protein evolution may cause difficulties for vaccine,, 2020.
<https://doi.org/10.21203/rs.3.rs-80010/v1>
- [5] D. Li, Y. Liu, Y. Lu, S. Gao, & L. Zhang, Palmitoylation of sars?cov?2 s protein is critical for s?mediated syncytia formation and virus entry, *Journal of Medical Virology*, vol. 94, no. 1, p. 342-348, 2021.
<https://doi.org/10.1002/jmv.27339>

Endotoxin

Less than 1.0 EU/ug as determined by LAL method.

Reconstitution

We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL. We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.