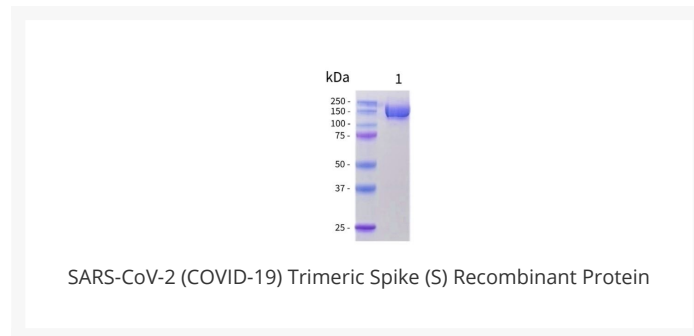




# SARS-CoV-2 (COVID-19) Trimeric Spike (S) Recombinant Protein

Cat. No.: 10-075



## Ψ Specifications

<b>SPECIES:</b>	SARS-CoV-2
<b>SOURCE SPECIES:</b>	HEK293 cells
<b>SEQUENCE:</b>	<p>QCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHSTQDLFLPFFSNVTWFHAIHVSHTN  GTRKFDNPVLPFNDGVYFASTEKSNIIRGWIFGTTLDLSDSKTQSLNATNNTVWIKVCEFFQFC  NDPFLGVYHKNKSWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLRREFVFK  NIDGYFKIYSKHTPINLVRDLPPQGSFALEPLVDLPIGINITRFQTLALHRSYLTTPGDSSSGWT  AGAAAYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETKCTLKSFTEKGIYQTSNFRVQ  PTESIVRFPNITNLCPFGEVFNATRFASVYAWNRKRISNCVADYSVLYNSASFSTFKCYGVS  PTKLNLDLCTNRYADSFVIRGDEVQRQIAPGQTGKIADYNYKLPDDFTGCVIWNNSNLDL  KVGGNVNYLYRFRKSNLKPFERDISTEIQAGSTPCNGVEGFNCYFPLQSYGFQPTNGVG  YQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFGLTGTGVLTESNKKFLPFQGF  GRDIADTTDAVRDPQTLEILDITPCSFGGVSVITPGTNTSNQVAVLYQDVNCTEVPVAIHA  DQLTPTWRVYSTGSNVFQTRAGCLIGAHEVNNSEYCDIPIGAGICASYQTQNTSPGSASS  VASQSIAYTMSLGAENSVAYSNNIAIPTNFTISVTEILPVSMTKTSVDCTMYICGDSTEC  NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGFNFSQILPDPSKP  SKRSFIEDLLFNKVTLDAGFIKQYGDCLGDIARDLCAQKFNGLTVLPLLLTDEMIQYTS  ALLAGTITSGWTFGAGAALQIPFAMQMAYRFNGIGVTQNVLYENQKLIANQFNQSAIGKIQ  DLSSTASALGKLQDVVNQNAQALNTLVKQLSSNFGAIVSNDILSRDLPPEAEVQIDRLI  TGRLQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLMSPQSAP  HGVVFLHVTYVPAQEKNFTTAPAICHGKAHFPREGVFSNGTHWFVTQRNFYEPQIITT  DNTFVSGNCDVWIGVNNNTVYDPLQPELDSFKEELDKYFNHTSPDVLGDISGINASVNV  IQKEIDRLNEVAKNLNESLIDLQELGKYEQ</p>
<b>TESTED APPLICATIONS:</b>	ELISA

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<b>PREDICTED MOLECULAR WEIGHT:</b>	The predicted molecular mass is ~132 kDa for monomer and ~396 kDa for trimer

## Ψ Properties

<b>PURITY:</b>	>95% by SDS Page Endotoxin level ≤ 1.0 EU/mg as determined by the LAL method
<b>PHYSICAL STATE:</b>	Liquid
<b>BUFFER:</b>	This recombinant protein is aseptically packaged and formulated in 0.01 M phosphate buffered saline (PBS) pH 7.2 - 7.4, 150 mM NaCl with no carrier protein, potassium, calcium or preservatives added.
<b>STORAGE CONDITIONS:</b>	This recombinant protein may be stored as received at 2-8 °C for up to one month. For longer term storage, aseptically aliquot in working volumes without diluting and store at -80 °C. Avoid Repeated Freeze Thaw Cycles.

## Ψ Additional Info

<b>ACCESSION NO.:</b>	QHD43416.1
<b>GENE ID:</b>	1791269090

## Ψ Background and References

<b>BACKGROUND:</b>	Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the causative agent of coronavirus disease 2019 (COVID-19), is an enveloped, single-stranded, positive-sense RNA virus that belongs to the Coronaviridae family 1. The SARS-CoV-2 genome, which shares 79.6% identity with SARS-CoV, encodes four essential structural proteins: the spike (S), envelope (E), membrane (M), and nucleocapsid protein (N) 2. The S protein is a transmembrane, homotrimeric, class I fusion glycoprotein that mediates viral attachment, fusion, and entry into host cells 3. Each ~180 kDa monomer contains two functional subunits, S1 (~700 a.a) and S2 (~600 a.a), that mediate viral attachment and membrane fusion, respectively. S1 contains two major domains, the N-terminal (NTD) and C-terminal domains (CTD). The CTD contains the receptor-binding domain (RBD), which binds to the angiotensin-converting enzyme 2 (ACE2) receptor on host cells 3-5. Although both SARS-CoV and SARS-CoV-2 bind the ACE2 receptor, the RBDs only share ~73% amino acid identity, and the SARS-CoV-2 RBD binds with a higher affinity compared to SARS-CoV 3, 6. The RBD is dynamic and undergoes hinge-like conformational changes, referred to as the “down” or “up” conformations, which hide or expose the receptor-binding motifs, respectively 7. Following receptor binding, S1 destabilizes, and TMPRSS2 cleaves S2, which undergoes a pre- to post-fusion conformation transition, allowing for membrane fusion 8, 9. The S protein has been the main focus of therapeutic and vaccine design as it is highly immunogenic. Both neutralizing antibodies 10,11 and memory T cells 12,13 targeting the S protein are present in the sera of convalescent COVID-19 patients.
<b>REFERENCES:</b>	1) Zhou, P., Yang, X., Wang, X. et al. Nature 579, 270-273. 2020.

	2) Wu, F., Zhao, S., Yu, B. et al. Nature 579, 265–269. 2020.
	3) Wrapp D, Wang N, Corbett KS, et al. bioRxiv. 2020.02.11.944462. 2020.
	4) Walls AC, Park YJ, Tortorici MA, et al. Cell. 181(2):281-292.e6. 2020.

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