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PRODUCT INFORMATION

MERS-CoV Spike Glycoprotein S1 Subunit (recombinant)

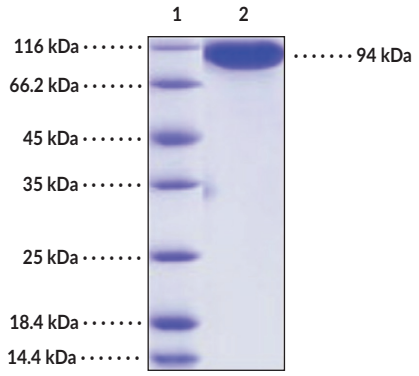
Item No. 40877

Overview and Properties

Synonym:	Middle East Respiratory Syndrome Coronavirus Spike Glycoprotein S1 Subunit
Source:	Active recombinant MERS-CoV C-terminal His-tagged spike glycoprotein S1 subunit expressed in HEK293 cells
Amino Acids:	1-725
Uniprot No.:	K0BRG7
Molecular Weight:	79.9 kDa
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	≥95% estimated by SDS-PAGE
Supplied in:	Lyophilized from sterile PBS, pH 7.4
Endotoxin Testing:	<1.0 EU/µg, determined by the LAL endotoxin assay
Protein Concentration:	***batch specific*** mg/ml
Activity:	***batch specific*** U/ml
Specific Activity:	***batch specific*** U/mg

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Image



Lane 1: MW Markers
Lane 2: MERS-CoV Spike Glycoprotein S1 Subunit

SDS-PAGE Analysis of MERS-CoV Spike Glycoprotein S1 Subunit. This protein has an apparent molecular weight of 94 kDa by SDS-PAGE under reducing conditions due to glycosylation.

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PRODUCT INFORMATION

Description

Middle East respiratory syndrome coronavirus (MERS-CoV) is an enveloped positive-stranded RNA virus, a member of the *Betacoronavirus* genus, and the causative agent of MERS, an acute respiratory disease that often leads to pneumonia and renal failure.[1,2] The MERS-CoV spike glycoprotein mediates viral attachment to host cells and virus-cell-mediated membrane fusion during infection.[1] It is composed of an S1 subunit, which contains the receptor-binding domain (RBD) that binds to host dipeptidyl peptidase-4 (DPP-4), and an S2 subunit containing heptad repeat regions 1 and 2, which are responsible for membrane fusion, as well as a transmembrane domain and a cytoplasmic tail. MERS-CoV is activated by cleavage of the spike glycoprotein into S1 and S2 subunits by various proteases, including TMPRSS2, cathepsin B, cathepsin L, and proprotein convertases, and blockage of this cleavage by protease inhibitors reduces MERS-CoV viral entry into target cells.[1,3] Vaccination with a recombinant MERS-CoV spike glycoprotein S1 subunit fused to a human IgG4 Fc fragment (LV-MS1-Fc) induces humoral immunity and the production of antigen-specific neutralizing antibodies in human DPP-4 transgenic mice.[4] Cayman's MERS-CoV Spike Glycoprotein S1 Subunit (recombinant) can be used for binding assays. This protein consists of 719 amino acids, has a calculated molecular weight of 79.9 kDa, and a predicted N-terminus of Tyr18 after signal peptide cleavage. By SDS-PAGE, under reducing conditions, the apparent molecular mass of the protein is 94 kDa due to glycosylation.

References

1. Du, L., Yang, Y., Zhou, Y., *et al.* MERS-CoV spike protein: A key target for antivirals. *Expert Opin. Ther. Targets* **21(2)**, 131-143 (2017).
2. Rabaan, A.A., Al-Ahmed, S.H., Haque, S., *et al.* SARS-CoV-2, SARS-CoV, and MERS-CoV: A comparative overview. *Infez. Med.* **28(2)**, 174-184 (2020).
3. Zhou, N., Pan, T., Zhang, J., *et al.* Glycopeptide antibiotics potently inhibit cathepsin L in the late endosome/lysosome and block the entry of Ebola virus, Middle East respiratory syndrome coronavirus (MERS-CoV), and severe acute respiratory syndrome coronavirus (SARS-CoV). *J. Biol. Chem.* **291(17)**, 9218-9232 (2020).
4. Jung, B.-K., An, Y., Park, J.-E., *et al.* Development of a recombinant vaccine containing a spike S1-Fc fusion protein induced protection against MERS-CoV in human DPP4 knockin transgenic mice. *J. Virol. Methods* **299**, 114347 (2022).

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