

# Recombinant MERS-CoV Spike protein

Catalog Number: ATGP4112

## PRODUCT INFORMATION

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### Expression system

Baculovirus

### Domain

18-1296aa

### UniProt No.

K0BRG7

### NCBI Accession No.

AFS88936

### Alternative Names

Middle East respiratory syndrome coronavirus, Human betacoronavirus 2c EMC/2012, MERS-CoV, MERS, MERS-CoV SP, Spike glycoprotein, S glycoprotein, S, Spike protein

## PRODUCT SPECIFICATION

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### Molecular Weight

141.6kDa(1285aa)

### Concentration

0.25mg/ml (determined by Bradford assay)

### Formulation

Liquid. In Phosphate-Buffered Saline (pH 7.4) containing 10% glycerol

### Purity

> 85% by SDS - PAGE

### Endotoxin level

< 1 EU per 1ug of protein (determined by LAL method)

### Biological Activity

Measured by its binding ability in a functional ELISA with Human DPPIV/CD26 (CAT# ATGP4109).

### Tag

His-Tag

### Application

SDS-PAGE, Bioactivity

### Storage Condition

Can be stored at +2C to +8C for 1 week. For long term storage, aliquot and store at -20C to -80C. Avoid repeated freezing and thawing cycles.

## BACKGROUND

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## Description

MERS-CoV, which causes the Middle East Respiratory Syndrome (MERS), belongs to a family of viruses known as coronaviruses. MERS-CoV was first identified in the Kingdom of Saudi Arabia in 2012, which is a single and positive stranded RNA virus. Dromedary camels are widely considered as the source of the transmission of MERS-CoV. The rate of human transmission among household contacts of MERS patients has been approximately 5 % based on serological analysis. MERS-CoV has four structural proteins, known as the S (spike), E (envelope), M (membrane), and N (nucleocapsid) proteins. The spike protein, responsible for allowing the virus to attach to and fuse with the membrane of a host cell and 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. MERS-CoV S mediates viral attachment and fusion to human cells via human cellular receptor DPP4, also known as CD26. The S protein plays key parts in the induction of neutralizing-antibody and T-cell responses, as well as protective immunity. Recombinant MERS-CoV Spike, fused to His-tag at C-terminus, was expressed in insect cell and purified by using conventional chromatography techniques.

## Amino acid Sequence

```
YVDVGPDSVK SACIEVDIQQ TFFDKTWPRP IDVSKADGII YPQGRYSNI TITYQGLFPY QGDHGDYVYV SAGHATGTTT
QKLFVANYSQ DVKQFANGFV VRIGAAANST GTVIISPSTS ATIRKIYPAF MLGSSVGNFS DGKMGRFFNH TLVLLPDGCG
TLLRAFYCIL EPRSGNHCPA GNSYTSFATY HTPATDCSDG NYNRNASLNS FKEYFNLRNC TFMYYNITE DEILEWFGIT
QTAQGVHLFS SRYVDLYGGN MFQFATLPVY DTIKYYSIIP HSIRSIQSDR KAWAAFYVYK LQPLTFLDF SVDGYIRRAI
DCGFNDLSQL HCSYESFDVE SGVYSVSSFE AKPSGSVVEQ AEGVECDFSP LLSGTPPQVY NFKRLVFTNC NYNLTKLLSL
FSVNDFTCSQ ISPAAIASNC YSSLILDYFS YPLSMKSDLS VSSAGPISQF NYKQSFNSPT CLILATVPHN LTTITKPLKY
SYINKCSRLL SDDRTEVPQL VNANQYSPCV SIVPSTVWED GDYRQKQLSP LEGGGWLVAS GSTVAMTEQL QMGFGITVQY
GTDTNSVCPK LEFANDTKIA SQLGNCVEYS LYGVSGRGVF QNCTAVGVRQ QRFVYDAYQN LVGYSDDDGN YYCLRACVSV
PVSVIYDKET KTHATLFGSV ACEHISSTMS QYSRSTRSML KRRDSTYGPL QTPVGCVLGL VNSSLFVEDC KLPLGQSLCA
LPDTPSTLTP RSVRSVPGEM RLASIAFNHP IQVDQLNSSY FKLSIPTNFS FGVTEYIQT TIQKVTVDCK QYVCNGFQKC
EQLLREYGQF CSKINQALHG ANLRQDDSVR NLFASVKSSQ SSPIIPGFGG DFNLTLLEPV SISTGSR SAR SAIEDLLFDK
VTIADPGYMQ GYDDCMQQGP ASARDLICAQ YVAGYKVLPP LMDVNMEAAY TSSLLGSIAG VGWTAGLSSF AAIQFAQSIF
YRLNGVGITQ QVLSAQKLI ANKFNQALGA MQTGFTTNE AFQKVQDAVN NNAQALSKLA SELSNTFGAI SASIGDIIQR
LDVLEQDAQI DRLINGRLTT LNAFVAQLV RSESAALSAQ LAKDKVNECV KAQSKRSGFC GQGTHIVSFV VNAPNGLYFM
HVGYYPSNHI EVVSAYGLCD AANPTNCIAP VNGYFIKTNN TRIVDEWSYT GSSFYAPEPI TSLNTKYVAP QVTYQNIQSTN
LPPPLLGNST GIDFQDELDE FFKNVSTSIP NFGSLTQINT TLLDLTYEML SLQQVVKALN ESYIDLKELG NYTYYNKWP<H
HHHHH>
```

## General References

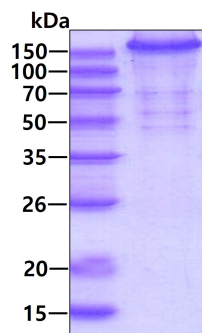
- Junghyun Goo., et al. (2020) *Virus Res.* 278:197863.  
 Yan-Hua Li., et al. (2019) *Engineering.* 5:940-947.  
 Lingshu Wang., et al. (2018) *J Virol.* 92:e02002-2017.  
 Nicolas Papageorgiou., et al. (2016) *Acta Crystallogr D Struct Biol.* 72:192-202.  
 Xiao-Yan Che., et al. (2004) *J Clin Microbiol.* 42:2629-2635.

## DATA

## SDS-PAGE

# Recombinant MERS-CoV Spike protein

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3ug by SDS-PAGE under reducing condition and visualized by coomassie blue stain

## Biological Activity

MERS-CoV Spike is coated at 2 ug/ml (100 ul/well) can bind human DPPiV/CD26 (CAT# ATGP4109) in a functional ELISA assay.

