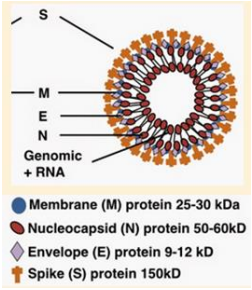
Product Specification Sheet

Recombinant MERS-CoV Spike Protein S1 (18-725 a.a)

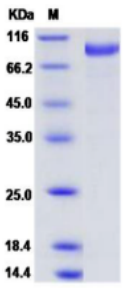
Cat # MERSS16-R-10 Recombinant (Sf9) Purified MERS-CoV Spike protein S1 (18-725 a.a, His-tag, ~94 kda, low Endotoxin), active **SIZE**: 10 ug

MERS is a viral respiratory infection caused by the newly identified **MERS-coronavirus (MERS-CoV).** MERS-CoV is a betacoronavirus derived from bats. Camels have been shown to have antibodies to MERS-CoV, but the exact source of infection in camels has not been identified. A strain of MERS-CoV known as HCoV-EMC/2012 found in the first patient in London in 2012 was found to have a 100% match to Egyptian tomb bats. Early reports compared the virus to severe acute. respiratory syndrome (SARS), and it has been referred to as Saudi Arabia's SARS-like virus. ERS can range from asymptomatic disease to severe pneumonia leading to the acute respiratory distress syndrome. Renal failure, disseminated intravascular coagulation (DIC) and pericarditis have also been reported. MERS have high fatality rate, 77 deaths in 187 confirmed cases. MERS-CoV has been reported or by direct or indirect contact with others who have a travel history consistent with exposure in the Middle East. However, the origin of the infection in most cases remains unknown. Sera samples from European sheep, goats, cattle, and other camelids had no such antibodies. Human or animals diagnostic serology is based upon PCR or ELISA or antibody neutralization tests.
The virus MERS-CoV is a new member of the beta group of coronavirus, Betacoronavirus, lineage C. MERS-CoV genomes are phylogenetically classified into two clades, clade A and B. and is more closely related to the bat coronaviruses HKU4 and HKU5 (lineage 2C) than it is to SARS-CoV (lineage 2B) (2, 9), sharing more than 90% sequence identity with their closest relationships, bat coronaviruses HKU4 and HKU5.



Coronaviruses are a positive ssRNA genome of about 27-32kb that codes for structural protein genes - namely the Spike (S), Envelope (E), Membrane (M), and Nucleocapsid (N) genes - as well as the Polymerase. The presence of MERS viral antibodies (N, E and S) have been used to detect the infected animal or humans. MERS-CoV utilizes receptor, dipeptidylpeptidase 4 (DPP4), for binding to DPP4-expressing cells via the Spike protein. S1 subunit mediates virus binding to cells expressing DPP4 through its receptor-binding domain (RBD, 367-606 aa) region and an S2 subunit that mediates virus-cell membrane fusion. A truncated RBD domain (377-588)-Fc protein binds efficiently to DPP4. Antibodies to the RBD domain also protect animals from MERS infection.

Source of Antigen



MERS-CoV spike protein S1 was expressed in Sf9 cells as a his tag fusion protein (~80 kDa, >95%). Recombinant protein is ~94 kDa under reducing conditions. Purified protein is supplied in 20 mM Tris-HCl [pH 7.4] 500 mM NaCl, 10% glycerol. (see lot specific conc. on vial).

It is suitable for ELISA, Western or other applications where native protein is required. Do not freeze, thaw, or heat repeatedly.

Endotoxin:< 1.0 EU per µg of the protein as determined by the LAL method

Bio activity

Measured by its binding ability in a functional ELISA.

1)Immobilized Spike protein S1 (aa 1-1297) (Cat# MERSS126-R-10) at 10 µg/ml (100 µl/well) can bind biotinylated DPP4
2) Immobilized Spike protein S1 (aa 1-1297 (Cat# MERSS126-R-10) at 10 µg/ml (100 µl/well) can bind biotinylated Fc-DPP4.

Storage

Short-term: unopened, undiluted vials for less than a week at 4°C.

Long-term: at –20°C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

Stability: 6-12 months at –20°C or below.

Shipping: 4°C for solutions and room temp for powder.

Recommended Usage

Western Blotting: load 100-200 ng/well.

ELISA (50-100 ng antigen/well).

Specificity: MERS-CoV Spike protein ECD is conserved in the bat coronaviruses HKU4 (62%), HKU5 (58%) and BtCoV (58%), strains. Recombinant proteins and antibodies to various MERS proteins are available for control studies.

General References: Sandervan (2012) mBio.3:e00473-12.2; .Muller MA (2012) mBio3(6):e00515-12.; ChanJF (2012) JInfect.65(6):477-89. Hemida, MG (2013) Euro Surveillance 18 (50). Guery B (2013) Lancet; 381:2265.

*This product is for In vitro research use only.

Related material available from ADI

MERSS12-A Rabbit Anti-MERS-CoV Spike protein S1 protein peptide, C-terminal IgG, aff pure
MERSS15-R-10 Recombinant (HEK) Purified MERS-CoV Spike protein S1 (18-725 a.a, His-tag, ~94 kda, low Endotoxin), active
MERSS16-R-10 Recombinant (Sf9) Purified MERS-CoV Spike protein S1 (18-725 a.a, His-tag, ~94 kda, low Endotoxin), active
RV-402200-1 Recombivirus Human Anti-Middle East Respiratory Syndrome Coronavirus (MERS-CoV) Spike protein 1 (S1) antibody (IgG) ELISA kit, 96 tests

RV-402210-1 Recombivirus Camel Anti-Middle East Respiratory Syndrome Coronavirus (MERS-CoV) Spike protein 1 (S1) antibody (IgG) ELISA kit, 96 tests
RV-402220-1 Recombivirus Bat Anti-Middle East Respiratory Syndrome Coronavirus (MERS-CoV) Spike protein 1 (S1) antibody (IgG) ELISA kit, 96 tests
RV-402230-1 Recombivirus Pig Anti-Middle East Respiratory Syndrome Coronavirus (MERS-CoV) Spike protein 1 (S1) antibody (IgG) ELISA kit, 96 tests
RV-402240-1 Recombivirus Cow Anti-Middle East Respiratory Syndrome Coronavirus (MERS-CoV) Spike protein 1 (S1) antibody (IgG) ELISA kit, 96 tests
RV-402250-1 Recombivirus Goat/Sheep Anti-Middle East Respiratory Syndrome Coronavirus (MERS-CoV) Spike protein 1 (S1) antibody (IgG) ELISA kit, 96 tests

MERSS16-R-10 141022P

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