

#### DESCRIPTION

|                           |   |
|---------------------------|---|
| <b>Species Reactivity</b> | MERS-CoV  |
| <b>Specificity</b>        | Detects MERS-CoV Spike RBD in direct ELISAs.  |
| <b>Source</b>             | Monoclonal Mouse IgG <sub>2A</sub> Clone # 1038345  |
| <b>Purification</b>       | Protein A or G purified from hybridoma culture supernatant  |
| <b>Immunogen</b>          | Chinese Hamster Ovary cell line CHO-derived MERS-CoV Spike RBD<br>Glu367-Tyr606<br>Accession # YP_007188579.1   |
| <b>Conjugate</b>          | Alexa Fluor 750<br>Excitation Wavelength: 749 nm<br>Emission Wavelength: 775 nm   |
| <b>Formulation</b>        | Supplied 0.2 mg/mL in a saline solution containing BSA and Sodium Azide.<br><br>*Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to the Safety Data Sheet (SDS) for additional information and handling instructions. |

#### APPLICATIONS

**Please Note:** Optimal dilutions should be determined by each laboratory for each application. *General Protocols* are available in the *Technical Information* section on our website.

|                       | <b>Recommended Concentration</b> | <b>Sample</b>   |
|-----------------------|----------------------------------|---|
| <b>Flow Cytometry</b> | 0.25-1 µg/10 <sup>6</sup> cells  | MERS-CoV Spike protein bound to CD26 in HEK293 Human Cell Line Transfected with Human CD26 and eGFP |

#### PREPARATION AND STORAGE

**Shipping** The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.

**Stability & Storage** **Protect from light. Do not freeze.**

- 12 months from date of receipt, 2 to 8 °C as supplied.

#### BACKGROUND

MERS-CoV (also known as HCoV-EMC), which causes the Middle East Respiratory Syndrome (MERS), was first reported in Saudi Arabia in 2012 as a novel coronavirus (1). Coronaviruses are a family of viruses that are commonly comprised of a large plus-strand RNA genome and four structural proteins: Spike protein (S), Envelope protein (E), Membrane protein (M), and Nucleocapsid protein (N). There are two well-known human coronavirus families that infect humans: Alpha coronaviruses which includes HCoV-229E and HCoV-NL63; beta coronaviruses that includes MERS-CoV, HCoV-OC43, Severe Acute Respiratory Syndrome (SARS-CoV), and global pandemic Covid-19 (SARS-CoV2) (2). The MERS-CoV Spike Protein (S Protein) is a glycoprotein that mediates membrane fusion and viral entry, and it consists of two subunits, S1 and S2. The S1 subunit is focused on attachment of the protein to the host receptor while the S2 subunit is involved with cell fusion (3). Located within the S1 subunit is the receptor binding domain (RBD). The RBD is responsible for the binding of MERS-CoV to dipeptidyl peptidase IV (DPP4, also known as human CD26) (4). The RBD of MERS-CoV shares 24% and 21% amino acid sequence (aa) identity with SARS-CoV RBD and SARS-Cov2 RBD, respectively. The low aa sequence identity is consistent with the finding that MERS-CoV and SARS-CoV bind different cellular receptors (4). The S1 subunit, especially the RBD region, of MERS-CoV was commonly targeted for vaccinations or antiviral therapies (5-7).

#### References:

1. Zaki, A.M. *et al.* (2012) *N. Engl. J. Med.* **367**:1814.
2. Ogimi, C. *et al.* (2020) *J Pediatric Infect Dis Soc* doi: 10.1093/jpids/piaa037.
3. Li, Y. *et al.* (2019) *Engineering.* **5**:940.
4. Raj, V.S. *et al.* (2013) *Nature* **495**:251.
5. Corti, D. *et al.* (2016) *J. Infect. Public Health* **9**:231.
6. Tang, X.C. *et al.* (2014) *Proc. Natl. Acad. Sci. USA* **111**:E2018.
7. Jiang, L. *et al.* (2014) *Sci. Transl. Med.* **6**:234ra59.

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