

**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>1</sub> Clone # 1038305
<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 Glu367-Tyr606 Accession # YP_007188579.1
<b>Endotoxin Level</b>	<0.10 EU per 1 µg of the antibody by the LAL method.
<b>Formulation</b>	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied either lyophilized or as a 0.2 µm filtered solution in PBS.

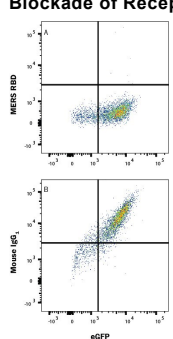
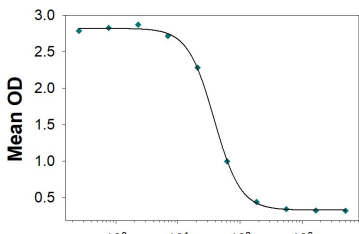
**APPLICATIONS**

**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.

**Blockade of Receptor-ligand Interaction** In a functional flow cytometry test, 50 µg/mL of Mouse Anti-MERS-Cov Spike RBD Antibody (Catalog # MAB107072) will block the binding of Recombinant MERS-Cov Spike S1 Fc-tagged protein (Catalog # 10606-CV) to HEK293 human embryonic kidney cell line transfected with recombinant human DPPIV/CD26.

In a functional ELISA, 8-96 ng/mL of this antibody will block 50% of the binding of 0.1 µg/mL of Recombinant Human DPPIV/CD26 (High Purity Dimer) (Catalog # 9168-SE) to immobilized Recombinant MERS-CoV Spike RBD His-tagged Protein (Catalog # 10621-CV) coated at 0.5 µg/mL (100 µL/well). At 1 µg/mL, this antibody will block >90% of the binding.

**DATA**

<p><b>Blockade of Receptor-ligand Interaction</b></p>  <p><b>MERS-CoV Spike S1 protein binding to CD26-transfected Human Cell Line is Blocked by MERS-CoV Spike RBD Antibody</b> In a functional flow cytometry test, Recombinant MERS-Cov Spike S1 Fc-tagged protein (Catalog # 10606-CV) binds to HEK293 human embryonic kidney cell line transfected with recombinant human CD26 and eGFP. (A) Binding is blocked by 50 µg/mL of Mouse Anti-MERS-Cov Spike RBD Monoclonal Antibody (Catalog # MAB107072) but not by (B) Mouse IgG1 Isotype Control (Catalog # MAB002). Protein binding was detected with Mouse Anti-Fc APC-conjugated Monoclonal Antibody (Catalog # FAB110A). Staining was performed using our Staining Membrane-Associated Proteins protocol.</p>	<p><b>Blockade of Receptor-ligand Interaction</b></p>  <p><b>DPPIV/CD26 Binding to MERS-CoV Spike RBD is Blocked by MERS-CoV Spike RBD Antibody.</b> In a functional ELISA, 8-96 ng/mL of this antibody will block 50% of the binding of 0.1 µg/mL of Recombinant Human DPPIV/CD26 (High Purity Dimer) (Catalog # 9168-SE) to immobilized Recombinant MERS-CoV Spike RBD His-tagged Protein (Catalog # 10621-CV) coated at 0.5 µg/mL (100 µL/well). At 1 µg/mL, this antibody will block &gt;90% of the binding.</p>
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**PREPARATION AND STORAGE**

<b>Reconstitution</b>	Reconstitute at 0.5 mg/mL in sterile PBS.
<b>Shipping</b>	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
<b>Stability &amp; Storage</b>	<b>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b> <ul style="list-style-type: none"> <li>• 12 months from date of receipt, -20 to -70 °C as supplied.</li> <li>• 1 month, 2 to 8 °C under sterile conditions after reconstitution.</li> <li>• 6 months, -20 to -70 °C under sterile conditions after reconstitution.</li> </ul>

**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.