

## DESCRIPTION

<b>Species Reactivity</b>	MERS-CoV
<b>Specificity</b>	Detects MERS-CoV-2 Spike S1 in ELISA.
<b>Source</b>	Monoclonal Mouse IgG <sub>1</sub> Clone # 1038459
<b>Purification</b>	Protein A or G purified from hybridoma culture supernatant
<b>Immunogen</b>	<i>Spodoptera frugiperda</i> insect ovarian cell line Sf21-derived MERS-CoV-2 Spike S1 Met1-Pro747 Accession # K9N5Q8.1
<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.

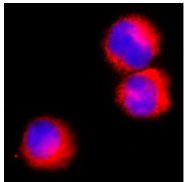
## APPLICATIONS

**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.

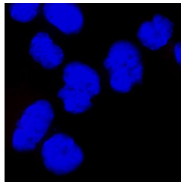
	<b>Recommended Concentration</b>	<b>Sample</b>
<b>Immunocytochemistry</b>	8-25 µg/mL	Immersion fixed CHO Chinese hamster ovary cell line transfected with MERS Spike S1

## DATA

### Immunocytochemistry



Positive  
(CHO transfected cells)



Negative (CHO cells)

**MERS Spike S1 Subunit in CHO Cell Line Transfected with MERS Spike S1.** Spike S1 Subunit was detected in immersion fixed CHO Chinese hamster ovary cell line transfected with MERS Spike S1 (positive staining) and CHO Chinese hamster ovary cell line (non-transfected, negative staining) using Mouse Anti-MERS-CoV Spike S1 Subunit Monoclonal Antibody (Catalog # MAB10707) at 8 µg/mL for 3 hours at room temperature. Cells were stained using the NorthernLights™ 557-conjugated Anti-Mouse IgG Secondary Antibody (red; Catalog # NL007) and counterstained with DAPI (blue). Specific staining was localized to cytoplasm. View our protocol for Fluorescent ICC Staining of Non-adherent Cells.

## 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), belongs to a family of viruses known as coronaviruses 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) (1,2). Other well-known human coronaviruses include several viruses that cause relatively mild respiratory disease, plus two viruses that caused the Severe Acute Respiratory Syndrome (SARS-CoV) and the global pandemic Covid-19 (SARS-CoV2). 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). Based on amino acid (aa) sequence homology, the MERS-CoV S1 subunit shares 23% and 22% identity with SARS-CoV S1 subunit and SARS-Cov2 S1 subunit, respectively. The low aa sequence homology is consistent with the finding that MERS-CoV and SARS-CoV bind different cellular receptors (4). Unlike SARS-CoV and SARS-CoV2, which engage ACE2 as their receptors for cell entry, MERS-CoV employs Dipeptidyl Peptidase 4 (DPP4; also known as CD26) as its functional receptor (4). Based on structural biology studies, the receptor binding domain (RBD) of MERS-CoV spike protein is located in the C-terminal region of S1 subunit and consists of a core subdomain and a receptor-binding subdomain (5, 6). The S1 subunit, especially the RBD region, was commonly targeted for vaccinations or antiviral therapy against MERS (7-9).

## References:

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2. Zaki, A.M. *et al.* (2012) *N. Engl. J. Med.* **367**:1814.
3. Li, Y. *et al.* (2019) *Engineering.* **5**:940.
4. Raj, V.S. *et al.* (2013) *Nature* **495**:251.
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6. Wang, N. *et al.* (2013) *Cell. Res.* **23**:986.
7. Corti, D. *et al.* (2016) *J. Infect. Public Health* **9**:231.
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9. Jiang, L. *et al.* (2014) *Sci. Transl. Med.* **6**:234ra59.