

## DESCRIPTION

<b>Species Reactivity</b>	HCoV-HKU1
<b>Specificity</b>	Detects HCoV-HKU1 Spike RBD His-tag and 229E specific in ELISA. Not 229E specific. No staining of NL63 HKU1.
<b>Source</b>	Monoclonal Mouse IgG <sub>1</sub> Clone # 1045005
<b>Purification</b>	Protein A or G purified from hybridoma culture supernatant
<b>Immunogen</b>	Human embryonic kidney cell, HEK293-derived HCoV-HKU1 Spike RBD His-tag protein
	Ser292-Asp453, Accession # P15423.1
<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.

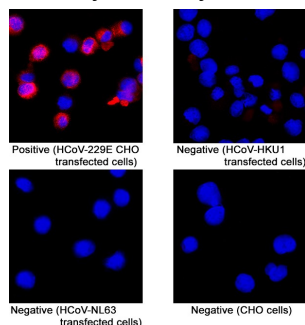
## APPLICATIONS

**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.

	Recommended Concentration	Sample
<b>Immunocytochemistry</b>	8-25 µg/mL	Immersion fixed CHO Chinese hamster ovary cell line transfected with HCoV-HKU1
<b>Neutralization</b>	In a functional ELISA binding assay, 0.03-0.15 µg/mL of this antibody will block 50% of the binding of 5 µg/mL of Recombinant HCoV-229E Spike RBD His-tagged Protein (Catalog # 10612-CV) to immobilized Recombinant Human Aminopeptidase N/CD13 Protein (Catalog # 3815-ZN) coated at 5 µg/mL (100 µL/well). At 1 µg/mL, this antibody will block >90% of the binding.	

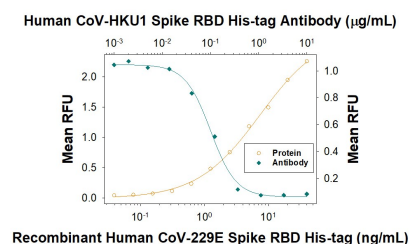
## DATA

### Immunocytochemistry



**Detection of Spike RBD in CHO Chinese hamster ovary cell line transfected with HCoV-229E.** Spike RBD was detected in immersion fixed CHO Chinese hamster ovary cell line transfected with HCoV-229E (positive staining), HCoV-HKU1 transfected (negative staining), HCoV-NL63 transfected cell (negative staining), and CHO Chinese hamster ovary cell line (non-transfected, negative staining) using Mouse Anti-HCoV-HKU1 Spike RBD His-tag Monoclonal Antibody (Catalog # MAB10937) 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 cell cytoplasm. View our protocol for [Fluorescent ICC Staining of Cells on Coverslips](#).

### Neutralization



**HCoV-HKU1 Spike RBD Binding to Human Aminopeptidase N/CD13 is Blocked by HCoV-HKU1 Antibody.** In a functional ELISA binding assay, 0.03-0.15 µg/mL of this antibody will block 50% of the binding of 4 µg/mL of Recombinant Human Aminopeptidase N/CD13 (Catalog # 3815-ZN) to immobilized Recombinant HCoV-229E Spike RBD His-tag Protein (Catalog # 10612-CV) coated at 5 µg/mL (100 µL/well). At 1 µg/mL, this antibody will block >90% of the binding.

## 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>	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. <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

HCoV-229E 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). HCoV-229E is a member of the alpha-coronavirus family and was discovered in 1966 (1, 2). Other well-known human coronaviruses include three viruses that cause relatively mild respiratory disease: HCoV-NL63, HCoV-HKU1 and HCoV-OC43, plus three viruses that caused the Severe Acute Respiratory Syndrome (SARS-CoV), the Middle East Respirator Syndrome (MERS-CoV), and the global pandemic Covid-19 (SARS-CoV2). HCoV-229E Spike Protein (S Protein) is a glycoprotein that mediates membrane fusion and viral entry. As with most coronaviruses, proteolytic cleavage of the S protein generates two distinct peptides, S1 and S2 subunits. The S1 subunit is focused on attachment of the protein to the host receptor while the S2 subunit is involved with cell fusion. Although HCoV-229E S protein shares high homology (56%) with HCoV-NL63, it does not employ Angiotensin-Converting Enzyme 2 (ACE2) as the receptor like HCoV-NL63. Instead, HCoV-229E engages CD13 (aminopeptidase N) for cellular entry and replication (3). The receptor binding domain (RBD) of HCoV-229E is solely responsible for receptor binding through three extended receptor binding loops (4).

## References:

1. Hamre, D. and J.J. Procknow (1966) Proc. Soc. Exp. Biol. Med. **121**:190.
2. Van der Hoek, L. *et al.* (2004) Nat. Med. **10**:368.
3. Yeager, C.L. *et al.* (1992) Nature **357**:420.
4. Wong, A.H.M. *et al.* (2017) Nat. Commun. **8**:1735.