HCoV-229E Spike RBD Antibody

Recombinant Monoclonal Rabbit IgG Clone # 2840H
Catalog Number: MAB11039

DESCRIPTION

Species Reactivity	HCoV-229E
Specificity	Detects both HCoV-229E and HCoV-NL63 in ELISA.
Source	Recombinant Monoclonal Rabbit IgG Clone # 2840H
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	Human embryonic kidney cell, HEK293-derived HCoV-229E Spike RBD Ser292-Asp453 Accession # P15423.1
Formulation	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.

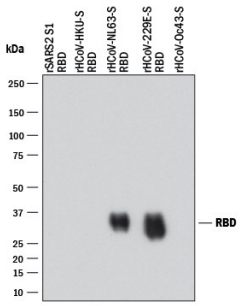
APPLICATIONS

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
Western Blot	0.1 µg/mL	Recombinant HCoV-NL63 S1 RBD and recombinant HCoV-229E S1 RBD
Immunocytochemistry	3-25 µg/mL	Immersion fixed CHO Chinese hamster ovary cell line transfected with HCoV-229E and HCoV-NL63 S1 RBD

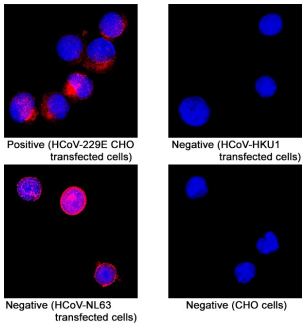
DATA

Western Blot



Detection of Spike RBD by Western Blot. Western blot shows recombinant SARS-CoV-2 Spike S1 RBD, recombinant HCoV-HKU1 S1 RBD, recombinant HCoV-NL63 S1 RBD, recombinant HCoV-229E S1 RBD, and recombinant HCoV-OC43 S. PVDF membrane was probed with 0.1 µg/mL of Rabbit Anti-HCoV-229E Spike RBD Monoclonal Antibody (Catalog # MAB11039) followed by HRP-conjugated Anti-Rabbit IgG Secondary Antibody (Catalog # HAF008). Specific bands were detected for Spike RBD at approximately 30 and 35 kDa (as indicated). This experiment was conducted under reducing conditions and using Western Blot Buffer Group 1.

Immunocytochemistry



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 (cross reactive staining), and CHO Chinese hamster ovary cell line (non-transfected, negative staining) using Rabbit Anti-HCoV-N229E Spike RBD Monoclonal Antibody (Catalog # MAB11039) at 0.3 µg/mL for 3 hours at room temperature. Cells were stained using the NorthernLights™ 557-conjugated Anti-Rabbit IgG Secondary Antibody (red; Catalog # NL004) and counterstained with DAPI (blue). Specific staining was localized to cell cytoplasm. Staining was performed using our protocol for Fluorescent ICC Staining of Non-adherent Cells.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.5 mg/mL in sterile PBS.
Shipping	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
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 6 months, -20 to -70 °C under sterile conditions after reconstitution.

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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.

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