Recombinant HCoV-229E Spike RBD His-tag

Catalog Number: 10612-CV

DESCRIPTION

Source	Human embryonic kidney cell, HEK293-derived hcov-229e Spike RBD protein Ser292-Asp453, with a C-terminal 6-His tag Accession # P15423.1
N-terminal Sequence Analysis	Ser292
Predicted Molecular Mass	19 kDa

SPECIFICATIONS

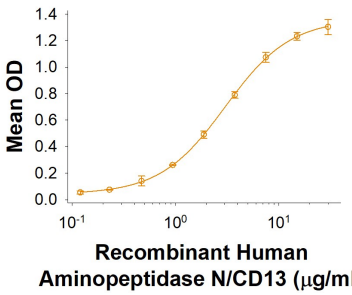
SDS-PAGE	27-36 kDa, under reducing conditions
Activity	Measured by its binding ability in a functional ELISA with Recombinant Human Aminopeptidase N/CD13 (Catalog # 3815-ZN).
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 500 µg/mL in PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
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. • 3 months, -20 to -70 °C under sterile conditions after reconstitution.

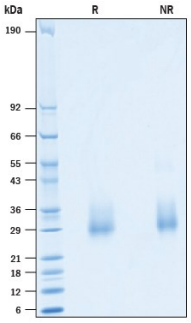
DATA

Binding Activity



Recombinant HCoV-229E Spike RBD His-tag Protein (Catalog # 10612-CV) binds Recombinant Human Aminopeptidase N/CD13 (Catalog # 3815-ZN) in a functional ELISA.

SDS-PAGE



2 µg/lane of Recombinant HCoV-229E Spike RBD His-tag Protein (Catalog # 10612-CV) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 27-36 kDa.

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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