Recombinant HCoV-NL63 Spike RBD His-tag

Catalog Number: 10605-CV

DESCRIPTION

Source	Human embryonic kidney cell, HEK293-derived hcov-nl63 Spike RBD protein Ala475-Asp634, with a C-terminal 6-His tag Accession # YP_003767.1
N-terminal Sequence Analysis	Ala475 & Leu476
Predicted Molecular Mass	19 kDa

SPECIFICATIONS

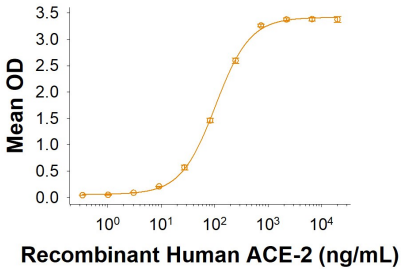
SDS-PAGE	30-38 kDa, under reducing conditions
Activity	Recombinant HCoV-NL63 Spike RBD His-tag Protein (Catalog # 10605-CV) binds Recombinant Human ACE-2 Fc Chimera Protein (Catalog # 10544-ZN) in a functional ELISA.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by 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 200 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.

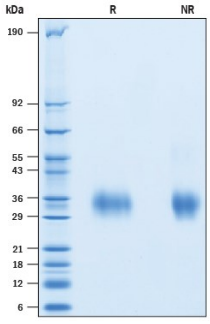
DATA

Binding Activity



Recombinant HCoV-NL63 Spike RBD His-tag Protein (Catalog # 10605-CV) binds Recombinant Human ACE-2 Fc Chimera Protein (Catalog # 10544-ZN) in a functional ELISA.

SDS-PAGE



2 µg/lane of Recombinant HCoV-NL63 Spike RBD His-tag (Catalog # 10605-CV) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 30-38 kDa.

BACKGROUND

HCoV-NL63, a virus first isolated from a child suffering from respiratory disease in 2003, 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 three viruses that cause relatively mild respiratory disease: HCoV-229E, HCoV-HKU1 and HCov-OC43, plus three viruses that cause the Severe Acute Respiratory Syndrome (SARS-CoV), the Middle East Respirator Syndrome (MERS-CoV), and the global pandemic Covid-19 (SARS-CoV2). HCov-NL63 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-NL63 S protein shares high homology (56%) with HCoV-229E, it does not employ CD13 (aminopeptidase N) as the receptor like HCoV-229E. Instead, HCoV-NL63 engages Angiotensin-Converting Enzyme 2 (ACE-2), the same receptor as SARS-CoV and SARS-CoV2, for cellular entry and replication (3). The receptor binding domain (RBD) of HCoV-NL63 is located at C-terminal region of S1 subunit (4, 5). Although NL63-CoV and SARS-CoV do not share structural homology in RBD region, they bind an overlapping region of ACE-2 (6, 7).

References:

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3. Hofmann, H. *et al.* (2005) Proc. Natl. Acad. Sci. U.S.A. **102**:7988.
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