Recombinant HCoV-HKU1 Spike RBD His-tag

Catalog Number: 10600-CV

DESCRIPTION

Source	Human embryonic kidney cell, HEK293-derived hcov-hku1 Spike RBD protein Thr310-Tyr624, with a C-terminal 6-His tag Accession # Q5MQD0.1
N-terminal Sequence Analysis	Thr310
Predicted Molecular Mass	36 kDa

SPECIFICATIONS

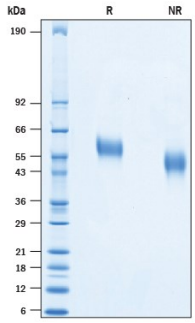
SDS-PAGE	55-65 kDa, under reducing conditions
Activity	Bioassay data are not available.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Lyophilized from 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

SDS-PAGE



2 µg/lane of Recombinant HCoV-HKU1 Spike RBD His-tag (Catalog # 10600-CV) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 55-65 kDa.

BACKGROUND

HCoV-HKU1 was identified in Hong Kong in 2005 as a new human coronavirus (1). Coronaviruses are a family of viruses 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). There are two well-known human coronavirus families that infect humans: Alpha coronaviruses which includes HCoV-229E and HCoV-NL63; beta coronaviruses that includes HCov-OC43, Severe Acute Respiratory Syndrome (SARS-CoV), Middle East Respirator Syndrome (MERS-CoV), and global pandemic Covid-19 (SARS-CoV2) (2). The HCoV-HKU1 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. The receptor binding domain (RBD) of HCoV-HKU1 is located at C-terminal region of S1 subunit, similar to SARS-COV, MERS-COV and SARS-COV2, but the RBD regions do not share significant amino acid sequence identity (3). HCoV-HKU1 has been demonstrated to bind specifically to 9-O-acetylated sialic acids (9-O-Ac-Sias) attached as terminal residues to glycan chains on glycoproteins and lipids, but additional receptors remain unknown (4). HCoV-HKU1, along with HCov-OC43, differ from other cornonaviruses in that their virions possess two types of surface projections, both involved in attachment: large "spikes" that are comprised of homotrimers of the S protein, and unique, smaller protrusions, comprised of the homodimeric hemagglutinin-esterase (HE) (5).

References:

1. Woo, P. *et al.* (2005) J. Virol.**79**:884.
2. Ogimi, C. *et al.* (2020) J Pediatric Infect Dis Soc doi: 10.1093/jpids/piaa037.
3. Qian, Z. *et al.* (2015) J. Virol. **89**:8816.
4. Huang, X. *et al.* (2015) J Virol **89**:7202.
5. Hulswit, R.J.G. *et al.* (2019) PNAS **116**:2681.

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