Recombinant SARS-CoV-2 NSP1 His-tag

Catalog Number: 10666-CV

DESCRIPTION

Source	*E. coli*-derived sars-cov-2 NSP1 protein Met1-Gly180 Accession # YP_009725297.1 with a C-terminal 6-His tag
N-terminal Sequence Analysis	Met1
Predicted Molecular Mass	21 kDa

SPECIFICATIONS

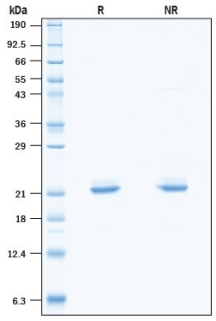
SDS-PAGE	20-23 kDa, under reducing conditions
Endotoxin Level	<1.0 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Supplied as a 0.2 µm filtered solution in HEPES and NaCl. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Shipping	The product is shipped with dry ice or equivalent. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** • 6 months from date of receipt, -20 to -70 °C as supplied. • 3 months, -20 to -70 °C under sterile conditions after opening.

DATA

SDS-PAGE



2 µg/lane of Recombinant SARS-CoV-2 NSP1 His-tag (Catalog # 10666-CV) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 20-23 kDa under reducing conditions.

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BACKGROUND

Non-structural protein 1 (NSP1) is one of several functional proteins released by ORF1a-encoded protease cleavage of the pp1a and pp1ab replicase polyproteins expressed from the coronavirus (CoV) genome (1). The NSPs are involved in the replication and transcription of the viral RNA and not incorporated within the virion particles. Coronaviruses include various highly pathogenic strains such as SARS-CoV, MERS-CoV and SARS-CoV2 that have had significant impact on humans as well as strains that have negatively impacted livestock. NSP1, also known as the host shutoff factor, is a small 180 amino acid highly conserved protein among the first to be expressed following cell entry. It is composed of an N-terminal domain, a linker region, and a C-terminal domain with a conserved KH motif that is required and sufficient for specific contacts with ribosomes (2, 3). The C-terminal domain binds tightly to and sterically occludes the entrance region of the mRNA channel in free 40S subunits, 43S pre-initiation complex, and empty, non-translating 80S ribosomes (2, 3) to inhibit translation. NSP1 blocks the innate immune response through suppression of host gene expression. By preventing translation of interferon and downstream signaling responses, it plays a key role in immune evasion (2, 4, 5). NSP1 also induces endonucleolytic cleavage of host mRNAs (6,7). Concomitant translation of more efficiently recognized untranslated regions (UTR) of viral mRNA along with resistance to endonucleolytic cleavage (7) is thought to lead to a switch to production of viral mRNA over host cell mRNA during an infection (3,8). Given the critical role NSP1 plays in virulence, it is an attractive target for small-molecule inhibition and vaccination development (9, 10).

References:

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