Recombinant SARS-CoV-2 ORF8 His-tag

Catalog Number: 10918-CV

DESCRIPTION

Source	Human embryonic kidney cell, HEK293-derived sars-cov-2 ORF8 protein Phe16-Ile121(L84S), with a C-terminal 6-His tag Accession # YP_009724396.1
N-terminal Sequence Analysis	Phe16
Predicted Molecular Mass	14 kDa

SPECIFICATIONS

SDS-PAGE	18-24 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 Tris 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.

BACKGROUND

Open Reading Frame 8 (ORF8) is one of eight accessory proteins encoded at the 3' region of the coronavirus (CoV) genome (1). The accessory proteins are largely dispensable for viral replication and growth in vitro (2,3). Although not essential for replication the accessory proteins are thought to modulate virus-host interactions that are important during infection (4). 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. ORF8 from SARS-CoV2 is a small 121 amino acid (aa) protein that can form both a monomeric or dimeric structure, the latter linked by an intermolecular disulfide bridge (5). SARS-CoV2 ORF8 contains an N-terminal signal peptide for ER import followed by an Ig-like fold. It contains two novel dimer interfaces unique to only the most recent ancestors in bats (6). SARS-CoV2 ORF8 has less than 20% sequence identity to ORF8 from SARS-CoV making it remarkably divergent. Within the ER, ORF8 is known to interact with several host proteins including factors in ERAD (7), but it is thought that ORF8 is secreted rather than retained in the ER given that ORF8 antibodies are a principal marker of SARS-CoV2 infection (8). The ORF8 protein has two high-frequency, reversible mutations including L84S (9). The L84S mutation is thought to confer instability and may disfavor SARS-CoV2 (9). While expression is not essential for replication, two separate deletions have previously been correlated with milder disease and lower hypoxia (10, 11). ORF8 has been shown to disrupt IFN-I signaling when overexpressed (12) and to down-regulate MHC-I in cells by targeting it for lysosomal degradation conferring an ability to evade immune surveillance (13).

References:

1. Hartenian, E. *et al.* (2020) J. Biol. Chem. **295**:12910.
2. Haijema, B.J. *et al.* (2004) J. Virol. **78**:3863.
3. Yount, B. *et al.* (2005) J. Virol. **79**:14909.
4. Liu, D.X. *et al.* (2014) Antiviral Res. **109**:97.
5. Flower, T.G. *et al.* (2021) Proc. Natl. Acad. Sci. USA **118**:e2021785118.
6. Tan, Y. *et al.* (2020) mBio. **11**:e00760.
7. Gordon, D.E. *et al.* (2020) Nature. **583**:459.
8. Hachim, A. *et al.* (2020) Nat. Immunol. **21**:1293.
9. Wang, R. *et al.* (2020) Res. Sq. doi: 10.21203/rs.3.rs-49671/v1.
10. Muth, D. *et al.* (2018) Sci. Rep. **8**:15177.
11. Young, B.E. *et al.* (2020) Lancet. **396**:603.
12. Li, J.Y. *et al.* (2020) Virus Res. **286**:198074.
13. Zhang, Y. *et al.* (2020) bioRxiv doi.org/10.1101/2020.05.24.111823.

bio-techne®
Global bio-techne.com info@bio-techne.com techsupport@bio-techne.com TEL +1 612 379 2956
USA TEL 800 343 7475 Canada TEL 855 668 8722 China TEL +86 (21) 52380373
Europe | Middle East | Africa TEL +44 (0)1235 529449