

Vector pET-28a(+) Containing the SARS-Related Coronavirus 2, Wuhan-Hu-1 Non-Structural Protein 10 Gene

Catalog No. NR-53502

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Contributor:

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Manufacturer:

BEI Resources

Product Description:

The non-structural protein 10 (nsp10) gene from severe acute respiratory syndrome-related coronavirus 2 (SARS-CoV-2), Wuhan-Hu-1 (GenBank: [MN908947](#)) was codon optimized, tagged with a tobacco etch virus (TEV) cleavable N-terminal hexa-histidine tag and cloned into the [pET-28a\(+\)](#) plasmid.^{1,2} The kanamycin resistance gene, *aph*, provides transformant selection through kanamycin resistance in *Escherichia coli* (*E. coli*). The resulting size of the plasmid is approximately 5730 base pairs. The complete plasmid sequence and map are provided on the BEI Resources webpage. The plasmid was produced in *E. coli* and extracted.

NSP10 is a non-structural protein located within the SARS-CoV-2 ORF1ab polyprotein and is required for viral replication. It has been shown to stimulate the activity of two methyl transferases, NSP14 and NSP16, resulting in production of a viral RNA cap that prevents activation of the host innate immune response.^{3,4}

Material Provided:

Each vial contains plasmid DNA in TE buffer (10 mM Tris-HCl, 1 mM EDTA, pH 8.0). The DNA concentration and volume provided are shown on the Certificate of Analysis. The vial should be centrifuged prior to opening. Note: The contents of the vial should be used to replicate the plasmid in *E. coli* prior to expression studies.

Packaging/Storage:

NR-53502 was packaged aseptically in screw-capped plastic cryovials. The product is provided frozen on dry ice and should be stored at -20°C or colder immediately upon arrival. Freeze-thaw cycles should be minimized.

Citation:

Acknowledgment for publications should read “The following reagent was obtained through BEI Resources, NIAID, NIH: Vector pET-28a(+) Containing the SARS-Related Coronavirus 2, Wuhan-Hu-1 Non-Structural Protein 10 Gene, NR-53502.”

Biosafety Level: 1

Appropriate safety procedures should always be used with this material. Laboratory safety is discussed in the following publication: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, and National Institutes of Health. [Biosafety in Microbiological and Biomedical Laboratories](#). 5th ed. Washington, DC: U.S. Government Printing Office, 2009; see www.cdc.gov/biosafety/publications/bmb15/index.htm.

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References:

1. Van Voorhis, W., Personal Communication.
2. Wu, F., et al. "A New Coronavirus Associated with Human Respiratory Disease in China." Nature 579 (2020): 265-269. PubMed: 32015508.
3. Bouvet, M., et al. "Coronavirus Nsp10, a Critical Co-Factor for Activation of Multiple Replicative Enzymes." J. Biol. Chem. 289 (2014): 25783-25796. PubMed: 25074927.
4. Wang, Y., et al. "Coronavirus Nsp10/Nsp16 Methyltransferase can be Targeted by Nsp10-Derived Peptide *in vitro* and *in vivo* to Reduce Replication and Pathogenesis." J. Virol. 89 (2015): 8416-8427. PubMed: 26041293.

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