

Vector pMCSG53 Containing the SARS-Related Coronavirus 2, Wuhan-Hu-1 Spike Glycoprotein N-Terminal Domain

Catalog No. NR-52428

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Contributor:

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The materials described herein were provided by the Center for Structural Genomics of Infectious Diseases which is supported by Federal Contract No. HHSN272201700060C from the National Institute of Allergy and Infectious Diseases, National Institutes of Health, Department of Health and Human Services.

Manufacturer:

BEI Resources

Product Description:

The vector for the N-terminal domain (NTD) of the spike (S) glycoprotein gene from severe acute respiratory syndrome-related coronavirus 2 (SARS-CoV-2), Wuhan-Hu-1 (GenBank: [MN908947](#)) was designed by subcloning the codon-optimized S protein NTD (amino acids 26 to 305) into the pMCSG53 *Escherichia coli* (*E. coli*) expression vector.^{1,2} pMCSG53 is a ligation-independent cloning (LIC) vector containing an N-terminal hexa-histidine tag and tobacco etch virus (TEV) protease recognition site prior to the NTD. In addition, the vector includes tRNA genes covering rare codons for arginine (AGG/AGA) and isoleucine (AUA) to improve expression in the host, *E. coli*.^{3,4} NR-52428 contains the beta-lactamase gene, *bla*, to provide transformant selection through ampicillin resistance in *E. coli*. The resulting size of the plasmid is approximately 5650 base pairs. The complete plasmid sequence and map are provided on the BEI Resources webpage. The plasmid was produced in *E. coli* and extracted.

The S glycoprotein mediates viral binding to the host angiotensin converting enzyme 2 (ACE2). This protein forms a trimer, and when bound to a host receptor allows fusion of the viral and cellular membranes. The S protein is a target for neutralizing antibodies.⁵

Material Provided:

Each vial contains 0.04 µg of plasmid DNA in 10 mM Tris-HCl, 1 mM EDTA, pH 8.0. 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 recombinant protein expression.

Packaging/Storage:

NR-52428 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 pMCSG53 Containing the SARS-Related Coronavirus 2, Wuhan-Hu-1 Spike Glycoprotein N-Terminal Domain, NR-52428, contributed by the Center for Structural Genomics of Infectious Diseases under HHSN272201700060C.”

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](#). 6th ed. Washington, DC: U.S. Government Printing Office, 2020; see www.cdc.gov/biosafety/publications/bmb15/index.htm.

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References:

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