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

**Catalog No. NR-52428**

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For research use only. Not for use in humans.

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**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**


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