

Vector pHDM Containing the SARS-Related Coronavirus 2, Wuhan-Hu-1 Spike Glycoprotein Gene with C-Terminal Deletion

Catalog No. NR-53742

For research use only. Not for use in humans.

Contributor:

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Manufacturer:

BEI Resources

Product Description:

Note: The vial label indicates this product has a 21 base pair deletion but is a 21 amino acid deletion.

The vector for the spike (S) glycoprotein gene from severe acute respiratory syndrome-related coronavirus 2 (SARS-CoV-2), Wuhan-Hu-1 (GenBank: [MN908947](#)) was designed by codon optimization of the S glycoprotein sequence (residues 1 to 1252) and deletion of the C-terminal 21 amino acids, and subcloned into the pHDM vector under the CMV promoter.¹ NR-53742 contains the beta-lactamase gene, *bla*, to provide transformant selection through ampicillin resistance in *Escherichia coli* (*E. coli*). The resulting size of the plasmid is approximately 8310 base pairs. The complete plasmid sequence and map are provided on the BEI Resources webpage. The plasmid was produced in *E. coli* and extracted.

NR-53742 is part of a lentiviral expression system, and additional BEI Resources items are required for successful expression. Lentiviral expression requires lentiviral helper plasmids (BEI Resources NR-52517, NR-52518 and NR-52519; kit NR-53816). Protocols for the use of these items are published.² The C-terminal truncation in NR-53742 increases titers of viral particles pseudotyped with SARS-CoV-2 spike.³

Note: NR-53742 does not include an antibiotic selection cassette for mammalian expression.

The S glycoprotein mediates viral binding to the host angiotensin converting enzyme 2 (ACE2). This protein forms a trimer, which when bound to a host receptor allows fusion of the viral and cellular membranes.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 mammalian expression.

Packaging/Storage:

NR-53742 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 pHDM Containing the SARS-Related Coronavirus 2, Wuhan-Hu-1 Spike Glycoprotein Gene with C-Terminal Deletion, NR-53742.”

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/bmbl5/index.htm.

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References:

1. Bloom, J., Personal Communication.
2. Crawford, K. H. D., et al. "Protocol and Reagents for Pseudotyping Lentiviral Particles with SARS-CoV-2 Spike Protein for Neutralization Assays." *Viruses* 12 (2020): E513. PubMed: 32384820.
3. Crawford, K. H. D., et al. "Dynamics of Neutralizing Antibody Titers in the Months after SARS-CoV-2 Infection." *J. Infect. Dis.* (2020): *in press*. PubMed: 33000143.
4. Hulswit, R. J. G., C. A. M. de Haan and B. -J. Bosch. "Coronavirus Spike Protein and Tropism Changes." *Adv. Virus Res.* 96 (2016): 29-57. PubMed: 27712627.

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