

**Vector pcDNA3.1(-) Containing the SARS-Related Coronavirus 2, Wuhan-Hu-1 Spike Glycoprotein Gene**

**Catalog No. NR-52420**

**For research use only. Not for human use.**

**Contributor:**

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**Manufacturer:**

BEI Resources

**Product Description:**

NR-52420 expresses the full-length, unmodified S glycoprotein, and is intended for producing pseudotyped particles/pseudovirions or cell surface protein expression.<sup>1</sup> NR-52420 is not intended for recombinant soluble protein expression.

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 optimizing the full-length S sequence for mammalian expression and subcloning into the pcDNA™3.1(-) mammalian expression vector.<sup>1,2</sup> NR-52420 contains the beta-lactamase gene, TEM-116, to provide transformant selection through ampicillin resistance in *Escherichia coli* (*E. coli*), and a neomycin (G418) selectable marker for mammalian expression. The resulting size of the plasmid is approximately 9230 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.<sup>3</sup>

**Material Provided:**

Each vial contains 0.2 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 mammalian expression.

**Packaging/Storage:**

NR-52420 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 contributed by David Veessler for distribution through BEI Resources, NIAID, NIH: Vector pcDNA3.1(-) Containing the SARS-Related Coronavirus 2, Wuhan-Hu-1 Spike Glycoprotein Gene, NR-52420. Work making use of this reagent should also cite Walls, A. C. and Y.-J. Park, et. al. *Cell* 181 (2020): 281-292. PubMed: 32155444.”

**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/bmbl5/index.htm](http://www.cdc.gov/biosafety/publications/bmbl5/index.htm).

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**References:**

1. Veessler, D., Personal Communication.

2. Walls, A. C., et al. "Structure, Function, and Antigenicity of the SARS-CoV-2 Spike Glycoprotein." Cell 181 (2020): 281-292. PubMed: 32155444.
3. 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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