

Vector pcDNA3.1(-) Containing the SARS-Related Coronavirus 2, Wuhan-Hu-1 Spike Glycoprotein Receptor Binding Domain (RBD)

Catalog No. NR-52422

For research use only. Not for human use.

Contributor:

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Manufacturer:

BEI Resources

Product Description:

The vector for the spike (S) glycoprotein receptor binding domain (RBD; also referred to as S^B) from severe acute respiratory syndrome-related coronavirus 2 (SARS-CoV-2), Wuhan-Hu-1 (GenBank: [MN908947](#)) was designed by codon optimizing the spike RBD (amino acids 328 to 531) for mammalian expression, fused to an N-terminal mu-phosphatase signal sequence and C-terminal octa-histidine tag, and subcloned into the [pcDNA™3.1\(-\)](#) mammalian expression vector.^{1,2,3} NR-52422 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 6120 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.⁴

Material Provided:

Each vial of lot 70035172 contains 0.4 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-52422 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 Receptor Binding Domain (RBD), NR-52422. 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.

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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. Wu, F., et al. "A New Coronavirus Associated with Human Respiratory Disease in China." Nature 579 (2020): 265-269. PubMed: 32015508.
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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