Vector pET-11a Containing the SARS-Related Coronavirus 2, Wuhan-Hu-1 3C-Like Protease Gene

Catalog No. NR-52437

This reagent is the tangible property of the U.S. Government.

For research use only. Not for use in humans.

Contributor:

Karla J. Satchell, Ph.D., Principal Investigator and Co-Director, Center for Structural Genomics of Infectious Diseases, Department of Microbiology-Immunology, Northwestern University, Chicago, Illinois, USA, and Dr. Andrew Mesecar, Purdue University, West Lafayette, Indiana, USA

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 3C-like protease (3CLpro) gene from severe acute respiratory syndrome-related coronavirus 2 (SARS-CoV-2), Wuhan-Hu-1 (GenBank: MN908947) was codon optimized, tagged with an N-terminal hexa-histidine tag followed by a 3CLpro auto cleavage site and cloned into the pET-11a plasmid.[1,2] The beta-lactamase gene, *bla*, provides transformant selection through ampicillin resistance in *Escherichia coli (E. coli)*. The complete plasmid sequence and map are provided on the BEI Resources webpage. The plasmid was produced in *E. coli* and extracted.

3CLpro (also referred to as main protease, Mpro) is a cysteine protease that, together with the papain-like protease (PLpro), processes the viral polyproteins in preparation for viral replication. It also releases the main replicative functions of the virus, such as RdRp and helicase.[3,4,5]

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 expression studies.

Packaging/Storage:

NR-52437 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 pET-11a Containing the SARS-Related Coronavirus 2, Wuhan-Hu-1 3C-Like Protease Gene, NR-52437, 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/bmbl5/index.htm.

Disclaimers:

You are authorized to use this product for research use only. It is not intended for human use.

Use of this product is subject to the terms and conditions of the BEI Resources Material Transfer Agreement (MTA). The MTA is available on our Web site at www.beiresources.org.

While BEI Resources uses reasonable efforts to include accurate and up-to-date information on this product sheet, neither ATCC® nor the U.S. Government makes any warranties or representations as to its accuracy. Citations from scientific literature and patents are provided for informational purposes only. Neither ATCC® nor the U.S. Government warrants that such information has been confirmed to be accurate.

This product is sent with the condition that you are responsible for its safe storage, handling, use and disposal. ATCC® and the U.S. Government are not liable for any damages or injuries arising from receipt and/or use of this product. While reasonable effort is made to ensure authenticity and reliability of materials on deposit, the U.S. Government, ATCC®, their suppliers and contributors to BEI Resources are not liable for damages arising from the misidentification or misrepresentation of products.

Use Restrictions:

This material is distributed for internal research, non-commercial purposes only. This material, its product or its derivatives may not be distributed to third parties. Except as performed under a U.S. Government contract, individuals contemplating commercial use of the material, its products or its derivatives must contact the contributor to determine if a license is required. U.S. Government contractors may need a license before first commercial sale.

The material cannot be used for commercial or for-profit purposes.

References:

1. Satchell, K. J. and A. Mesecar, Personal Communication.

BEI Resources
www.beiresources.org

E-mail: contact@beiresources.org
Tel: 800-359-7370
Fax: 703-365-2898

© 2021 American Type Culture Collection (ATCC). All rights reserved.

2. Wu, F., et al. "A New Coronavirus Associated with Human Respiratory Disease in China." Nature 579 (2020): 265-269. PubMed: 32015508.
3. Ziebuhr, J. "Molecular Biology of Severe Acute Respiratory Syndrome Coronavirus." Curr. Opin. Microbiol. 7 (2004): 412-419. PubMed: 15358261.
4. Lin, C-. W., et al. "Characterization of Trans- and Cis-Cleavage Activity of the SARS Coronavirus 3CLpro Protease: Basis for the *in vitro* Screening of Anti-SARS Drugs." FEBS Lett. 574 (2004): 131-137. PubMed: 15358553.
5. Zhang, L., et al. "Crystal Structure of SARS-CoV-2 Main Protease Provides a Basis for Design of Improved α-ketoamide Inhibitors." Science 368 (2020): 409-412. PubMed: 32198291.

ATCC® is a trademark of the American Type Culture Collection.

Support Provided by NIAID

BEI Resources
www.beiresources.org

E-mail: contact@beiresources.org
Tel: 800-359-7370
Fax: 703-365-2898

© 2021 American Type Culture Collection (ATCC). All rights reserved.