

## Human Coronavirus, NL63

### Catalog No. NR-470

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

#### Contributor:

Lia van der Hoek, Ph.D., Department of Human Retrovirology, Academic Medical Center, University of Amsterdam, Amsterdam, the Netherlands

#### Manufacturer:

BEI Resources

#### Product Description:

Virus Classification: *Coronaviridae, Alphacoronavirus*

Species: Human coronavirus

Strain/Isolate: NL63 (Amsterdam I)

Original Source: Human coronavirus (HCoV), NL63 was isolated in 2003 from nasopharyngeal aspirate of human infant with acute respiratory disease in Amsterdam.<sup>1</sup>

Comments: The complete genome of HCoV, NL63 has been sequenced (GenBank: [AY567487](https://www.ncbi.nlm.nih.gov/nuccore/AY567487)).<sup>1</sup>

Coronaviruses (CoV) are enveloped, positive-stranded RNA viruses with approximately 30 kb genomes.<sup>2,3</sup> CoV are classified into three groups based on serological and genetic similarities: group 1 includes HCoV, 229E and HCoV, NL63, group 2 includes HCoV, OC43 and HCoV, HKU1 and group 3 contains avian infectious bronchitis virus and turkey CoV.<sup>2,3,4</sup> SARS-CoV is not assigned to any group, but is most closely associated with group 2.<sup>2,3</sup> HCoV are enveloped vertebrate viruses associated with respiratory and enteric diseases and are responsible for 10 to 20% of all common colds. HCoV infect all age groups and reinfection is common.<sup>2</sup>

#### Material Provided:

Each vial contains approximately 1 mL of cell lysate and supernatant from *Macaca mulatta* kidney epithelial cells infected with HCoV, NL63.

Note: If homogeneity is required for your intended use, please purify prior to initiating work.

#### Packaging/Storage:

NR-470 was packaged aseptically in screw-capped plastic cryovials. The product is provided frozen and should be stored at -60°C or colder immediately upon arrival. For long-term storage, the vapor phase of a liquid nitrogen freezer is recommended. Freeze-thaw cycles should be avoided.

#### Growth Conditions:

Host: *Macaca mulatta* kidney epithelial cells (LLC-MK2 cells; ATCC® CCL-7.1™)

Growth Medium: Eagle's Minimum Essential Medium containing Earle's Balanced Salt Solution, non-essential amino acids, 2 mM L-glutamine, 1 mM sodium pyruvate and 1.5 g/L of sodium bicarbonate supplemented with 2% fetal bovine serum, or equivalent

Infection: Cells should be 1 to 2 days old and 90% confluent

Incubation: 6 days at 34°C and 5% CO<sub>2</sub>

Cytopathic Effect: Cell rounding and sloughing

#### Citation:

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: Human Coronavirus, NL63, NR-470."

#### Biosafety Level: 2

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).

#### 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](http://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.

#### References:

- van der Hoek, L., et al. "Identification of a New Human Coronavirus." Nat. Med. 10 (2004): 368-373. PubMed: 15034574.
- Thiel, V., et al. "Infectious RNA Transcribed *in vitro* from a cDNA Copy of the Human Coronavirus Genome Cloned in

- Vaccinia Virus." J. Gen. Virol. 82 (2001): 1273-1281. PubMed: 11369870.
3. Vijgen, L., et al. "Complete Genomic Sequence of Human Coronavirus OC43: Molecular Clock Analysis Suggest a Relatively Recent Zoonotic Coronavirus Transmission Event." J. Virol. 3 (2005): 1595-1604. PubMed: 15650185.
  4. van der Hoek, L., K. Pyrc and B. Berkhout. "Human Coronavirus NL63, a New Respiratory Virus." FEMS Microbiol. Rev. 30 (2006): 760-773. PubMed: 16911043.
  5. van der Hoek, L., et al. "Burden of Disease Due to Human Coronavirus NL63 Infections and Periodicity of Infection." J. Clin. Virol. 48 (2010): 104-108. PubMed: 20347384.
  6. Schildgen, O., et al. "Identification of Cell Lines Permissive for Human Coronavirus NL63." J. Virol. Methods 138 (2006): 207-2110. PubMed: 16962670.
  7. Pyrc, K., M. F. Jebbink, B. Berkhout, and L. van der Hoek. "Genome Structure and Transcriptional Regulation of Human Coronavirus NL63." Virol. J. 1 (2004): 7-17. PubMed: 15548333.
  8. Vabret, A., et al. "Human Coronavirus NL63, France." Emerg. Infect. Dis. 11 (2005): 1225-1229. PubMed: 16102311.
  9. Fouchier, R. A. M., et al. "A Previously Undescribed Coronavirus Associated with Respiratory Disease in Humans." Proc. Natl. Acad. Sci. U.S.A. 101 (2004): 6212-6216. PubMed: 15073334.

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

