

Human Coronavirus, NL63

Catalog No. NR-470

For research use only. Not for use in humans.

Contributor:

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Manufacturer:

BEI Resources

Product Description:

Virus Classification: *Coronaviridae*, *Alphacoronavirus*

Species: Human coronavirus

Strain/Isolate: NL63 (also referred to as Amsterdam I)

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

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

Coronaviruses (CoV) are enveloped, positive-stranded RNA viruses with approximately 30 kb genomes.^{2,3} 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.^{2,3,4} SARS-CoV is not assigned to any group, but is most closely associated with group 2.^{2,3} 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.²

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 80% to 90% confluent

Incubation: 6 to 8 days at 34°C and 5% CO₂

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. 6th ed. Washington, DC: U.S. Government Printing Office, 2020; see www.cdc.gov/biosafety/publications/bmbl5/index.htm.

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References:

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2. 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." Virology 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. USA 101 (2004): 6212-6216. PubMed: 15073334.

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