

SARS-Related Coronavirus 2, Isolate hCoV-19/USA/MD-HP20874/2021 (Lineage B.1.1.529; Omicron Variant)

Catalog No. NR-56461

For research use only. Not for use in humans.

Contributor:

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Manufacturer:

BEI Resources

Product Description:

Virus Classification: *Coronaviridae, Betacoronavirus*

Species: Severe acute respiratory syndrome-related coronavirus 2

Strain/Isolate: hCoV-19/USA/MD-HP20874/2021

Original Source: Severe acute respiratory syndrome-related coronavirus 2 (SARS-CoV-2), isolate hCoV-19/USA/MD-HP20874/2021 was isolated from a nasal swab in Maryland, USA, on November 27, 2021.¹

Note: Genome sequence information is provided on the Certificate of Analysis and includes an analysis of all sequence variations observed for each lot.

Comments: Under the nomenclature system introduced by GISAID (Global Initiative on Sharing All Influenza Data), SARS-CoV-2, isolate hCoV-19/USA/MD-HP20874/2021 is assigned lineage B.1.1.529 (Pango v.3.1.17 2021-12-06) and GISIAD clade GRA using Phylogenetic Assignment of Named Global Outbreak Lineages (PANGO) tool.^{1,2,3} The complete genome of the clinical isolate of SARS-CoV-2, hCoV-19/USA/MD-HP20874/2021 has been sequenced (GISAID: EPI_ISL_7160424).^{1,2} The following mutations are present: Spike A67V, Spike D614G, Spike D796Y, Spike E484A, Spike G142D, Spike G446S, Spike G496S, Spike H69del, Spike H655Y, Spike ins214EPE, Spike K417N, Spike L212I, Spike L981F, Spike N211del, Spike N440K, Spike N501Y, Spike N679K, Spike N764K, Spike N856K, Spike N969K, Spike P681H, Spike Q493R, Spike Q498R, Spike Q954H, Spike S477N, Spike T95I, Spike T478K, Spike T547K, Spike V70del, Spike V143del, Spike Y144del, Spike Y145del, Spike Y505H, E (Envelope) T9I, M (Membrane) A63T, M D3G, M Q19E, N (Nucleocapsid) E31del, N G204R, N P13L, N R32del, N R203K, N S33del, NSP3 (Non-structural protein 3) A1892T, NSP3 K38R, NSP3 L1266I, NSP3 S1265del, NSP3 T1004I, NSP4 (Non-structural protein 4) T492I, NSP5 (Non-structural protein 5) P132H, NSP6 (Non-structural protein 6) G107del, NSP6 I189V, NSP6 L105del, NSP6 S106del, NSP12 (Non-structural protein 12) P323L, NSP14 (Non-structural protein 14) I42V.^{1,2} It was labelled as an VOC Omicron GR/484A (B.1.1.529+BA.1), first detected in Botswana/Hong

Kong/South Africa by the World Health Organization (WHO).^{1,4}

In December 2019, an outbreak of a respiratory illness (COVID-19) began in Wuhan, Hubei Province, China. The outbreak is associated with a seafood market and although environmental samples from the market are positive for the novel coronavirus, an association with a particular animal has not been determined.⁵ SARS-CoV-2 has been isolated from patients from several countries and the sequences of some of these isolates have been deposited with GISAID.

Material Provided:

Each vial contains approximately 0.1 mL of spin-clarified cell lysate and supernatant from *Homo sapiens* lung adenocarcinoma epithelial cells (Calu-3) infected with SARS-CoV-2, isolate hCoV-19/USA/MD-HP20874/2021.

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

Packaging/Storage:

NR-56461 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: *Homo sapiens* lung adenocarcinoma epithelial cells (Calu-3; ATCC® HTB-55™)

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 1500 milligrams per liter of sodium bicarbonate supplemented with 2% fetal bovine serum, or equivalent

Infection: Cells should be 70% to 90% confluent

Incubation: 6 to 8 days at 37°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: SARS-Related Coronavirus 2, Isolate hCoV-19/USA/MD-HP20874/2021 (Lineage B.1.1.529; Omicron Variant), NR-56461, contributed by Andrew S. Pekosz."

Biosafety Level: 3

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/bmbli5/index.htm.

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Use Restrictions:

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References:

1. [GISAID](#)
2. Rambaut, A., et al. "A Dynamic Nomenclature Proposal for SARS-CoV-2 Lineages to Assist Genomic Epidemiology." Nat. Microbiol. 5 (2020): 1403-1407. PubMed: 32669681.
3. Mercatelli, D. and F. M. Giorgi. "Geographic and Genomic Distribution of SARS-CoV-2 Mutations." Front. Microbiol. (2020): doi.org/10.3389/fmicb.2020.01800. PubMed: 32793182.
4. [WHO](#)
5. Gralinski, L. E. and V. D. Menachery. "Return of the Coronavirus: 2019-nCoV." Viruses 12 (2020): 135. PubMed: 31991541.

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