SARS-Related Coronavirus 2, Isolate hCoV-19/USA/CA-VRLC086/2021 (Delta Variant)

Catalog No. NR-55691

For research use only. Not for use in humans.

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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/CA-VRLC086/2021
Original Source: Severe acute respiratory syndrome-related coronavirus 2 (SARS-CoV-2), isolate hCoV-19/USA/CA-VRLC086/2021 was isolated from a human mid-turbinate nasal swab in California, USA on June 21, 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/CA-VRLC086/2021 is assigned lineage AY.1 [(Pango v.3.1.11 2021-08-09), Delta (B.1.617.2-like) + K417N (Scorpio)], and GISIAD clade GK 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/CA-VRLC086/2021 has been sequenced (GISAID: EPI_ISL_2987140).[1,2] The following mutations are present in the clinical isolate: Spike D614G, Spike D950N, Spike E156G, Spike F157del, Spike G142D, Spike K417N, Spike L452R, Spike P681R, Spike R158del, Spike T19R, Spike T95I, Spike T478K, Spike W258L, M (Membrane protein) I82T, M L29F, N (Nucleocapsid) D63G, N D377Y, N G215C, N R203M, NS3 L53F, NS3 S26L, NS7a T120I, NS7a V82A, NS7b T40I, NSP2 (Non-structural protein 2) K489N, NSP3 (Non-structural protein 3) A488S, NSP3 P1469S, NSP4 (Non-structural protein 4) T492I, NSP4 V167L, NSP6 (Non-structural protein 6) T77A, NSP12 (Non-structural protein 12) G671S, NSP12 P323L, NSP13 (Non-structural protein 13) P77L.[1,2] It was labelled as a Delta variant [VOC Delta G/478K.V1 [B.1.617.2+AY.x] first detected in India] by the World Health Organization (WHO).[1,4]

Note: One additional mutation, ORF8 ΔDF (amino acids 119-120), is present in the GISAID reference sequence, but is not annotated on the GISAID website.

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/CA-VRLC086/2021.

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

Packaging/Storage:
NR-55691 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: 2 to 4 days at 37°C and 5% CO_2
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/CA-VRLC086/2021 (Delta Variant), NR-55691, 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/bmbl5/index.htm.

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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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