

Bat SARS-Like Coronavirus, HKU5, Recombinant, Containing the SARS Coronavirus, Urbani Spike Glycoprotein Ectodomain

Catalog No. NR-48814

For research use only. Not for human use.

Contributor:

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Manufacturer:

BEI Resources

Product Description:

Virus Classification: *Nodovirales, Coronaviridae, Coronavirinae, Betacoronavirus*

Agent: Bat severe acute respiratory syndrome (SARS)-like coronavirus (CoV), HKU5

Strain/Isolate: Synthetic recombinant bat SARS-like CoV, HKU5, containing the spike glycoprotein ectodomain of the SARS-CoV Urbani strain (BtCoV HKU5-SE).¹

Comments: The complete genome of bat CoV HKU5 has been sequenced (GenBank: EF065512),² as has the complete genome of SARS-CoV, Urbani (GenBank: AY278741),³ and a mouse-adapted variant (GenBank: DQ497008).⁴

NR-48814 is a synthetic chimeric recombinant coronavirus based on a consensus bat SARS-like coronavirus (SCoV) sequence. The region of the bat SCoV genome encoding the spike (S) glycoprotein ectodomain was replaced with the corresponding region from the SARS-CoV, Urbani genome.¹ A histidine for tyrosine substitution at position 436, previously shown to enhance replication in mice,⁵ was also included in the S gene. This virus replicates efficiently in cell culture and in young and aged mice, where the virus targets airway and alveolar epithelial cells.

Material Provided:

Each vial contains approximately 1 mL of cell lysate and supernatant from *Cercopithecus aethiops* kidney epithelial cells (Vero 76, clone E6: ATCC® CRL-1586™) infected with BtCoV HKU5-SE.

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

Packaging/Storage:

NR-48814 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: Vero 76, clone E6 cells; ATCC® CRL-1586™

Growth Medium: Dulbecco's Modified Eagle's Medium modified to contain 4 mM L-glutamine, 4500 mg per liter glucose, 1 mM sodium pyruvate, and 1500 mg per liter sodium bicarbonate, supplemented with 5% fetal bovine serum, or equivalent

Infection: Cells should be 70% to 80% confluent

Incubation: 2 to 8 days at 37°C and 5% CO₂

Cytopathic Effect: Syncytial rounding and sloughing

Citation:

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: Bat SARS-Like Coronavirus, HKU5, Recombinant, Containing the SARS Coronavirus, Urbani Spike Glycoprotein Ectodomain, NR-48814."

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. 5th ed. Washington, DC: U.S. Government Printing Office, 2009; see www.cdc.gov/biosafety/publications/bmbl5/index.htm.

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References:

1. Agnihothram, S., et al. "A Mouse Model for *Betacoronavirus* Subgroup 2c Using a Bat Coronavirus Strain HKU5 Variant." *MBio*. 5 (2014): e00047-14. PubMed: 24667706.
2. Woo, P. C., et al. "Comparative Analysis of Twelve Genomes of Three Novel Group 2c and Group 2d Coronaviruses Reveals Unique Group and Subgroup Features." *J. Virol.* 81 (2007): 1574-1585. PubMed: 17121802.
3. Rota, P. A., et al. "Characterization of a Novel Coronavirus Associated with Severe Acute Respiratory Syndrome." *Science*. 300 (2003): 1394-1399. PubMed: 12730500.
4. Roberts, A., et al. "A Mouse-Adapted SARS-Coronavirus Causes Lethality and Mortality in BALB/c Mice." *PLoS Pathog.* 3 (2007): e5. PubMed: 17222058.
5. Frieman, M., et al. "Molecular Determinants of Severe Acute Respiratory Syndrome Coronavirus Pathogenesis and Virulence in Young and Aged Mouse Models of Human Disease." *J. Virol.* 86 (2012): 884-897. PubMed: 22072787.

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