

Monoclonal Anti-SARS Coronavirus Recombinant Human Antibody, Clone CR3022 (produced in HEK293 Cells)

Catalog No. NR-52481

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Contributor:

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Manufacturer:

BEI Resources

Product Description:

Predicted Antibody Class: IgG1κ
Human monoclonal antibody CR3022 was identified via an immune phage display library, constructed from lymphocytes of a convalescent severe acute respiratory syndrome coronavirus (SARS-CoV) patient.^{1,2} CR3022 is a neutralizing antibody that targets the receptor binding domain (RBD) of the spike (S) glycoprotein of SARS-CoV.² NR-52481 features the CR3022 epitope introduced into a human IgG1κ molecule, and was produced in human embryonic kidney (HEK293) cells using a transient expression system and purified by protein G chromatography. The epitope of CR3022 does not overlap with the ACE2-binding site within the S glycoprotein RBD from severe acute respiratory syndrome-related coronavirus 2 (SARS-CoV-2). CR3022 targets a highly conserved epitope that enables cross-reactive binding between SARS-CoV-2 and SARS-CoV.³ The CR3022 epitope has been co-crystallized with the SARS-CoV-2 S protein receptor binding domain (RBD) ([6W41](#), [6YMO](#) and [6YLA](#)) at a range of 2.4 to 4.4 Å, the S1 protein domain ([6YOR](#)) at 3.3 Å, the S protein RBD and neutralizing antibody CC12.1 ([6XC3](#)) at 2.7 Å, the S protein RBD and neutralizing antibody CC12.3 ([6XC7](#)) at 2.9 Å, and the S protein RBD and nanobody H11-D4 ([6Z2M](#) and [6YZZ](#)) at 3.3 and 4.3 Å, respectively.^{2,4,5,6}

Material Provided:

Each vial of NR-52481 contains approximately 100 µL of purified monoclonal antibody in phosphate buffered saline (PBS). The concentration, expressed as mg per mL, is shown on the Certificate of Analysis.

Packaging/Storage:

NR-52481 was packaged aseptically in screw-capped plastic vials. The product is provided frozen on dry ice and should be stored at -20°C or colder immediately upon arrival. Freeze-thaw cycles should be avoided.

Note: NR-52481 should be diluted using 5% non-fat milk or 5% bovine serum albumin (BSA); it is not stable if diluted using PBS.

Functional Activity:

NR-52481 is specific to the S glycoprotein and has been shown to neutralize SARS-CoV.¹ CR3022 recognizes the full-length SARS-CoV-2 S1 protein fused to a human IgG1 Fc domain (S1-Fc) under reducing and non-reducing conditions, as well as a hexa-histidine-tagged S glycoprotein RBD alone, in western blot analysis.² CR3022 binds potently to SARS-CoV-2 RBD as determined by ELISA and western blot.

Applications: Western blot analysis and ELISA.

Citation:

Acknowledgment for publications should read “The following reagent was produced under HHSN272201400008C and obtained through BEI Resources, NIAID, NIH: Monoclonal Anti-SARS Coronavirus Recombinant Human Antibody, Clone CR3022 (produced in HEK293 Cells), NR-52481.”

Biosafety Level: 1

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/bmb15/index.htm.

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References:

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2. Yuan, M., et al. "A Highly Conserved Cryptic Epitope in the Receptor-Binding Domains of SARS-CoV-2 and SARS-CoV." *Science* 368 (2020): 630-633. PubMed: 32245784.
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4. Huo, J., et al. "Neutralization of SARS-CoV-2 by Destruction of the Prefusion Spike." *Cell Host Microbe* S1931-3128 (2020): 30351-30356. PubMed: 32585135.
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6. Huo, J., et al. "Neutralizing Nanobodies Bind SARS-CoV-2 Spike RBD and Block Interaction with ACE2." *Nat. Struct. Mol. Biol.* (2020): *in press*. PubMed: 32661423.

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