

Monoclonal Anti-SARS Coronavirus Recombinant Human IgG1, Clone CR3022 (produced in *Nicotiana benthamiana*)

Catalog No. NR-53876

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For research use only. Not for use in humans.

Contributor and Manufacturer:

Novici Biotech LLC, Vacaville, California, USA

Product Description:

Antibody Class: IgG1

Human monoclonal antibody CR3022 was prepared 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-53876 was produced in *Nicotiana benthamiana* tobacco plants using a transient plant expression system and purified from the total plant homogenate using protein A chromatography.¹ This antibody preparation differs from BEI Resources NR-52392 only in the method used to extract the recombinant product from the expression host plants prior to affinity purification; NR-52392 was purified from an extracellular fraction and NR-53876 was extracted from total plant homogenate.¹ Plant made antibody CR3022 features complementarity-determining region (CDR) sequences introduced into a human IgG1 molecule.^{1,3} 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

Note: Questions related to NR-53876 may be addressed by contacting info@novicibiotech.com.

Material Provided:

Each vial of NR-53876 contains approximately 100 µL of purified monoclonal antibody in PBS. The concentration, expressed as mg per mL, is shown on the Certificate of Analysis.

Packaging/Storage:

NR-53876 was packaged aseptically in screw-capped plastic vials and is provided frozen on dry ice. The product should be stored at -60°C or colder immediately upon arrival. Freeze-thaw cycles should be avoided.

Functional Activity:

NR-53876 is specific to the S glycoprotein and has been shown to neutralize SARS-CoV.^{1,2} 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; however, CR3022 did not neutralize SARS-CoV-2 in a recent *in vitro* assay.^{1,3} CR3022 binds

potently to SARS-CoV-2 RBD as determined by ELISA and biolayer interferometry (BLI) binding assays.⁴

Applications: Western blot analysis, immunofluorescence, ELISA and neutralization.^{1,2,3,4}

Citation:

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: Monoclonal Anti-SARS Coronavirus Recombinant Human IgG1, Clone CR3022 (produced in *Nicotiana benthamiana*), NR-53876."

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. 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. Padgett, H. S., Personal Communication.

2. Ter Meulen, J., et al. "Human Monoclonal Antibody Combination against SARS Coronavirus: Synergy and Coverage of Escape Mutants." PLoS Med. 3 (2006): e237. PubMed: 16796401.
3. 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.
4. Tian, X., et al. "Potent Binding of 2019 Novel Coronavirus Spike Protein by a SARS Coronavirus-Specific Human Monoclonal Antibody." Emerg. Microbes Infect. 9 (2020): 382-385. PubMed: 32065055.

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