Spike S1 Glycoprotein from SARS-Related Coronavirus 2, B.1.1.529 (Omicron) with C-Terminal Histidine Tag, Recombinant from HEK293 Cells

Catalog No. NR-56480
Sino Biological Catalog No. 40591-V08H41

For research use only. Not for use in humans.

Contributor and Manufacturer:
Sino Biological, Wayne, Pennsylvania, USA

Product Description:
A recombinant form of the spike glycoprotein S1 from severe acute respiratory syndrome-related coronavirus 2 (SARS-CoV-2), B.1.1.529 (Omicron) which originated in South Africa was produced by transfection in human embryonic kidney HEK293 cells and purified.[1] NR-56480 lacks the signal sequence and contains 668 residues of the SARS-CoV-2 S glycoprotein and contains a C terminal poly-histidine tag. NR-56480 includes A67V, delHV69-70, T95I, G142D, delVYY143-145, delN211, L212I, ins214EPE, G339D, S371L, S373P, S375F, K417N, N440K, G446S, S477N, T478K, E484A, Q493R, G496S, Q498R, N501Y, Y505H, T547K, D614G, H655Y, N679K and P681H mutations in the S glycoprotein as compared to the SARS-CoV-2 reference sequence (GenPept: YP_009724390).[1] The predicted protein sequence is shown in Figure 1. NR-56480 has a theoretical molecular weight of 76197 daltons.[1] As a result of glycosylation, NR-56480 migrates at a higher molecular weight in SDS-PAGE under reducing conditions. Representative SDS-PAGE and SEC-HPLC results are shown in Figures 2 and 3.[1]

Material Provided:
Each vial contains approximately 50 µg of purified recombinant protein in phosphate buffered saline (PBS, pH 7.4). Note: NR-56480 was not lyophilized. The concentration, expressed as mg/mL, is shown on the Certificate of Analysis.

Packaging/Storage:
NR-56480 was packaged aseptically in cryovials. The product is provided on dry ice and should be stored under sterile conditions at -20°C to -80°C immediately upon arrival. It is recommended that the protein be aliquoted for optimal storage.[1] Freeze-thaw cycles should be avoided.

Functional Activity:
The biological activity of NR-56480 was measured by its binding ability in a functional ELISA (Figure 4), in which immobilized human ACE2 protein (mFc tag)(Sino Biological 10108-H05H) at 2 µg/mL (100 µL/well) can bind to NR-56480; the half maximal effective concentration (EC_{50}) of NR-56480 was 45-140 ng/mL.[1]

Citation:
Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: Spike S1 Glycoprotein from SARS-Related Coronavirus 2, B.1.1.529 (Omicron) with C-Terminal Histidine Tag, Recombinant from HEK293 Cells, NR-56480."

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 (BMBL). 6th ed. Washington, DC: U.S. Government Printing Office, 2020.

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References:
1. Lu, Z., Personal Communication.

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Figure 1 – Predicted Protein Sequence

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1     VNLTTRTQLP PAYTNSFTRG VYYPDKVFRS SVLHSTQDLF LPFFSNVTWF
51    HVISGTNGTK RFDNPVLPFN DGVYFASIEK SNIIRGWIFG TTLDSKTQSL
101   LIVNNATNVV IKVCEFQFCN DPFLDHKNNK SWMESEFRVY SSANNCTFEY
151   VSQPFLMDLE GKQGNFKNLR EFVFKNIDGY FKIYSKHTPI IVREPEDLPQ
201   GFSALEPLVD LPIGINITRF QTLLALHRSY LTPGDSSSGW TAGAAAYYVG
251   YLQPRTFLLK YNENGTITDA VDCALDPLSE TKCTLKSFTV EKGIYQTSNF
301   RVQPTESIVR FPNITNLCPF DEVFNATRFA SVYAWNRKRI SNCVADYSVL
351   YNLAPFFTFK CYGVSPTKLN DLCFTNVYAD SFVIRGDEVR QIAPGQTGNI
401   ADYNYKLPDD FTGCVIAWNS NKLDSKVSGN YNYLYRLFRK SNLKPFERDI
451   STEIYQAGNK PCNGVAGFNC YFPLRSYSFR PTYGVGHQPY RVVVLSFELL
501   HAPATVCGPK KSTNLVKNKC VNFNFNGLKG TGVLTESNKK FLPFQQFGRD
551   IADTTDAVRD PQTLEILDIT PCSFGGVSVI TPGTNTSNQV AVLYQGVNCT
601   EVPVAIHADQ LTPTWRVYST GSNVFQTRAG CLIGAEYVNN SYECDIPIGA
651   GICASYQTQT KSHRRARAHH HHHHHH
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Spike glycoprotein- **Residues 1 to 667** [represents amino acid residues 16 to 685 of the native S protein (GenPept: YP_009724390)]
A67V, T95I, G142D, L212I, G339D, S371L, S373P, S375F, K417N, N440K, G446S, S477N, T478K, E484A, Q493R, G496S, Q498R, N501Y, Y505H, T547K, D614G, H655Y, N679K and P681H mutations-
Residues 52, 78, 125, 191, 321, 353, 355, 357, 399, 422, 428, 459, 460, 466, 475, 478, 480, 483, 487, 529, 596, 637, 661 and 663
Octa-histidine tag – Residues 669 to 676

Figure 2: Representative SDS-PAGE

Lane 1: MW ladder
Lane 2: NR-56480

Figure 3: Representative SEC-HPLC

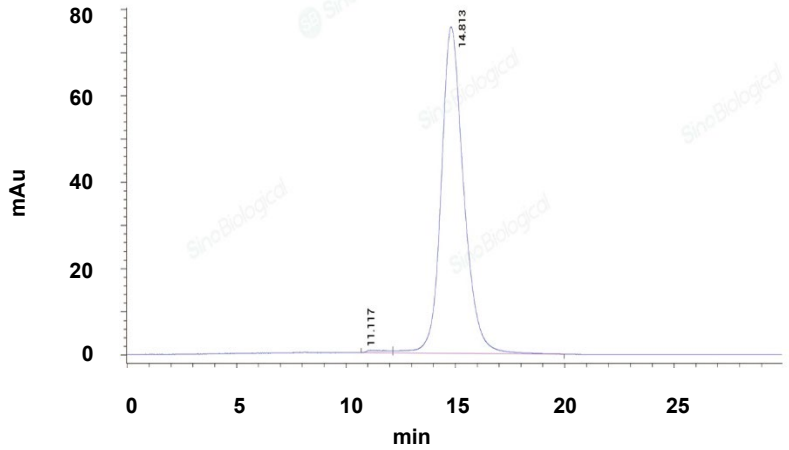

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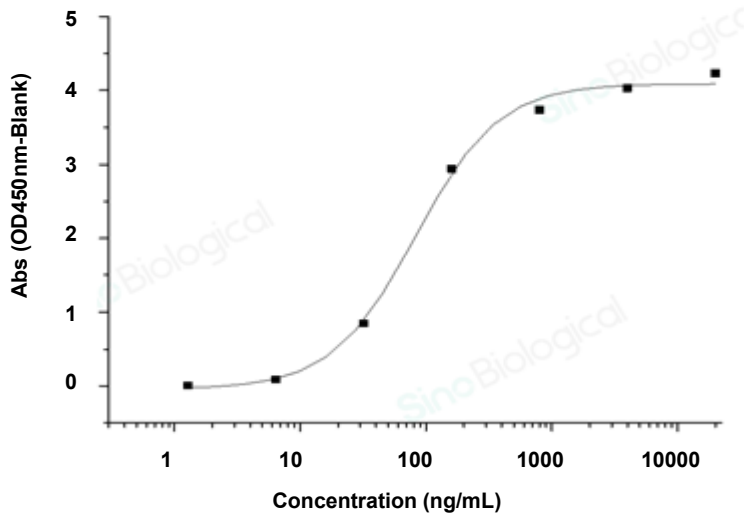
Figure 4: Representative Functional ELISA



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