Product Information Sheet for NR-53798

Spike Glycoprotein S1 Domain from SARS-Related Coronavirus 2, Wuhan-Hu-1 with C-Terminal Histidine Tag, Recombinant from HEK293 Cells

Catalog No. NR-53798
Sino Biological Catalog No. 40591-V08H

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 domain from severe acute respiratory syndrome-related coronavirus 2 (SARS-CoV-2), Wuhan-Hu-1 (GenPept: YP_009724390) was produced by transfection in human embryonic kidney HEK293 cells and purified.[1,2] NR-53798 lacks the signal sequence, contains 670 residues of the SARS-CoV-2 spike glycoprotein (amino acid residues V16 to R685) and features a C-terminal poly-histidine tag.[1,2] The predicted protein sequence is shown in Figure 1. NR-53798 has a theoretical molecular weight of 76,500 daltons.[1] 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-53798 was not lyophilized. The concentration, expressed as mg per mL, is shown on the Certificate of Analysis.

Packaging/Storage:
NR-53798 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-53798 was measured by its binding ability in a functional ELISA (Figure 4), in which immobilized human ACE2 protein (Fc tag) (Sino Biological 10108-H05H) at 2 µg/mL (100 µL/well) can bind NR-53798; the half maximal effective concentration (EC_{50}) of NR-53798 is 200 to 600 ng/mL.[1] The biological activity of NR-53798 was also measured by its binding ability using biosensor analysis (Figure 5), in which human ACE2 protein (Fc tag) (Sino Biological 10108-H05H) can bind NR-53798; the affinity constant is 47.7 nM.[1]

Citation:
Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: Spike Glycoprotein S1 Domain from SARS-Related Coronavirus 2, Wuhan-Hu-1 with C-Terminal Histidine Tag, Recombinant from HEK293 Cells, NR-53798."

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.

Disclaimers:
You are authorized to use this product for research use only. It is not intended for human use.

Use of this product is subject to the terms and conditions of the BEI Resources Material Transfer Agreement (MTA). The MTA is available on our Web site at www.beiresources.org.

While BEI Resources uses reasonable efforts to include accurate and up-to-date information on this product sheet, neither ATCC® nor the U.S. Government makes any warranties or representations as to its accuracy. Citations from scientific literature and patents are provided for informational purposes only. Neither ATCC® nor the U.S. Government warrants that such information has been confirmed to be accurate.

This product is sent with the condition that you are responsible for its safe storage, handling, use and disposal. ATCC® and the U.S. Government are not liable for any damages or injuries arising from receipt and/or use of this product. While reasonable effort is made to ensure authenticity and reliability of materials on deposit, the U.S. Government, ATCC®, their suppliers and contributors to BEI Resources are not liable for damages arising from the misidentification or misrepresentation of products.

Use Restrictions:
This material is distributed for internal research, non-commercial purposes only. This material, its product or its derivatives may not be distributed to third parties. Except as performed under a U.S. Government contract, individuals contemplating commercial use of the material, its products or its derivatives must contact the contributor to determine if a license is required. U.S. Government contractors may need a license before first commercial sale.

References:
1. Lu, Z., Personal Communication.
2. Wu, F., et al. "A New Coronavirus Associated with Human Respiratory Disease in China." Nature 579 (2020): 265-269. PubMed: 32015508.

ATCC® is a trademark of the American Type Culture Collection.

Support Provided by NIAID

BEI Resources
www.beiresources.org

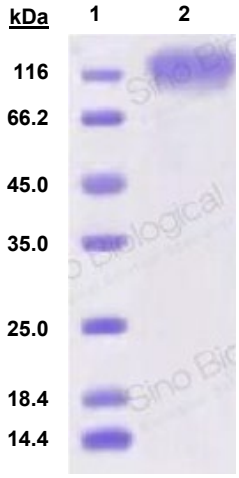
E-mail: contact@beiresources.org
Tel: 800-359-7370
Fax: 703-365-2898

Figure 1: Predicted Protein Sequence

```
1   VNLTTRTQLP PAYTNSFTRG VYYPDKVFRS SVLHSTQDLF LPFFSNVTWF
51  HAIHVSGTNG TKRFDNPVLP FNDGVYFAST EKSNIIRGWI FGTTLDSKTQ
101 SLLIVNNATN VVIKVCEFQF CNDPFLGVYY HKNNKSWMES EFRVYSSANN
151 CTFEYVSQPF LMDLEGKQGN FKNLREFVFK NIDGYFKIYS KHTPINLVRD
201 LPQGFSALEP LVDLPIGINI TRFQTLLALH RSYLTPGDSS SGWTAGAAAY
251 YVGYLQPRTF LLKYNENGTI TDAVDCALDP LSETKCTLKS FTVEKGIYQT
301 SNFRVQPTES IVRFPNITNL CPFGEVFNAT RFASVYAWNR KRISNCVADY
351 SVLYNSASFS TFKCYGVSPT KLNDLCFTNV YADSFVIRGD EVRQIAPGQT
401 GKIADYNYKL PDDFTGCVIA WNSNNLDSKV GGNYNYLYRL FRKSNLKPFE
451 RDISTEIYQA GSTPCNGVEG FNCYFPLQSY GFQPTNGVGY QPYRVVVLSF
501 ELLHAPATVC GPKKSTNLVK NKCVNFNFNG LTGTGVLTES NKKFLPFQQF
551 GRDIADTTDA VRDPQTLEIL DITPCSFGGV SVITPGTNTS NQVAVLYQDV
601 NCTEVPVAIH ADQLTPTWRV YSTGSNVFQT RAGCLIGAEH VNNSYECDIP
651 IGAGICASYQ TQTNSPRRAR AHHHHHHHHH H
```

S1 domain – **Residues 1 to 670** (represents amino acid residues 16 to 685)
Poly-histidine tag – Residues 672 to 681

Figure 2: Representative SDS-PAGE



Lane 1: MW ladder
Lane 2: NR-53798

Figure 3: Representative SEC-HPLC

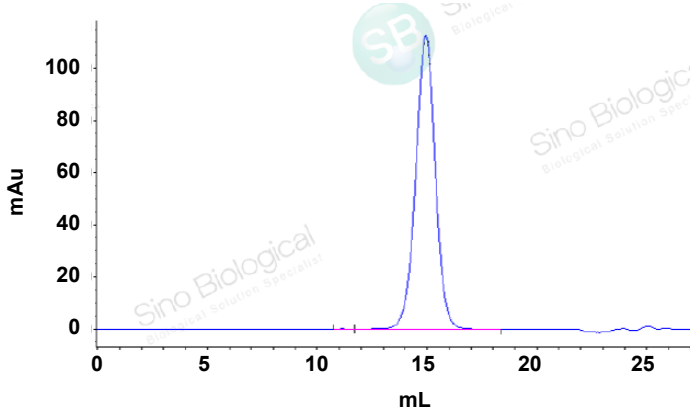


Figure 4: Representative Functional ELISA

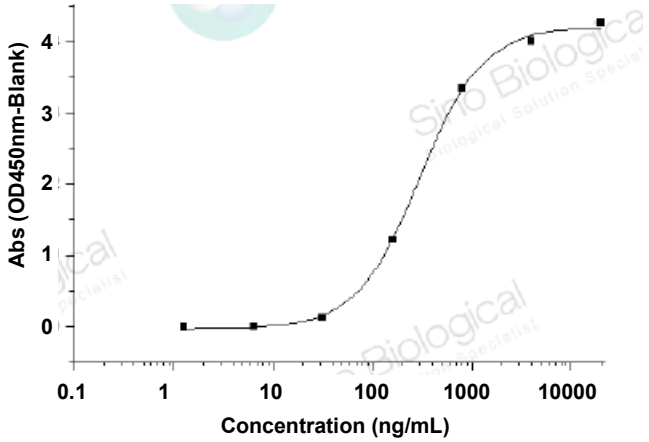
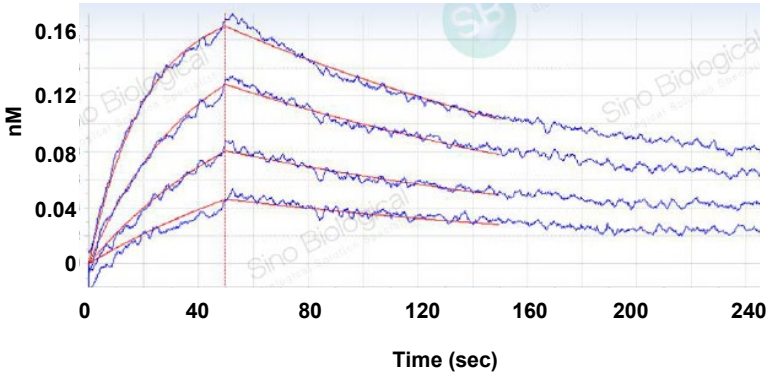


Figure 5: Representative Biosensor Analysis



BEI Resources
www.beiresources.org

E-mail: contact@beiresources.org
Tel: 800-359-7370
Fax: 703-365-2898