Product Information Sheet for NR-52396

Spike Glycoprotein (Stabilized) from SARS-Related Coronavirus 2, Wuhan-Hu-1 with C-Terminal Histidine Tag, Recombinant from Baculovirus

Catalog No. NR-52396

This reagent is the tangible property of the U.S. Government.

For research use only. Not for human use.

Contributor and Manufacturer:

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Product Description:

A recombinant form of the spike (S) glycoprotein from severe acute respiratory syndrome-related coronavirus 2 (SARS-CoV-2), Wuhan-Hu-1 (GenPept: QHD43416) was produced in High Five™ insect cells using a baculovirus expression system and purified by nickel affinity chromatography.[1,2] NR-52396 lacks the signal sequence and contains 1196 residues (ectodomain) of the SARS-CoV-2 spike glycoprotein; the recombinant protein was modified to remove the polybasic S1/S2 cleavage site (RRAR to A; residues 682 to 685), stabilized with a pair of mutations (K986P and V987P, wild type numbering) and includes a thrombin cleavage site, T4 foldon trimerization domain and C-terminal hexa-histidine tag.[1,3] The predicted protein sequence is shown in Figure 1. NR-52396 has a theoretical molecular weight of 137,600 daltons.

Note: For a detailed protocol and list of related items, see https://labs.icahn.mssm.edu/krammerlab/covid-19/

Material Provided:

Each vial contains approximately 100 µL of NR-52396 in phosphate buffered saline (PBS). The concentration, expressed as mg per mL, is shown on the Certificate of Analysis.

Packaging/Storage:

NR-52396 was packaged aseptically in cryovials. The product is provided on dry ice and should be stored at -60°C or colder immediately upon arrival. Freeze-thaw cycles should be avoided.

Functional Activity:

NR-52396 reacts with monoclonal anti-histidine tag in western blot analysis and with anti-SARS-CoV S (CR3022) and COVID-19 patient serum in ELISA. NR-52396 is intended for western blot, ELISA and animal vaccination.[1,3]

Citation:

Acknowledgment for publications should read "The following reagent was produced under HHSN272201400008C and obtained through BEI Resources, NIAID, NIH: Spike Glycoprotein (Stabilized) from SARS-Related Coronavirus 2, Wuhan-Hu-1 with C-Terminal Histidine Tag, Recombinant from Baculovirus, NR-52396."

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/bmbl5/index.htm.

Disclaimers:

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References:

1. Krammer, F., F. Amanat and S. Strohmeier, Personal Communication.
2. Wu, F., et al. "A New Coronavirus Associated with Human Respiratory Disease in China." Nature 579 (2020): 265-269. PubMed: 32015508.
3. Amanat, F., et al. "A Serological Assay to Detect SARS-CoV-2 Seroconversion in Humans." Nat. Med. (2020): *in press*. PubMed: 32398876.

Support Provided by NIAID

Figure 1 – Predicted Protein Sequence

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1    CVNLTTRTQL PPAYTNSFTR GVYYPDKVFR SSVLHSTQDL FLPFFSNVTW
51   FHAIHVSGTN GTKRFDNPVL PFNDGVYFAS TEKSNIIRGW IFGTTLDSKT
101  QSLLIVNNAT NVVIKVCEFQ FCNDPFLGVY YHKNNKSWME SEFRVYSSAN
151  NCTFEYVSQP FLMDLEGKQG NFKNLREFVF KNIDGYFKIY SKHTPINLVR
201  DLPQGFSALE PLVDLPIGIN ITRFQTLLAL HRSYLTPGDS SSGWTAGAAA
251  YYVGYLQPRT FLLKYNENGT ITDAVDCALD PLSETKCTLK SFTVEKGIYQ
301  TSNFRVQPTE SIVRFPNITN LCPFGEVFNA TRFASVYAWN RKRISNCVAD
351  YSVLYNSASF STFKCYGVSP TKLNDLCFTN VYADSFVIRG DEVRQIAPGQ
401  TGKIADYNYK LPDDFTGCVI AWNSNNLDSK VGGNYNYLYR LFRKSNLKPF
451  ERDISTEIYQ AGSTPCNGVE GFNCYFPLQS YGFQPTNGVG YQPYRVVVLS
501  FELLHAPATV CGPKKSTNLV KNKCVNFNFN GLTGTGVLTE SNKKFLPFQQ
551  FGRDIADTTD AVRDPQTLEI LDITPCSFGG VSVITPGTNT SNQVAVLYQD
601  VNCTEVPVAI HADQLTPTWR VYSTGSNVFQ TRAGCLIGAE HVNNSYECDI
651  PIGAGICASY QTQTNSPASV ASQSIIAYTM SLGAENSVAY SNNSIAIPTN
701  FTISVTTEIL PVSMTKTSVD CTMYICGDST ECSNLLLQYG SFCTQLNRAL
751  TGIAVEQDKN TQEVFAQVKQ IYKTPPIKDF GGFNFSQILP DPSKPSKRSF
801  IEDLLFNKVT LADAGFIKQY GDCLGDIAAR DLICAQKFNG LTVLPPLLTD
851  EMIAQYTSAL LAGTITSGWT FGAGAALQIP FAMQMAYRFN GIGVTQNVLY
901  ENQKLIANQF NSAIGKIQDS LSSTASALGK LQDVVNQNAQ ALNTLVKQLS
951  SNFGAISSVL NDILSRLDPP EAEVQIDRLI TGRLQSLQTY VTQQLIRAAE
1001 IRASANLAAT KMSECVLGQS KRVDFCGKGY HLMSFPQSAP HGVVFLHVTY
1051 VPAQEKNFTT APAICHDGKA HFPREGVFVS NGTHWFVTQR NFYEPQIITT
1101 DNTFVSGNCD VVIGIVNNTV YDPLQPELDS FKEELDKYFK NHTSPDVDLG
1151 DISGINASVV NIQKEIDRLN EVAKNLNESL IDLQELGKYE QYIKWPSGRL
1201 VPRGSPGSGY IPEAPRDGQA YVRKDGEWVL LSTFLGHHHH HH
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Spike ectodomain – **Residues 1 to 1196** (represents WT amino acid residues 15 to 1213)
RRAR to A substitution of S1/S2 cleavage site – Residue 671
KV to PP stabilizing mutations – Residues 969 and 970
Thrombin cleavage site – Residues 1200 to 1205
T4 foldon trimerization domain – Residues 1206 to 1236
Hexa-histidine tag – Residues 1237 to 1242

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