

**Human Neuropilin-1 (NRP1) with C-Terminal Avi and Histidine Tags, Recombinant from HEK293 Cells**

**Catalog No. NR-55345**  
**BPS Bioscience Catalog No. 100911**

**For research use only. Not for use in humans.**

**Contributor and Manufacturer:**  
 BPS Bioscience, San Diego, California, USA

**Product Description:**

A recombinant form of the human neuropilin-1 (NRP1) protein (GenPept: [NP\\_001019799](#)) was produced by transient transfection in human embryonic kidney HEK293 cells, purified by affinity chromatography and biotinylated.<sup>1,2</sup> NR-55345 was expressed with the CD33 signal sequence, which was cleaved during secretion to yield 623 residues of the human NRP1 protein (amino acid residues F22 to K644) which features a C-terminal AviTag™ BirA biotinylation acceptor sequence fused to a hexa-histidine tag.<sup>1</sup> The predicted protein sequence is shown in Figure 1.<sup>1</sup> NR-55345 has a theoretical molecular weight of 75,000 daltons. The crystal structure for the human NRP1 membrane proximal c (MAM) domain has been solved at 2.24 Å resolution (PDB: [5L73](#)).<sup>2</sup>

NRP1 is a transmembrane receptor that was recently identified as a co-receptor for severe acute respiratory syndrome-related coronavirus 2 (SARS-CoV-2) to infect host cells.<sup>3</sup> NRP1 binds furin-cleaved substrates, and the SARS-CoV-2 spike glycoprotein is cleaved by furin at the S1-S2 site. NRP1 is also highly expressed in the nasal and respiratory epithelium and enhances SARS-CoV-2 infection when co-expressed with host angiotensin converting enzyme 2 (ACE2).<sup>4</sup>

**Material Provided:**

Each vial contains approximately 50 µg of purified recombinant protein in 8 mM phosphate pH 7.4, 110 mM NaCl, 2.2 mM KCl and 20% glycerol. The concentration and volume are shown on the Certificate of Analysis.

**Packaging/Storage:**

NR-55345 was packaged aseptically in cryovials. The product is provided on dry ice and should be stored at -80°C immediately upon arrival. Storage at warmer temperatures is not recommended due to a low bioburden. Freeze-thaw cycles should be avoided.

**Citation:**

Acknowledgment for publications should read “The following reagent was obtained through BEI Resources, NIAID, NIH: Human Neuropilin-1 (NRP1) with C-Terminal Avi and Histidine Tags, Recombinant from HEK293 Cells, NR-55345.”

**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/bmb15/index.htm](http://www.cdc.gov/biosafety/publications/bmb15/index.htm).

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**References:**

1. Zhu, H., Personal Communication.
2. Yelland, Y. and S. Djordjevic. “Crystal Structure of the Neuropilin-1 MAM Domain: Completing the Neuropilin-1 Ectodomain Picture.” Structure 24 (2016): 2008-2015. PubMed: 27720589.
3. Cantuti-Castelvetri, L., et al. “Neuropilin-1 Facilitates SARS-CoV-2 Cell Entry and Infectivity.” Science 370 (2020): 856-860. PubMed: 33082293.
4. Bittmann, S., et al. “Neuropilin-1 in Transmission Process of COVID-19.” J. Regen. Biol. Med. 2 (2020): 1-2.

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Figure 1: Predicted Protein Sequence

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1  FRNDKCGDTI KIESPGYLTS PGYPHSYHPS EKCEWLIQAP DPYQRIMINF
51  NPHFDLEDRD CKYDYVEVFD GENENGHFRG KFCGKIAPPV VVSSGPFLLFI
101 KFVSDYETHG AGFSIRYEIF KRGPECSQNY TTPSGVIKSP GFPEKYPNSL
151 ECTYIVFVPK MSEIILEFES FDLEPDSNPP GGMFCRYDRL EIWDGFPDVG
201 PHIGRYCGQK TPGRIRSSSG ILSMVFYTDG AIAKEGFSAN YSVLQSSVSE
251 DFKCMEALGM ESGEIHSDQI TASSQYSTNW SAERSRLNYP ENGWTPEGDS
301 YREWIQVDLG LLRFVTAVGT QGAISKETKK KYVVKTYKID VSSNGEDWIT
351 IKEGNKPVLF QGNTNPTDVV VAVFPKPLIT RFVRIKPATW ETGISMRFEV
401 YGCKITDYPG SGMLGMVSGI ISDSQITSSN QGDRNWMPEN IRLVTSRSGW
451 ALPPAPHSYI NEWLQIDLGE EKIVRGIIIQ GGKHRENKVF MRKFKIGYSN
501 NGSDWKMIMD DSKRKAKSFE GNNNYDTPEL RTFPALSTRF IRIYPERATH
551 GGLGLRMELL GCEVEAPTAG PTPNGNLVD ECDDDQANCH SGTGDDFQLT
601 GGTTLVATEK PTVIDSTIQS GIKEFGGGLN DIFEAQKIEW HEGGGHHHHH
651 H

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NRP1 – Residues 1 to 623 (represents amino acid residues 22 to 644)  
 AviTag™ and hexa-histidine tag – Residues 628 to 651