N2 Neuraminidase (NA) Protein with N-Terminal Histidine Tag from Influenza Virus, A/turkey/Wisconsin/1/1966 (H9N2), Recombinant from Baculovirus

Catalog No. NR-43783

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Contributor and Manufacturer:

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Product Description:

A recombinant form of the N2 neuraminidase (NA) protein from influenza A virus, A/turkey/Wisconsin/1/1966 (H9N2) containing an N-terminal histidine tag was produced in Sf9 insect cells using a baculovirus expression vector system and purified by nickel affinity chromatography. The predicted ectodomain coding region of the NA gene was fused to a synthetic gene segment encoding an N-terminal octa-histidine tag followed by a 43 amino acid tetramerization domain from vasodilator-stimulated phosphoprotein (VASP) and a thrombin cleavage site, as described for the 1918 pandemic virus.[1,2] The predicted protein sequence is shown in Figure 1. NR-43783 has a theoretical molecular weight of approximately 51.22 kilodaltons. The crystal structure of the 1918 human N2 NA precursor has been solved at 2.40 Å resolution (PDB: 2HT8). The full-length NA precursor protein is 469 residues (GenPept: CAE00569).

Material Provided:

Each vial contains approximately 150 to 200 µg of purified recombinant NA protein in phosphate buffered saline PBS (pH 7.4). The protein content in micrograms and the concentration, expressed as micrograms per milliliter, are shown on the Certificate of Analysis.

Packaging/Storage:

Purified recombinant NA protein was packaged aseptically in screw-capped plastic cryovials. This product shipped on dry ice and should be stored at -20°C immediately upon arrival.

Functional Activity:

NR-43783 was demonstrated to be functionally active based on its ability to cleave the fluorogenic substrate 2'-(4-methylumbelliferyl)-α-D-N-acetylneuraminic acid (4-MUNANA).[3]

Citation:

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: N2 Neuraminidase (NA) Protein with N-Terminal Histidine Tag from Influenza Virus, A/turkey/Wisconsin/1/1966 (H9N2), Recombinant from Baculovirus, NR-43783."

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. Kühnel, K., et al. "The VASP Tetramerization Domain is a Right-Handed Coiled Coil Based on a 15-Residue Repeat." Proc. Natl. Acad. Sci. USA 101 (2004): 17027-17032. PubMed: 15569942.
2. Xu, X., et al. "Structural Characterization of the 1918 Influenza Virus H1N1 Neuraminidase." J. Virol. 82 (2008): 10493-10501. PubMed: 18715929.
3. Wetherall, N. T., et al. "Evaluation of Neuraminidase Enzyme Assays Using Different Substrates to Measure Susceptibility of Influenza Virus Clinical Isolates to Neuraminidase Inhibitors: Report of the Neuraminidase

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Inhibitor Susceptibility Network." J. Clin. Microbiol. 41 (2003): 742-750. PubMed: 12574276.

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Figure 1: Predicted Protein Sequence

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1    ADPHHHHHHH HSSSDYSDLQ RVKQELLEEV KKELQKVKEE IIEAFVQELR
51   KRGSLVPRGS PSRSEFEVCP EVAEYRNWSK PQCQITGFAP FSKDNSVRLS
101  AGGDIWVTRE PYVSCDPGKC YQFALGQGTT LDNKHSNGTI HDRIPHRTLL
151  MNELGVPFHL GTKQVCIAWS SSSCHDGKAW LHVCVTGDDR NATASFIYDG
201  MLVDSIGSWS QNILRTQESE CVCINGTCTV VMTDGSASGN ADTRVLFIRE
251  GKIIHISPLS GSAQHIEECS CYPRYPDVRC VCRDNWKGSN RPVIDIKMAD
301  YSINSGYVCS GLVGDTPRSD DSSSNSNCRD PNNERGNPGV KGWAFDNGDD
351  VWMGRTISKD SRSGYETFRV IGGWTTPNSK SQVNRQVIVD SNNWSGYSGI
401  FSVEGKSCIN RCFYVELIRG RPQETRVWWT SNSIVVFCGT SGTYGTGSWP
451  DGANINFMPI
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Plasmid-derived amino acids – Residues 1 to 3 and 61 to 66
His Tag – Residues 4 to 11
Tetramerization domain – Residues 12 to 54
Thrombin cleavage sequence – Residues 55 to 60
NA protein – Residues 67 to 460 [represents amino acid residues 76 to 469 of the native NA protein (GenPept: CAE00569)]

BEI Resources
www.beiresources.org

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

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