

N2 Neuraminidase (NA) Protein with N-Terminal Histidine Tag from Influenza Virus, A/Wisconsin/67/2005 (H3N2), Recombinant from Baculovirus

Catalog No. NR-19237

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Contributor and Manufacturer:

BEI Resources

Product Description:

A recombinant form of the N2 neuraminidase (NA) protein from influenza A virus, A/Wisconsin/67/2005 (H3N2) containing an N-terminal octa-histidine tag was produced in Sf9 insect cells using a baculovirus expression vector system and was 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 full-length N2 NA precursor protein is 469 residues (GenPept: [ABW80983](#)). The predicted protein sequence of NR-19237 is shown in Figure 1. NR-19237 has a theoretical molecular weight of approximately 51.28 kilodaltons. The crystal structure of the 1918 human N2 NA precursor has been solved at 2.40 Å resolution (PDB: [2HT8](#)).

Material Provided:

Each vial contains approximately 90 to 250 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 is provided frozen and should be stored at -20°C or colder immediately upon arrival. For long-term storage, freezing at -80°C or colder is recommended. Multiple freeze-thaw cycles should be avoided.

Functional Activity:

NR-19237 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/Wisconsin/67/2005 (H3N2), Recombinant from Baculovirus, NR-19237."

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

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

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Figure 1: Predicted Protein Sequence

1	ADPHHHHHHH	HSSSDYSDLQ	RVKQELLEEV	KKELQKVKEE	IIIEAFVQELR
51	KRGSLVPRGS	PSRSEFEICP	KLAEYRNWSK	PQCNITGFAP	FSKDNSIRLS
101	AGGDIWVTRE	PYVSCDPDKC	YQFALGQGT	LNNVHSNDTV	HDRTPYRTLL
151	MNELGVPFHL	GTKQVCIAWS	SSSCHDGKAW	LHVCVTGDDK	NATASFIYNG
201	RLVDSIVSWS	KEILRTQESE	CVCINGTCTV	VMTDGSASGK	ADTKILFIEE
251	GKIVHTSTLS	GSAQHVEECS	CYPRYLGVRC	VCRDNWKGSN	RPIVDINIKD
301	YSIVSSYVCS	GLVGDTPRKN	DSSSSSHCLD	PNNEEGGHGV	KWAFDDGND
351	VWMGRTISEK	LRSGYETFKV	IEGWSNPNSK	LQINRQVIVD	RGNRSGYSGI
401	FSVEGKSCIN	RCFYVELIRG	RKEETEVLT	SNSIVVFCGT	SGTYGTGSWP
451	DGADINLMPI				

Plasmid-derived amino acids – Residues 1 to 3 and 61 to 66

Octa-histidine 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: [ABW80983](#))]