

H1 Hemagglutinin (HA) Protein with C-Terminal Histidine Tag from Influenza Virus, A/California/04/2009 (H1N1)pdm09, Recombinant from Baculovirus

Catalog No. NR-15749

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Contributor and Manufacturer:

BEI Resources

Product Description:

The H1 hemagglutinin (HA) protein from influenza A virus, A/California/04/2009 (H1N1)pdm09 containing a C-terminal histidine tag was produced in Sf9 (lots 70041927, 63937214 and 58951684) or High Five™ (lots 61631611 and 62246299) insect cells using a baculovirus expression vector system and was purified by nickel affinity chromatography.¹ The predicted protein sequence is shown in Figure 1. The HA protein includes a C-terminal peptide containing a thrombin cleavage site, trimerizing (foldon) domain and eight histidine residues, as described for the 1918 pandemic virus.² Sequence information is available for influenza A virus, A/California/04/2009 (H1N1)pdm09 at the [Influenza Research Database](#).

Material Provided:

Each vial contains 100 micrograms to 200 micrograms of purified recombinant HA protein in PBS (pH 7.4) with 50% glycerol. The concentration, expressed as milligrams per milliliter, is shown on the Certificate of Analysis.

Packaging/Storage:

NR-15749 was packaged aseptically in cryovials. The product is provided on blue ice and should be stored at -20°C immediately upon arrival.

Citation:

Acknowledgment for publications should read “The following reagent was obtained through BEI Resources, NIAID, NIH: H1 Hemagglutinin (HA) Protein with C-Terminal Histidine Tag from Influenza Virus, A/California/04/2009 (H1N1)pdm09, Recombinant from Baculovirus, NR-15749.”

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. New, N., et al. “Expression of Hemagglutinin Protein from the Avian Influenza Virus H5N1 in a Baculovirus/Insect Cell System Significantly Enhanced by Suspension Culture.” *BMC Microbiol.* 6 (2006): 16. PubMed: 16504108.
2. Stevens, J., et al. “Structure of the Uncleaved Human H1 Hemagglutinin from the Extinct 1918 Influenza Virus.” *Science* 303 (2004): 1866-1870. PubMed: 14764887.

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Figure 1: Predicted Protein Sequence

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1  ADPGYLLEFD  TLCIGYHANN  STDTVDTVLE  KNVTVTHSVN  LLEDKHNGKL
51  CKLRGVAPLH  LGKCNIAAGWI  LGNPECESLS  TASSWSYIVE  TPSSDNGTCY
101 PGDFIDYEEL  REQLSSVSSF  ERFEIFPKTS  SWPNHDSNKG  VTAACPHAGA
151 KSFYKNLIWL  VKKGNSYPKL  SKSYINDK GK  EVLVLVGIIH  PSTSADQQSL
201 YQNADTYV FV  GSSRYSKKFK  PEIAIRPKVR  DQEGRMNYYW  TLVEPGDKIT
251 FEATGNLVVP  RYAFAMERNA  GSGIIISDTP  VHDCNTTCQT  PKGAIN TSLP
301 FQNIHPITIG  KCPKYVKSTK  LRLATGLRNI  PSIQSRGLFG  AIAGFIEGGW
351 TGMVDGWYGY  HHQNEQGSY  AADLKSTQNA  IDEITNKVNS  VIEKMNTQFT
401 AVGKEFNHLE  KRIENLNKKV  DDGFLDIW TY  NAELLV LLEN  ERTL DYHDSN
451 VKNLYEKVRS  QLKNNAKEIG  NGCFEFYH KC  DNTCMESVKN  GTYDYPKYSE
501 EAKLNREEID  GVRRCRSSGRL  VPRGSPGSY  IPEAPRDGQA  YVRKDG EWVL
551 LSTFLGHHHH  HHHH
  
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Plasmid-derived amino acids – Residues 1 to 9, 513 to 519, and 556

HA protein – Residues 10 to 512 (represents amino acid residues 18 to 520)

Thrombin cleavage sequence – Residues 520 to 525

T4 foldon trimerization domain – Residues 526 to 555

Octa-histidine tag – Residues 557 to 564