Product Information Sheet for NR-853

Ricin Toxin A Subunit with N-Terminal Histidine Tag, Recombinant from *Escherichia coli*

Catalog No. NR-853

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For research use only. Not for human use.

Contributor and Manufacturer:

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Product Description:

Ricin toxin is a glycoprotein that can be isolated from the seeds of the castor bean plant *Ricinus communis* (*R. communis*).[1] Structurally, ricin toxin consists of two polypeptide subunits, A and B, that are linked by a disulfide bond. The A subunit of ricin toxin catalytically inactivates the eukaryotic 28S ribosomal RNA subunit resulting in the inhibition of protein synthesis and death of the cell.[2] The ricin toxin B subunit is a galactose-specific lectin that mediates the binding and delivery of the toxin to target cells.[3,4] The sequence of the *R. communis* gene for the ricin toxin precursor protein has been reported (GenBank: X03179).[5]

NR-853 is a recombinant form of the A subunit of ricin toxin. The amino acid sequence includes an N-terminal histidine tag (MRGSHHHHHHTDPM) and amino acid residues 36 to 302 of the ricin toxin precursor. A QIAGEN pQE-32 vector was used to express the recombinant protein in *Escherichia coli*. The protein was purified by nickel affinity chromatography. NR-853 has a theoretical molecular weight of approximately 31,636 daltons. The predicted amino acid sequence of NR-853 is shown below in Table 1.

Material Provided:

Each vial of NR-853 contains approximately 1 mg of recombinant ricin toxin A subunit suspended in 10 mM sodium acetate buffer (pH 5.6). The concentration, expressed as mg per mL, is shown on the Certificate of Analysis.

Packaging/Storage:

NR-853 was packaged aseptically in plastic cryovials. The product is provided frozen on dry ice and should be stored at -20°C or colder immediately upon arrival. Storage for brief periods at 2°C to 8°C may be acceptable for some applications. Repeated freeze-thaw cycles should be avoided.

Functional Activity:

NR-853 reacts specifically with polyclonal antibody to ricin holotoxin (BEI Resources NR-862), polyclonal antibody to ricin A subunit (BEI Resources NR-863), and monoclonal antibody to ricin A subunit (BEI Resources NR-843) as determined by Western blot analysis. NR-853 is not active in an *in vitro* cytotoxicity assay using Vero cells.

Citation:

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: Ricin Toxin A Subunit with N-Terminal Histidine Tag, Recombinant from *Escherichia coli*, NR-853."

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:

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Support Provided by NIAID

Table 1 – Predicted Protein Sequence[1,2]

1	MRGSHHHHHH	TDPMIFPKQY	PIINFTTAGA	TVQSYTNFIR	AVRGRLTTGA
51	DVRHEIPVLP	NRVGLPINQR	FILVELSNHA	ELSVTLALDV	TNAYVVGYRA
101	GNSAYFFHPD	NQEDAEAITH	LFTDVQNRYT	FAFGGNYDRL	EQLAGNLREN
151	IELGNGPLEE	AISALYYYST	GGTQLPTLAR	SFIICIQMIS	EAARFQYIEG
201	EMRTRIRYNR	RSAPDPSVIT	LENSWGRLST	AIQESN**E**GAF	ASPIQLQRRN
251	GSKF**N**VYDVS	ILIPIIALMV	YRCAPPPSSQ	F	

[1]Non-ricin residues are underlined.
[2]Differences in NR-853 from GenBank X03179 are bolded (Q to E at amino acid position 237 and S to N at amino acid position 255).

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