Ricin Toxoid, Chemically Inactivated from *Ricinus communis*

Catalog No. NR-4671

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For research use only. Not for human use.

Contributor and Manufacturer:

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Product Description:

NR-4671 was generated by formaldehyde treatment of the purified, glycosylated, ricin holotoxin. Ricin toxoid is non-toxic.

Ricin toxin is a glycoprotein that can be isolated from the seeds of the castor bean plant *Ricinus communis*[1] (*R. communis*). Structurally, ricin toxin consists of two polypeptide chains, A and B, that are linked by a disulfide bond. The A-chain 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-chain 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] The protein sequences for A-chain and B-chain are provided in Tables 1 and 2 below.

Material Provided:

Each vial of NR-4671 contains approximately 1 mg of ricin toxoid suspended in buffer. NR-4671 lots 61632757 and 57680183 contained approximately 1 mg of ricin toxoid suspended in 10 mM Tris buffer (pH ~ 8.0). The concentration, expressed as mg per mL, is shown on the Certificate of Analysis.

Packaging/Storage:

NR-4671 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. For long term storage, the contributor recommends -80°C or colder.

Functional Activity:

NR-4671 reacts with polyclonal antiserum to ricin holotoxin as determined by western blot. In addition, NR-4671, lot 57680183, is reported to react specifically with monoclonal antibodies to ricin A- and B-chains (BEI Resources NR-843 and NR-842).

Citation:

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: Ricin Toxoid, Chemically Inactivated from *Ricinus communis*, NR-4671."

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.

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References:

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Support Provided by NIAID

Table 1 – Predicted Mature Protein Sequence, A-Chain

1	IFPKQYPIIN	FTTAGATVQS	YTNFIRAVRG	RLTTGADVRH	EIPVLPNRVG
51	LPINQRFILV	ELSNHAELSV	TLALDVTNAY	VVGYRAGNSA	YFFHPDNQED
101	AEAITHLFTD	VQNRYTFAFG	GNYDRLEQLA	GNLRENIELG	NGPLEEAISA
151	LYYYSTGGTQ	LPTLARSFII	CIQMISEAAR	FQYIEGEMRT	RIRYNRRSAP
201	DPSVITLENS	WGRLSTAIQE	SNQGAFASPI	QLQRRNGSKF	SVYDVSILIP
251	IIALMVYRCA	PPPSSQFSLL	IR		

Table 2 – Predicted Mature Protein Sequence, B-Chain

1	PVVPNFNADV	CMDPEPIVRI	VGRNGLCVDV	RDGRFHNGNA	IQLWPCKSNT
51	DANQLWTLKR	DNTIRSNGKC	LTTYGYSPGV	YVMIYDCNTA	ATDATRWQIW
101	DNGTIINPRS	SLVLAATSGN	SGTTLTVQTN	IYAVSQGWLP	TNNTQPFVTT
151	IVGLYGLCLQ	ANSGQVWIED	CSSEKAEQQW	ALYADGSIRP	QQNRDNCLTS
201	DSNIRETVVK	ILSCGPASSG	QRWMFKNDGT	ILNLYSGLVL	DVRASDPSLK
251	QIILYPLHGD	PNQIWLPLF			

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