Epsilon Toxoid (Chemically Inactivated Epsilon Toxin) from *Clostridium perfringens*

Catalog No. NR-4673

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For research use only. Not for human use.

Contributor and Manufacturer:

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Product Description:

NR-4673 is a preparation of epsilon toxin which was purified from culture supernatants of *Clostridium perfringens* (*C. perfringens*) and inactivated by treatment with 1% formaldehyde. Unreacted formaldehyde was removed by dialysis against PBS. The predicted amino acid sequence has been determined and is presented in Table 1.

Epsilon toxin is produced by strains of *C. perfringens* that inhabit the intestinal tract of sheep and lambs. Intoxication results in enterotoxemia and neurological disorders and is usually fatal in certain livestock. The sequence of the gene for the epsilon toxin precursor protein has been reported (GenBank: M95206 and M80837).[1,2] The structure of epsilon protoxin has been solved (PDB: 1UYJ).[3]

Material Provided:

Each vial of NR-4673 contains approximately 0.1 mg of epsilon toxoid in PBS. The concentration, expressed as mg per mL, is shown on the Certificate of Analysis.

Packaging/Storage:

NR-4673 was packaged aseptically in screw-capped plastic cryovials. The product is provided frozen on dry ice and should be stored at -20°C or colder immediately upon arrival. Repeated freeze-thaw cycles should be avoided. For long-term storage, the contributor recommends -80°C or colder.

Functional Activity:

NR-4673 is reactive with polyclonal immunoglobulin G produced by immunization of rabbits with peptides that correspond to distinct internal regions of the full-length epsilon toxin (BEI Resources NR-865) on western blots.

Citation:

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: Epsilon Toxoid (Chemically Inactivated Epsilon Toxin) from *Clostridium perfringens*, NR-4673."

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/od/ohs/biosfty/bmbl5/bmbl5toc.htm.

Disclaimers:

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References:

1. Hunter, S. E., et al. "Cloning and Nucleotide Sequencing of the *Clostridium perfringens* Epsilon-Toxin Gene and Its Expression in *Escherichia coli*." Infect. Immun. 60 (1992): 102–110. PubMed: 1729175.
2. Havard, H. L., S. E. Hunter, and R. W. Titball. "Comparison of the Nucleotide Sequence and Development of a PCR Test for the Epsilon Toxin Gene of *Clostridium perfringens* Type B and Type D." FEMS

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Microbiol. Lett. 76 (1992): 77–81. PubMed: 1427007.

3. Cole, A. R., et al. "*Clostridium perfringens* Epsilon-Toxin Shows Structural Similarity to the Pore-Forming Toxin Aerolysin." Nat. Struct. Mol. Biol. 11 (2004): 797-798. PubMed: 15258571.

Support Provided by NIAID

Table 1 – Predicted Protein Sequence for Epsilon Toxoid					
1	EISNTVSNEM	SKKASYDNVD	TLIEKGRYNT	KYNYLKRMEK	YYPNAMAYFD
51	KVTINPQGND	FYINNPKVEL	DGEPSMNYLE	DVYVGKALLT	NDTQQEQKLK
101	SQSFTCKNTD	TVTATTTHTV	GTSIQATAKF	TVPFNETGVS	LTTSYSFANT
151	NTNTNSKEIT	HNVPSQDILV	PANTTVEVIA	YLKKVNVKGN	VKLVGQVSGS
201	EWGEIPSYLA	FPRDGYKFSL	SDTVNKSDLN	EDGTININGK	GNYSAVMGDE
251	LIVKVRNLNT	NNVQEYVIPV	DKKEKSNDSN	IVKYRSLYIK	APGIK

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