

Monoclonal Anti-Shiga-like Toxin 1 Subunit B (produced *in vitro*) (Similar to 13C4)

Catalog No. NR-844

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For research use only. Not for human use.

Contributor:

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Manufacturer:

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BEI Resources (Lot 61506759)

Product Description:

Antibody Class: IgG1k

Mouse monoclonal antibody to the B subunit¹ of Shiga-like toxin 1 from *Escherichia coli* (*E. coli*) H30 was purified using protein A (lot 4469046) or protein G (lot 61506759) affinity chromatography from supernatants obtained from a mouse hybridoma clonal cell line (ATCC[®] CRL-1794[™]) that produces monoclonal antibody (MAb) 13C4.¹ The hybridoma cell line was generated by the fusion of SP2/0 myeloma cells with immunized mouse splenocytes.

The term Shiga toxin (Stx) refers to two families of related toxins: Shiga toxin/Shiga-like toxin 1 and Shiga-like toxin 2.^{2,3} Shiga toxin is produced by *Shigella dysenteriae* (*S. dysenteriae*), while Shiga-like toxin 1 and Shiga-like toxin 2 are both produced by enterohemorrhagic strains of *E. coli*. Stx are multimeric molecules that are comprised of two polypeptide subunits, A and B. The Stx B subunit is a pentamer that binds the toxin to glycolipids on host cell membranes and the entire Stx molecule can then enter the cell via endocytosis.⁴ Once inside the cell, the Stx A subunit undergoes proteolytic cleavage and the reduction of an internal disulfide bond to generate Stx A₁ and Stx A₂. Stx A₁ is an N-glycosidase that catalytically inactivates the 28S ribosomal RNA subunit to inhibit protein synthesis.⁵ The nucleotide sequences of the genes for the Shiga-like toxin 1 B subunit from *E. coli* (GenBank: AB035142)⁶ and the Stx B subunit from *S. dysenteriae* (GenBank: M24352)⁷ and have been reported.

Material Provided:

Each vial of lot 4469046 contains approximately 50 µg of NR-844. Sodium azide (0.05%) was added to the preparation of purified monoclonal antibody as a preservative. Each vial of lot 61506759 contains approximately 10 µg of NR-844 in PBS and does not contain preservatives. For both lots, the

concentration, expressed as mg per mL, is shown on the Certificate of Analysis.

Packaging/Storage:

NR-844 was packaged aseptically in cryovials. The product is provided frozen on dry ice and should be stored at -20°C or colder immediately upon arrival. Once thawed, the unused material may be stored at 4°C. Freeze-thaw cycles should be avoided.

Functional Activity:¹

MAb 13C4 is specific to the B subunit of Shiga-like toxin 1 from *E. coli* H30 by standard Western blot analysis. MAb 13C4 binds both the denatured and native protein and immunoprecipitates intact labeled toxin. MAb 13C4 neutralizes the cytotoxicity of purified *E. coli* Shiga-like toxin 1 and *S. dysenteriae* Shiga toxin 1 as well as the Shiga-like toxic activities in crude cell extracts of *Shigella flexneri*, *Vibrio cholerae*, *Vibrio parahaemolyticus* and *Salmonella typhimurium*. MAb 13C4 has been successfully used in a colony blot assay for the detection of bacterial colonies which produce high levels of Shiga-like toxin 1. Applications: ELISA, Western blot, immunoprecipitation, cytotoxicity neutralization assay, colony blot assay.

Citation:

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: Monoclonal Anti-Shiga Toxin 1 Subunit B (produced *in vitro*) (Similar to 13C4), NR-844."

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/bmb15/index.htm.

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