

### Monoclonal Anti-Shiga Toxin 2 Subunit B, Clone 1E8-B2 (immunoglobulin G, mouse)

#### Catalog No. NR-10181

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#### For research use only. Not for human use.

#### Contributor:

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#### Product Description:

Antibody Class: IgG

Mouse monoclonal antibody prepared against the B subunit of Shiga-like toxin 2 from *Escherichia coli* (*E. coli*) was purified from mouse ascites by protein G affinity chromatography.

The term Shiga toxin (Stx) refers to two families of related toxins: Shiga toxin/Shiga-like toxin 1 and Shiga-like toxin 2.<sup>1,2</sup> Shiga toxin is produced by *Shigella 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.<sup>3</sup> Once inside the cell, the Stx A subunit undergoes proteolytic cleavage and the reduction of an internal disulfide bond to generate Stx A<sub>1</sub> and Stx A<sub>2</sub>. Stx A<sub>1</sub> is an N-glycosidase that catalytically inactivates the 28S ribosomal RNA subunit to inhibit protein synthesis.<sup>4</sup> The nucleotide sequences of the genes for the Shiga-like toxin 1 B subunit from *E. coli* (GenBank: AB035142)<sup>5</sup> and the Stx B subunit from *S. dysenteriae* (GenBank: M24352)<sup>6</sup> have been reported.

#### Material Provided:

Each vial contains approximately 50 µg of NR-10181 in PBS. The concentration, expressed as mg per mL, is shown on the Certificate of Analysis.

#### Packaging/Storage:

NR-10181 was packaged aseptically in vials. 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:

NR-10181 is reactive with the recombinant B subunit of Shiga toxin 2 from *E. coli* as shown by ELISA.

#### Citation:

Acknowledgment for publications should read "The following reagent was obtained through the NIH Biodefense and Emerging Infections Research Resources Repository, NIAID, NIH: Monoclonal Anti-Shiga Toxin 2 Subunit B, Clone 1E8-B2, NR-10181."

#### 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, 2007; see [www.cdc.gov/od/ohs/biosfty/bmbl5/bmbl5toc.htm](http://www.cdc.gov/od/ohs/biosfty/bmbl5/bmbl5toc.htm).

#### Disclaimers:

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#### References:

1. Sandvig, K. "Shiga Toxins." Toxicon 39 (2001): 1629–1635. PubMed: 11595626.

2. O'Loughlin, E. V. and R. M. Robins-Browne. "Effect of Shiga Toxin and Shiga-like Toxins on Eukaryotic Cells." Microbes Infect. 3 (2001): 493–507. PubMed: 11377211.
3. Sandvig, K., et al. "Endocytosis from Coated Pits of Shiga Toxin: A Glycolipid-binding Protein from *Shigella dysenteriae* 1." J. Cell Biol. 108 (1989): 1331–1343. PubMed: 2564398.
4. Skinner, L. M. and M. P. Jackson. "Investigation of Ribosome Binding by the Shiga Toxin A1 Subunit, Using Competition and Site-Directed Mutagenesis." J. Bacteriol. 179 (1997): 1368–1374. PubMed: 9023224.
5. Yokoyama, S., et al. "Nucleotide Sequence Analysis of Shiga (-like) Toxins from an Enterohemorrhagic *Escherichia coli* Isolated from Gifu Outbreak." Unpublished. GenBank: AB035142.
6. Kozlov, Yu. V., et al. "The Primary Structure of the Operons Coding for *Shigella dysenteriae* Toxin and Temperature Phage H30 Shiga-like Toxin." Gene 67 (1988): 213–221. PubMed: 3049254. GenBank: M24352.

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