Shiga Toxin Type 2 Subunit B, Recombinant from *Escherichia coli*

Catalog No. NR-49262
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Contributor and Manufacturer:
BEI Resources

Product Description:
The term Shiga toxin (Stx) refers to two families of related toxins: Shiga toxin/Shiga-like toxin 1 and Shiga-like toxin 2. ¹² Shiga toxin is produced by *Shigella dysenteriae*; while Shiga-like toxin 1 and Shiga-like toxin 2 are both produced by enterohemorrhagic strains of *Escherichia 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. ³ 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. ⁴ The nucleotide sequences of the genes for the Shiga-like toxin 1 B subunit from *E. coli* (GenBank: AB035142)⁵ and the Stx B subunit from *S. dysenteriae* (GenBank: M24352)⁶ have been reported.

NR-49262 is a recombinant form of the B subunit of Shiga toxin type 2 (Stx2). The amino acid sequence includes a C-terminal hexa-histidine tag and amino acid residues 20 to 89 of the Stx2 subunit B protein (GenPept: AAD25446).⁷ The recombinant protein was expressed in *Escherichia coli* and purified by nickel affinity chromatography.

NR-49262 has a theoretical molecular weight of approximately 8,640 daltons. The predicted amino acid sequence of NR-49262 is shown below in Table 1.

Material Provided:
Each vial of NR-49262 contains approximately 1 mg of recombinant Stx2 subunit B suspended in phosphate buffered saline (pH 7.4). The concentration, expressed as mg per mL, is shown on the Certificate of Analysis.

Packaging/Storage:
NR-49262 was packaged aseptically in screw-capped plastic cryovials. The product is provided frozen on dry ice and should be stored at -80°C or colder immediately upon arrival. Repeated freeze-thaw cycles should be avoided.

Functional Activity:
NR-49262 reacts with rabbit polyclonal antibody to the recombinant B subunit of Stx2 (BEI Resources NR-9352). The B subunit is not cytotoxic in isolation. See Certificate of Analysis for details.

Citation:
Acknowledgment for publications should read “The following reagent was obtained through BEI Resources, NIAID, NIH: Shiga Toxin Type 2 Subunit B, Recombinant from *Escherichia coli*, NR-49262.”

Biosafety Level: 1

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References:


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Table 1 – Predicted Protein Sequence

| 1 | ADCAKGKIEF SKYNEDDTFT VKVDGKEYWT SRWNLPLLQ SAQLTGMVT | 51 | IKSTCESGS GFAEVQFNND HHHHHH |

Non-shiga toxin residues are underlined.