**Product Information**

**Shiga toxin B subunit, His-tagged recombinant, expressed in *E. coli***

Catalog Number **SML0655**
Storage Temperature –20 °C

**Synonyms:** STxB, STX1, SLT1

**Product Description**

The Shiga toxins are a family of related protein toxins secreted by certain types of bacteria. Shiga toxin (Stx) is produced by *Shigella dysenteriae*; whereas, the Shiga-like toxins, Stx1 and Stx2, with a few known isoforms, are secreted by specific strains of *Escherichia coli* named Shiga-toxin-producing *E. coli* (STEC), such as *E. coli* O157:H7, which causes bloody diarrhea and hemorrhagic colitis in humans, sometimes resulting in fatal systemic complications.¹

Stx1 is identical to Stx, while the Stx2 isoforms share less sequence similarity with Stx (~60%) and are immunologically distinct. In spite of the differences in their amino acid sequence, all Stx isoforms share the same overall toxin structure and mechanism of action.²

Shiga toxins consists of two polypeptides. An A chain³ and a B chain⁴ non-covalently associate with an apparent stoichiometry of one A and five B chains to form the holotoxin.⁴ The catalytic A subunit has RNA N-glycosidase activity that inhibits eukaryotic protein synthesis.¹ The B subunits form a pentamer, which recognizes and binds to the functional cell-surface receptor globotriaosylceramide [Gb3; Galα(1-4)Galβ(1-4)Glcβ1-ceramide].¹ Gb3 is overexpressed in membranes of numerous tumor cells,⁵ therefore STxB binding to Gb3 receptors may be useful for cell-specific vectorization, labeling, and imaging purposes.⁵-⁷

The recombinant product is Shiga toxin B subunit, which contains 69 amino acid residues and a His-tag at the C-terminus. It is lyophilized from 0.2 μm filtered solution of phosphate buffer without any carrier protein.

**Purity:** ≥95% (SDS-PAGE)

**Endotoxin:** ≤0.1 EU/µg protein

Gb3 Binding activity: significant binding above background is achieved with 1 µg/mL of STxB. The activity of STxB is measured by its ability to bind to Gb3, which requires its pentameric form.⁸

**Precautions and Disclaimer**

This product is for R&D use only, not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

**Preparation Instructions**

Reconstitute the contents of the vial using water to a concentration of 0.1–1.0 mg/mL. This solution can then be further diluted into other aqueous buffers and stored at 2–8 °C for up to 4 months or at –20 °C for extended use.

**Storage/Stability**

Prior to reconstitution, the lyophilized protein is best stored at –20 °C. After reconstitution and for extended storage, freeze in working aliquots at –20 °C. Repeated freezing and thawing is not recommended.
References


