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Product Information

Anti-Shiga Toxin 1, B Subunit (STxB) antibody
Mouse monoclonal
Clone 13C4, purified from hybridoma cell culture

Product Number **SAB4200774**

Product Description

Monoclonal Anti-Shiga Toxin 1, B Subunit (mouse IgG1 isotype) is derived from the 13C4 hybridoma, produced by the fusion of mouse myeloma cells and splenocytes from BALB/c mouse immunized with a purified Shiga-like toxin from *E. coli* H30.[1] The isotype is determined by ELISA using Mouse Monoclonal Antibody Isotyping Reagents, Product Number ISO2. The antibody is purified from culture supernatant of hybridoma cells.

Monoclonal Anti-Shiga Toxin 1, B Subunit antibody specifically recognizes the B subunit of Shiga holotoxin. The product may be used in several immunochemical techniques including immunoblotting (~7 kDa), flow cytometry, and immunoprecipitation.[1] The antibody has been demonstrated to neutralize the cytotoxic activity of the Shiga toxin in cells and the lethality of the toxin.[1,2]

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. The latter may cause bloody diarrhea and hemorrhagic colitis in humans, which may lead to fatal systemic complications.[3]

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.[4] Shiga toxins consist of two polypeptides, an A chain[2] and a B chain[3] non-covalently associate with an apparent stoichiometry of one A and five B chains to form the holotoxin.[6] The catalytic A subunit has RNA N-glycosidase activity that inhibits eukaryotic protein synthesis.[3] The B subunits form a pentamer, which recognizes and binds to the functional cell-surface receptor globotriaosylceramide [Gb3, Gala(1-4)-Galb (1-4)-Glcb1-ceramide].[3] Gb3 is overexpressed in membranes of numerous tumor cells,[7-8] therefore STxB binding to Gb3 receptors may be useful for cell-specific vectorization, labeling, and imaging purposes.[7-9]

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide as a preservative.

Antibody Concentration: ~1.0 mg/mL

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.

Storage/Stability

For continuous use, store at 2–8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

Product Profile

Immunoblotting: a working concentration of 1–2 μg/mL is recommended using purified recombinant Shiga Toxin 1-B subunit produced in *E. coli* (using PVDF membrane).

Flow cytometry: a working concentration of 2.5–5 μg/test is recommended using human RAMOS cells pretreated with recombinant Shiga toxin 1, B subunit.

Note: In order to obtain best results in different techniques and preparations, it is recommended to determine optimal working concentration by titration test.

References

1. Strockbine, N.A. et al., *Infect. Immun*., **50**, 695-700 (1985).
2. Smith, M.J. et al., *Infect. Immun.*, **74**, 6992-8 (2006).
3. Jacewicz, M. et al., *J. Exp. Med*., **163**, 1391-404 (1986).
4. Strockbine, N.A. et al., *J. Bacteriol*., **170**, 1116-22 (1988).
5. Seidah, N.G. et al., *J. Biol. Chem*., **261**, 13928-31(1986).
6. Donohue-Rolfe, A. et al., *Mol. Microbiol*., **3**, 1231-6 (1989).
7. Viel, T. et al., *Mol. Imaging*, **7**, 239-47 (2008).
8. Falguières, T. et al., *Mol. Cancer Ther*., **7**, 2498-508 (2008).
9. Engedal, N. et al., *Microb. Biotechnol*., **4**, 32–46 (2011).

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