Staphylococcal Enterotoxin B Toxoid, Chemically Inactivated from *Staphylococcus aureus* subsp. *aureus*

Catalog No. NR-4672

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Contributor:

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Product Description:

Staphylococcal enterotoxin B (SEB) was extracted from a preparation of *Staphylococcus aureus* (*S. aureus*) subsp. *aureus*, strain FDA 243 (ATCC® 14458™)[1] and chemically inactivated with formaldehyde. SEB toxoid is non-toxic.

SEB is one of several exotoxins produced by *S. aureus* subsp. *aureus*. *S. aureus* subsp. *aureus* is a ubiquitous, nonmotile, Gram-positive coccus found on the skin and mucous membranes of humans and animals. The staphylococcal exotoxins are characterized as enterotoxins, because they exert their effect on the intestinal tract when ingested. SEB has a broad spectrum of biological activity, and depending on the portal of entry (e.g., gastrointestinal, respiratory, or mucosal), the toxin will elicit a different clinical syndrome. SEB is the enterotoxin that most commonly causes classic food poisoning. The amino acid sequence of SEB from *S. aureus* subsp. *aureus*, strain COL has been determined (GenPept: AAW37877).[2] The crystal structure of SEB has been solved to 1.48 Å (PDB 3SEB).[3]

Material Provided:

Each vial of NR-4672 contains approximately 1 mg of SEB toxoid in phosphate buffered saline (pH 7.4). The concentration is shown on the Certificate of Analysis.

Packaging/Storage:

NR-4672 was packaged aseptically in plastic cryovials. The product is provided frozen on dry ice and should be stored at -80°C or colder immediately upon arrival, not at -20 as indicated on the label. Repeated freeze-thaw cycles should be avoided.

Functional Activity:

NR-4672 reacts with rabbit polyclonal antibody to SEB using Western blot analysis.

Citation:

Acknowledgment for publications should read "The following reagent was obtained through the NIH Biodefense and Emerging Infections Research Resources Repository, NIAID, NIH: Staphylococcal Enterotoxin B Toxoid, Chemically Inactivated from *Staphylococcus aureus* subsp. *aureus*, NR-4672."

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.

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References:

1. Casman, E. P., M. S. Bergdoll, and J. Robinson. "Designation of Staphylococcal Enterotoxins." J. Bacteriol. 85 (1963): 715–716. PubMed: 14042955.
2. Gill, S. R., et al. "Insights on Evolution of Virulence and Resistance from the Complete Genome Analysis of an Early Methicillin-Resistant *Staphylococcus aureus* Strain and a Biofilm-Producing Methicillin-Resistant

Staphyloccoccus epidermidis Strain." J. Bacteriol. 187 (2005): 2426–2438. PubMed: 15774886. GenPept: AAW37877.

3. Papageorgiou, A. C., H. S. Tanter, and K. R. Acharya. "Crystal Structure of Microbial Superantigen Staphylococcal Enterotoxin B at 1.5 Å Resolution: Implications for Superantigen Recognition by MHC Class II Molecules and T-cell Receptors." J. Mol. Biol. 277 (1998): 61–79. PubMed: 9514739.
4. Nema, V., et al. "Isolation and Characterization of Heat Resistant Enterotoxigenic *Staphylococcus aureus* from a Food Poisoning Outbreak in Indian Subcontinent." Int. J. Food Microbiol. 117 (2007): 29–35. PubMed: 17477998.

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