

Product Information

Staphylococcal Enterotoxin B from *Staphylococcus aureus*

Catalog Number **S4881**
Storage Temperature 2–8 °C

CAS RN 11100-45-1
Synonyms: SEB; Enterotoxin B, Staphylococcal

Product Description

Although enterotoxins are termed enterotoxins, it is a misnomer, since none produce the classic ileal loop response. Nevertheless, all cause emesis and diarrhea in man and higher primates. The enterotoxins have also been shown to be powerful mitogens and are able to induce DNA and interferon synthesis in lymphocytes. All of the enterotoxins are secreted products.¹

A general review and preparation of Staphylococcal enterotoxins has been published.¹ SEB is a superantigen which induces apoptosis in T cells.^{2,3} The effects of SEB on immunoglobulin synthesis and CD23 expression in patients with dermatitis has been studied.⁴

The biological activity of SEB is not destroyed by the action of trypsin, chymotrypsin, rennin, or papain. However, it was destroyed by ficin. Pepsin destroyed the activity at pH ~2, but was ineffective at higher pH values.⁵

Staphylococcal enterotoxin B (SEB) is a single polypeptide chain containing 239 amino acids.⁶ The molecular mass is 28,366 Da (corrected calculated value based on an amino acid sequence analysis).^{6,7}

pI:⁵ 8.6

Extinction Coefficient:⁵ $E^{1\%} = 14$ (277 nm)

This product contains ~25% protein with the balance as sodium phosphate buffer salts. It is essentially free of Staphylococcal enterotoxin A (SEA).

Precautions and Disclaimer

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

Preparation Instructions

SEB is soluble in water and salt solutions.⁵

Storage/Stability

The freeze-dried toxin stored at 4 °C for over 1 year showed no loss in biological activity or changes in its solubility in water. When it was stored at room temperature for this length of time, some insolubility and loss in biological activity was observed.⁵

At room temperature (22–25 °C) the toxin in 0.05 M phosphate buffer, pH 4–7.3, was stable for a week or more. Over a longer time, some insoluble material formed with loss in biological activity. Even at pH 10, no detectable loss in biological activity was observed for several days. At 60 °C, pH 7.3, biological activity was retained for up to 16 hours. At 100 °C for 5 minutes, less than 50% of the biological activity was destroyed although the toxin was coagulated at this temperature.⁵

References

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EM,HLD,RXR,MAM 06/12-1