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Product Information

Trypsin-chymotrypsin inhibitor from *Glycine max* (soybean)

Product Number **T9777**

Storage Temperature 2-8 °C

Product Description

CAS Number: 37330-34-0

MW: 7.9 kDa¹

pI: 4.0-4.3^{2,3}

Extinction coefficient: $E^{1\%} = 4.4^1$

This product is a monomeric protein consisting of a single polypeptide chain cross-linked by 7 disulfide bridges. The protein consists of a trypsin-inhibitory region, cys⁸ through cys²⁴ plus cys⁵⁸ through cys⁶² and a chymotrypsin-inhibitory region cys³² through cys⁵¹.⁴ These regions are linked to each other by two polypeptide bridges of 7 and 6 residues (ser²⁵-ser³¹ and val⁵²-phe⁵⁷), respectively. Each reactive site (lys¹⁶-ser¹⁷ in trypsin and leu⁴³-ser⁴⁴ in chymotrypsin) abides in a nonapeptide loop formed by a single disulfide bridge. The inhibitor forms a 1:1 complex with either trypsin or chymotrypsin and forms a ternary complex with both enzymes.² The inhibition of trypsin and chymotrypsin is noncompetitive. The K_i for trypsin (using casein as a substrate) is 5.6×10^7 and the K_i for α -chymotrypsin (using casein as a substrate) is 5.0×10^7 .^{5,6} This inhibitor blocks both proteolytic and esterase activities of trypsin and chymotrypsin when assayed with casein or BAEE and ATEE, respectively. The inhibitor-trypsin complex inhibits chymotrypsin (using casein or ATEE as a substrate). The inhibitor-chymotrypsin complex inhibits trypsin (with BAEE, but not with the casein assay).

This product is isolated from crude trypsin inhibitor (Product No. T 9128) by ion-exchange chromatography. Prior to lyophilization, the solution contains 2 mM potassium phosphate.

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This product is soluble in water (1 mg/ml).

Storage/Stability

A 0.02% aqueous solution of this inhibitor is stable for 10 minutes at 100 °C. No loss of activity is observed.^{7,8} This inhibitor is also stable to acid (pH 1.5, 2 hours, 37 °C) and to peptic digestion. Reduction with 2-mercaptoethanol in the presence of urea inactivates this inhibitor, and the activity cannot be recovered upon reoxidation.

References

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4. Birk, Y., Trypsin and Chymotrypsin Inhibitors from Soybeans. Meth. Enzymol., **XLV-B**, 700-707 (1976).
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