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TECHNICAL INFORMATION

Catalog Number: 101113
Trypsin Inhibitor

Molecular Weight: 21,500 ± 800 (Wu and Scheraga 1972a).
CAS #: 9035-81-8
Source: *Soybean*
Physical Description: Cream to pinkish brown powder
Recommended Storage: -20ºC
Optimum pH: 7.0
Isoelectric point: 4.5 (Kunitz 1947).
Activity: Not less than 10,000 BAEE units of inhibition/mg material
Unit Definition: One unit will inhibit one unit of Trypsin activity (BAEE).
Form: Chromatographically prepared, lyophilized, salt free.
Solubility: Dissolves readily at 5 mg/ml in 0.067 M potassium phosphate pH 7.6 to give a clear colorless solution. Dissociates at low pH. Stock solutions in buffers are stable for approximately 3 to 4 months if aliquoted and stored at -20°C.
Description: A reversible serine protease inhibitor. Inhibits factor Xa, trypsin, chymotrypsin, kallikrein and plasmin. Soybean trypsin inhibitor (SBTI) first crystallized by Kunitz (1945) is one of several such inhibitors found in soybeans. (Fratalli 1969; Millar, et. al. 1969); Fratalli and Steiner 1968); Birk, et. al. 1967). The best known preparation is that of Kunitz. Steiner and Fratalli (1969) have reviewed the Kunitz and Bowman-Birk inhibitors. A protein (or polypeptide) proteinase inhibitor probably has peptide bonds compatible with the protease reactive site. Finkenstadt and Laskowski (1965 and 1967) and Ozawa and Laskowski (1966) indicate that a single Arg-Ile bond is cleaved by trypsin; a covalent bimolecular complex of inhibitor and trypsin results. On dissociation either virginal or modified inhibitor appears; see Hixson and Laskowski (1970a), Isheda, et. al. (1970) and Niekamp, et. al. (1969).
Composition: The Kunitz soybean inhibitor consists of a single polypeptide chain crosslinked by two disulfide bridges (Steiner 1965). Structural studies of the inhibitor and active site have been reported, Ellis, et. al. (1975), Woodward and Ellis (1975), Koide, et. al. (1974), Koide and Ikenaka (1973), Bidlingmeyer, et. al. (1972), Hixson and Laskowski (1970b), Kato and Tominager (1970), and Wu and Scherage (1962b). Donovan and Beardslee (1975) have reported on the thermal denaturation of inhibitor complexes.
Specificity: Soybean inhibitor inhibits trypsin mole-for-mole and to a lesser extent chymotrypsin. (Bidlingmeyer, et. al. 1972). Lanchantin, et. al. (1969) report soybean inhibitor to form a one-to-one complex with beef or human thrombin thus blocking its specific proteolytic capacity to activate prothrombin. Nanninga and Guest (1964) report plasmin to be inhibited. STI has been reported to inhibit leukocytic proteases. (Lieberman and Gawad (1971), but not the esterolytic, proteolytic, or elastolytic activities of porcine elastase (Gertler and Feinstein 1971).
Click Here for a list of other protease inhibitors offered by MP Biomedicals and general protease inhibitor information.
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