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Product Data Sheet

Cat # RP-1532 **Aprotinin** **Size: 100 mg**

Aprotinin is a natural proteinase inhibitor polypeptide consisting of fifty-eight amino acids {C 284 H 432 N 84 O 79 S 7} arranged in a single polypeptide chain, cross-linked by three disulfide bridges and having a molecular mass of 6512. Aprotinin inhibits the activity of several proteolytic enzymes such as chymotrypsin, kallikrein, plasmin and trypsin. Aprotinin is present in blood and in most tissues, with a high concentration in lung. Aprotinin inhibits pro-inflammatory cytokine release and maintains glycoprotein homeostasis. In platelets, aprotinin reduces glycoprotein loss (e.g., GpIb, GpIIb/IIIa), while in granulocytes it prevents the expression of pro-inflammatory adhesive glycoproteins (e.g., CD11b).

Aprotinin is a monomeric (single-chain) globular polypeptide derived from bovine lung tissue. It has a molecular weight of 6512 and consists of 16 different amino acid types arranged in a chain 58 residues long[3][4] that folds into a stable, compact tertiary structure of the 'small SS-rich" type, containing 3 disulfides, a twisted β-hairpin and a C-terminal α-helix. Aprotinin inhibits several serine proteases, specifically trypsin, chymotrypsin and plasmin at a concentration of about 125,000 IU/ml, and kallikrein at 300,000 IU/ml.[4] Its action on kallikrein leads to the inhibition of the formation of factor XIIa. As a result, both the intrinsic pathway of coagulation and fibrinolysis are inhibited. Its action on plasmin independently slows fibrinolysis.

The drug aprotinin (Trasylol, Bayer), is the bovine version of the small protein basic pancreatic trypsin inhibitor, or BPTI, which inhibits trypsin and related proteolytic enzymes. Under the trade name Trasylol, aprotinin was used as a medication administered by injection to reduce bleeding during complex surgery, such as heart and liver surgery. Its main effect is the slowing down of fibrinolysis, the process that leads to the breakdown of blood clots. The aim in its use was to decrease the need for blood transfusions during surgery, as well as end-organ damage due to hypotension (low blood pressure) as a result of marked blood loss.

Synonyms:
Pancreatic trypsin inhibitor, Basic protease inhibitor, BPI, BPTI, Aprotinin, AP.

Source and Form

Purified from Bovine Lung (>98%). Supplied as White lyophilized (freeze-dried) powder. The protein was lyophilized with no additives. If supplied in powder then reconstitute it in 100 ul water for 1 mg/ml stock and store in liquid at 4ºC for ~1 week or aliquots in suitable size and store at -20ºC for long term storage.

Lyophilized AP although stable at room temperature for 3 weeks, should be stored desiccated below -18℃. Upon reconstitution AP should be stored at 4℃ between 2-7 days and for future use below -18℃. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Activity: 6 MIU/mg.

Laboratory Usage:

In cell biology aprotinin is used as an enzyme inhibitor to prevent protein degradation during lysis or homogenization of cells and tissues.

References: Kassel B 91965) BBRC 18, 255-258; Huber R (1970) Creighton TE (1987) J. Mol. Biol. 194, 11-22; Anderer FA (1966) JBC 241, 1568-1572;

This item is for LABORATORY ESEARCH USE ONLY.

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