

APROTININ from bovine lung

Cat.NO. : A8260

Storage : 2-8°C

SOLUBILITY

Aprotinin is freely soluble in water (>10 mg/mL) and in aqueous buffers of low ionic strengths. Dilute solutions are generally less stable than concentrated ones. Solution stability also depends on pH; values of 1-12 can be tolerated. Repeated freeze-thaw cycles should be avoided. The Cys¹⁴-Cys³⁸ disulfide bridge is readily split by reducing agents like β-mercaptoethanol. Due to its compact tertiary structure, aprotinin is relatively stable against denaturation due to high temperature, acids, alkalis, organic solvents or proteolytic degradation (only thermolysin has been found capable of degrading aprotinin after heating to 60-80 °C). The high basicity of aprotinin causes it to adhere to commonly used dialysis tubing and even gel filtration matrices, but the use of acetylated materials and concentrated salt solutions (e.g. >0.1 M NaCl in buffer) minimizes the problem. Sterilization may be achieved by filtration through a 0.2 μm filter.

SOLVENT	CONCENTRATION	STORAGE TEMP.	% LOSS/TIME
Sterile water with 0.9% NaCl and 0.9% benzyl alcohol, pH 5.7-6.2	10 mg/mL	0-5 °C	<4.3%/year
2.5% Trichloroacetic acid	N/A	80 °C	No loss
pH <12.6	N/A	N/A	No loss observed after 24 hrs.
pH >12	N/A	N/A	Irreversibly denatured
pH 7-8	0.065-1.95 μg/mL	4 °C	About 1 week
pH 7-8	0.065-1.95 μg/mL	-20 °C	>6 months

USAGE

Aprotinin is a competitive serine protease inhibitor which forms stable complexes with and blocks the active sites of enzymes. The binding is reversible, and most aprotinin-protease complexes dissociate at pH >10 or <3.

ENZYME - SOURCE - CONDITION INHIBITION	(K _i = Dissociation Constant)
Acrosin	Weak inhibition
Chymotrypsin	K _i = 9 nM
Chymotrypsinogen (bovine), pH 8.0	K _i = 9 nM
CMP-N-Acetylneuraminat lactosylceramide α-2,3-sialyltransferase	74% Inhibition at 300 nM
Elastase (human leukocytes), pH 8.0	K _i = 3.5 μM
Kallikrein (pancreatic), pH 8.0	K _i = 1.0 nM
Kallikrein (plasma)	K _i = 30 nM; 100 nM
Kallikrein (tissue)	K _i = 1 nM
Kallikrein (urine)	K _i = 1.7 nM
Plasmin (porcine), pH 7.8	K _i = 4.0 nM
Plasminogen activator	K _i = 8 μM; 27 μM
Trypsin (bovine), pH 8.0	K _i = 0.06 pM
Trypsinogen (bovine), pH 8.0	K _i = 1.8 μM
Tryptase TL-2	16% Inhibition at 10 μM
Urokinase (human), pH 8.8	K _i = 8.0 μM