



Product Information

α_1 -Antichymotrypsin from human plasma

Product Number **A 9285**
Storage Temperature -0 °C

Product Description

CAS Number: 141176-92-3
Molecular weight: 68 kDa (chymotrypsin binding)¹;
65 kDa (sedimentation equilibrium)²
pI: 3.75-4.0¹
Extinction coefficient: $E^{1\%} = 6.2$ (280 nm)²
Synonym: α -1-Achy

This is a single-chain glycoprotein with a carbohydrate content of 26.8%. It has only one disulfide bond.¹

A comparison of the amino acid sequences among α_1 -antichymotrypsin, α_1 -antitrypsin, and antithrombin III has been reported.³

This compound is a specific inhibitor of chymotrypsin-like proteinases. It forms stable complexes with pancreatic chymotrypsin, leukocyte cathepsin G, and mast cell chymotrypsin. No inhibition of pancreatic trypsin or leukocyte elastase could be demonstrated.⁴ The rate at which it forms complexes is by far the fastest with cathepsin G and at least 1000 times slower with bovine and human chymotrypsin.⁵

Purified α -1-Achy loses its inhibitory activity above 50 °C as well as below pH 5.5. Inactivation also occurs above pH 10.5. Oxidizing agents do not affect its inhibitory activity.⁶

Precautions and Disclaimer

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

Storage/Stability

The protein is labile in an acidic solution (pH 5) and at higher temperatures (30 minutes at 56 °C).¹

Dilute solutions at low concentrations and at pH 8.0 were stable for 1 month at 4 °C. Frozen preparations were stable indefinitely. It was noted that when the protein was concentrated above 3 mg/ml, precipitation occurred.²

References

1. Schwick, H.G., and Haupt, H., Purified human plasma proteins of unknown function (proceedings of a conference held Nov. 23-25, 1980). The Center (Boston, MA: 1980), pp. 135-136.
2. Travis, J., et al., Human alpha-1-antichymotrypsin: purification and properties. *Biochemistry*, **17**, 5647-5651 (1978).
3. Chandra, T., et al., Sequence homology between human alpha 1-antichymotrypsin, alpha 1-antitrypsin, and antithrombin III. *Biochemistry*, **22**, 5055-5061 (1983).
4. Travis, J., et al., Human alpha-1-antichymotrypsin: interaction with chymotrypsin-like proteinases. *Biochemistry*, **17**, 5651-5656 (1978).
5. Travis, J., and Salvesen, G.S., Human plasma proteinase inhibitors. *Annu. Rev. Biochem.*, **52**, 655-709 (1983).
6. Travis, J., and Mitsuyoshi, M., Human α_1 -antichymotrypsin. *Meth. Enzymol.*, **80**, 765-771 (1981).

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