3050 Spruce Street, St. Louis, MO 63103 USA
Tel: (800) 521-8956 (314) 771-5765 Fax: (800) 325-5052 (314) 771-5757
email: techservice@sial.com sigma-aldrich.com

Product Information

Antithrombin III human
recombinant, expressed in HEK 293 cells
carrier-free

Catalog Number **SAE0102**
Storage Temperature –20 °C

CAS RN 90170-80-2
Synonyms: ATIII, AT-III, AT3, Serpin-C1, SERPINC1

Product Description

Antithrombin III (AT-III) is a serine protease inhibitor (serpin) glycoprotein, which inactivates several components in the coagulation system,[1] mainly thrombin and factor Xa.[2] AT-III's inhibitory activity is potentiated and increased by the polysaccharide heparin.[3] In addition to abolishing coagulation, AT-III has also been found to suppress proinflammatory mediators, in part by its anticoagulation action.[4] Several publications have investigated the crystal structures of human AT-III.[5,6]

This recombinant human AT-III product can be used to study the mode of action of AT-III and potential inhibitors of AT-III. It may also be used as a standard, e.g. in antithrombin activity assays, and/or in *in vivo* studies. The inhibitory activity of recombinant human AT-III is comparable to that of plasma-derived native AT-III (Catalog Number A2221) under the described conditions.

This recombinant human AT-III is expressed in human HEK 293 cells as a glycoprotein with a calculated molecular mass of 49 kDa (amino acids 33-464). This protein is manufactured in human cells, with no serum. The human cells expression system allows human-like glycosylation and folding, and often supports higher specific activity of the protein. This protein is produced with no artificial tags.

This product is supplied as a powder, lyophilized from a 0.22 μm-filtered solution of PBS, pH 7.4.

The activity of recombinant human AT-III is measured by its ability to inhibit thrombin's activity in the presence of heparin. The IC_{50} is defined as the effective concentration of AT-III that inhibits 50% of thrombin's activity.

Inhibitory activity: IC_{50} ≤5 nM AT-III

Purity: ≥95% (SDS-PAGE)

Endotoxin: ≤1.0 EU/μg AT-III (LAL)

UniProt: P01008

Precautions and Disclaimer

For R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

Briefly centrifuge the vial before opening. Reconstitute in water to a concentration of 0.1 mg/mL. Do not vortex. This solution can be stored at 2–8 °C for up to 1 week. For extended storage, it is recommended to store in working aliquots at –20 °C.

Storage/Stability

Store the lyophilized product at –20 °C. The product is stable for at least 2 years as supplied.

References

1. Ogata, M. *et al*., *BMC Biotechnol*., **9**, 54 (2009).
2. Rosenberg, R.D., *Am. J. Med*., **87(3B)**, 2S-9S (1989).
3. Horie, S. *et al*., *Thromb. Res*., **59(6)**, 895-904 (1990).
4. Levy, J.H. *et al*., *Thromb. Haemost*., **115(4)**, 712-728 (2016).
5. Schruder, H. *et al*., *J. Mol. Biol*., **229(1)**, 249-250 (1993).
6. Johnson, D.J.D. *et al*., *J. Biol. Chem*., **281(46)**, 35478-35486 (2006).

NA,GCY,MAM 04/19-1