



## BACKGROUND

Cumulative damage to lung tissue by neutrophil elastase is responsible for the development of pulmonary emphysema, an irreversible lung disease characterized by loss of lung elasticity.  $\alpha$ 1-antitrypsin (AAT), a 394 amino-acid hepatic acute phase protein, predominantly inhibits neutrophil elastase. AAT is highly expressed in liver and in cultured hepatoma cells and, to a lesser extent, in macrophages. AAT is a highly polymorphic glycosylated serum protein with characteristic isoelectric-focusing patterns for most variants. AAT maps to a region of human chromosome 14q32.1 that includes a related serine protease inhibitor (serpin) gene which encodes corticosteroid-binding globulin. Oxidation of the Methionine 358 residue located at the active center of AAT results in a dramatic decrease in inhibitory activity towards elastase which effectively inactivates the protective function. AAT also has a moderate affinity for plasmin and Thrombin. AAT deficiency associates with a 20-30 fold increased risk of precocious pulmonary emphysema.

## REFERENCES

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## CHROMOSOMAL LOCATION

Genetic locus: SERPINA1 (human) mapping to 14q32.13.

## SOURCE

AAT (704) is a mouse monoclonal antibody raised against full length purified AAT of human origin.

## STORAGE

Store at 4° C, \*\*DO NOT FREEZE\*\*. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## PRODUCT

Each vial contains 100  $\mu$ g IgG<sub>1</sub> in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

AAT (704) is recommended for detection of  $\alpha$ 1-antitrypsin (AAT) of human and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1–2  $\mu$ g per 100–500  $\mu$ g of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); non cross-reactive with  $\alpha$ 1-antichymotrypsin.

Suitable for use as control antibody for AAT siRNA (h): sc-40945.

Molecular Weight of luminal AAT: 51 kDa.

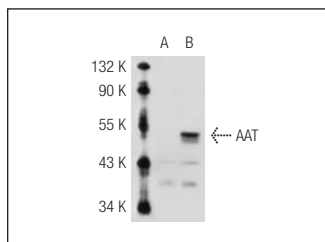
Molecular Weight of mature AAT: 55 kDa.

Positive Controls: human liver tissue extract or AAT (h): 293 Lysate: sc-112989.

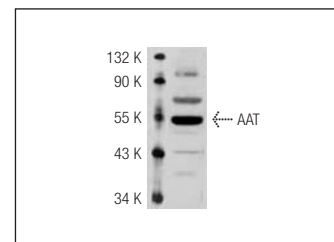
## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-mouse IgG-HRP: sc-2005 (dilution range: 1:2000-1:32,000) or Cruz Marker™ compatible goat anti-mouse IgG-HRP: sc-2031 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

## DATA



AAT (704): sc-59436. Western blot analysis of AAT expression in non-transfected: sc-117752 (A) and human AAT transfected: sc-112989 (B) 293T whole cell lysates.



AAT (704): sc-59436. Western blot analysis of AAT expression in rat liver tissue extract.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.