

AAT (G-17): sc-14586

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. α 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 14q32.13 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

1. Okayama, H., et al. 1991. Characterization of the molecular basis of the α 1-antitrypsin F allele. *Am. J. Hum. Genet.* 48: 1154-1158.
2. Seyama, K., et al. 1991. Siiyama (Serine 53 (TCC) to phenylalanine 53 (TTC)). A new α 1-anti-trypsin-deficient variant with mutation on a predicted conserved residue of the serpin backbone. *J. Biol. Chem.* 266: 12627-12632.
3. Rosenberg, S., et al. 1994. Synthesis in yeast of a functional oxidation-resistant mutant of human α -antitrypsin. *Nature* 312: 77-80.

CHROMOSOMAL LOCATION

Genetic locus: SERPINA1 (human) mapping to 14q32.13; Serpina1 (mouse) mapping to 12 E.

SOURCE

AAT (G-17) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of AAT of human origin.

PRODUCT

Each vial contains 100 μ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-14586 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.

APPLICATIONS

AAT (G-17) is recommended for detection of AAT of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

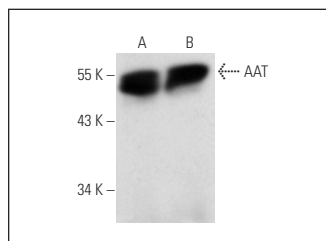
Suitable for use as control antibody for AAT siRNA (h): sc-40945, AAT siRNA (m): sc-40946, AAT shRNA Plasmid (h): sc-40945-SH, AAT shRNA Plasmid (m): sc-40946-SH, AAT shRNA (h) Lentiviral Particles: sc-40945-V and AAT shRNA (m) Lentiviral Particles: sc-40946-V.

Molecular Weight of luminal AAT: 51 kDa.

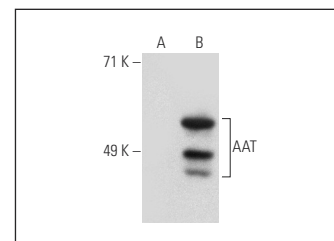
Molecular Weight of mature AAT: 55 kDa.

Positive Controls: rat liver extract: sc-2395, mouse lung extract: sc-2390 or AAT (h): 293 Lysate: sc-112989.

DATA



AAT (G-17): sc-14586. Western blot analysis of AAT expression in rat liver (A) and mouse lung (B) tissue extracts.



AAT (G-17): sc-14586. Western blot analysis of AAT expression in non-transfected: sc-110760 (A) and human AAT transfected: sc-112989 (B) 293 whole cell lysates.

SELECT PRODUCT CITATIONS

1. Li, W., et al. 2006. Down-regulation of trypsinogen expression is associated with growth retardation in α 1,6-fucosyltransferase-deficient mice: attenuation of proteinase-activated receptor 2 activity. *Glycobiology* 16: 1007-1019.
2. Rivera, J., et al. 2007. Proteomics-based strategy to delineate the molecular mechanisms of the metastasis suppressor gene BRMS1. *J. Proteome Res.* 6: 4006-4018.
3. Melander, O., et al. 2015. New circulating biomarkers for predicting cardiovascular death in healthy population. *J. Cell. Mol. Med.* 19: 2489-2499.

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Try **AAT (H-7): sc-166018** or **AAT (9): sc-130299**, our highly recommended monoclonal alternatives to AAT (G-17).