



# AAT (H-12): sc-31918

## 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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8. Zhang, B., Lu, Y., Campbell-Thompson, M., Spencer, T., Wasserfall, C., Atkinson, M. and Song, S. 2007.  $\alpha$  1-antitrypsin protects  $\beta$  cells from apoptosis. *Diabetes* 56: 1316-1323.

## STORAGE

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

## CHROMOSOMAL LOCATION

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

## SOURCE

AAT (H-12) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of AAT of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-31918 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

AAT (H-12) is recommended for detection of precursor and mature AAT of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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.

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 donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (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) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## 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.