**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. α1-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. The gene encoding AAT maps to a region of human chromosome 14 that includes a related serine protease inhibitor (serpin) gene which encodes corticosteroid-binding globulin. Oxidation of the methionine 358 residue in the active center of AAT results in a dramatic decrease in inhibitory activity towards elastase. AAT also has a moderate affinity for plasmin and Thrombin. AAT deficiency is associated with a 20-30 fold increased risk of precocious pulmonary emphysema.

**REFERENCES**


**CHROMOSOMAL LOCATION**

Genetic locus: SERPINA1 (human) mapping to 14q32.13; Serpina1e (mouse) mapping to 12 E.

**SOURCE**

AAT (48D2) is a mouse monoclonal antibody raised against purified AAT of human origin.

**PRODUCT**

Each vial contains IgG 1 in 100 µl of PBS with <0.1% sodium azide and 0.1% gelatin.

**APPLICATIONS**

AAT (48D2) is recommended for detection of AAT of mouse, rat and human origin by Western Blotting (starting dilution to be determined by researcher, dilution range 1:100-1:5000) and immunoprecipitation [1-2 µl per 100-500 µg of total protein (1 ml of cell lysate)]. 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:** Hep G2 cell lysate: sc-2227, human liver extract: sc-383768 or AAT (h): 293 Lysate: sc-121428.

**DATA**

- Western blot analysis of AAT (48D2): sc-69752. Western blot analysis of AAT expression in Hep G2 whole cell lysate (A) and human liver tissue extract (B).
- Western blot analysis of AAT (48D2): sc-69752. Western blot analysis of AAT expression in non-transfected: sc-112762 (A) and human AAT transfected sc-112989 (B) 293 whole cell lysates.

**SELECT PRODUCT CITATIONS**


**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.