SANTA CRUZ BIOTECHNOLOGY, INC.

AAT (H-7): sc-166018

BACKGROUND

Cumulative damage to lung tissue by neutrophil elastase is responsible for the development of pulmonary emphysema, an irreversible lung disease character ized by loss of lung elasticity. α1-antitrypsin (AAT), a 394 amino-acid hepatic acute phase protein, predominatly inhibits Neutrophil Elastase. AAT is highly expressed in liver and in cultured hepatoma cells and, to a lesser extent, in macrophages. ATT 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.

CHROMOSOMAL LOCATION

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

SOURCE

AAT (H-7) is a mouse monoclonal antibody raised against amino acids 216-418 mapping at the C-terminus of AAT of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

AAT (H-7) is available conjugated to agarose (sc-166018 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-166018 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166018 PE), fluorescein (sc-166018 FITC), Alexa Fluor® 488 (sc-166018 AF488), Alexa Fluor® 546 (sc-166018 AF546), Alexa Fluor® 594 (sc-166018 AF594) or Alexa Fluor® 647 (sc-166018 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-166018 AF680) or Alexa Fluor® 790 (sc-166018 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

AAT (H-7) is recommended for detection of AAT of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg 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.

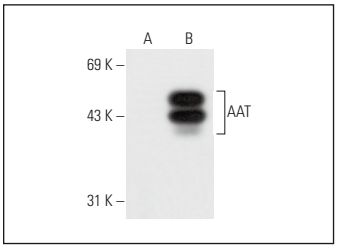
Molecular Weight of mature AAT: 55 kDa.

Positive Controls: AAT (h): 293 Lysate: sc-112989.

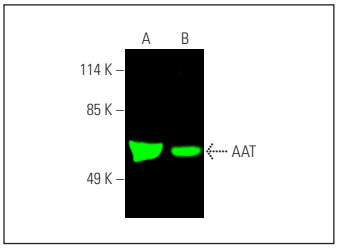
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



AAT (H-7): sc-166018. Western blot analysis of AAT expression in non-transfected: sc-110760 (**A**) and human AAT transfected: sc-112989 (**B**) 293 whole cell lysates.



AAT (H-7): sc-166018. Near-infrared western blot analysis of AAT expression in human plasma (**A**) and mouse lung (**B**) tissue extracts. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 680: sc-516180.

SELECT PRODUCT CITATIONS

1. Pan, J., et al. 2018. The endoplasmic reticulum co-chaperone ERdj3/DNAJB11 promotes hepatocellular carcinoma progression through suppressing AATZ degradation. Future Oncol. 14: 3001-3013.
2. Pettinato, G., et al. 2019. Generation of fully functional hepatocyte-like organoids from human induced pluripotent stem cells mixed with endothelial cells. Sci. Rep. 9: 8920.
3. Jiang, Z., et al. 2024. Liver bioprinting within a novel support medium with functionalized spheroids, hepatic vein structures, and enhanced post-transplantation vascularization. Biomaterials 311: 122681.

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 for detailed protocols and support products.