

AACT (1.B.734): sc-69983

BACKGROUND

The serine proteinase inhibitors (serpins) are a superfamily of proteins with a diverse set of functions, including the control of blood coagulation, complement activation, programmed cell death and development. The most abundant serpins in human plasma are α 1-antitrypsin (AAT) and α 1-antichymotrypsin (AACT). AACT (also called A1AC and SERPINA3) is a plasma protease inhibitor synthesized in the liver as a single glycopeptide chain. In human, the normal serum level of AACT is about one-tenth that of AAT, with which it shares nucleic acid and protein sequence homology. Both are major acute phase reactants; their concentrations in plasma increase in response to trauma, surgery and infection. Elevated levels of AACT are widely, but not universally, reported in the cerebrospinal fluid and plasma of AD patients. Prostate-specific antigen (PSA) and its SDS-stable complex with AACT are in widespread use as markers for the diagnosis of prostate cancer. AACT deficiency may also be a possible cause of chronic liver disease.

REFERENCES

- Miyake, H., et al. 2001. Value of prostate specific antigen α 1-antichymotrypsin complex for the detection of prostate cancer in patients with a PSA level of 4.1-10.0 ng/mL: comparison with PSA-related parameters. *Int. J. Urol.* 8: 589-593.
- Kalsheker, N., et al. 2002. Gene regulation of the serine proteinase inhibitors α 1-antitrypsin and α 1-antichymotrypsin. *Biochem. Soc. Trans.* 30: 93-98.
- Yoon, D., et al. 2002. Role of α 1-antichymotrypsin deficiency in promoting cirrhosis in two siblings with heterozygous α 1-antitrypsin deficiency phenotype SZ. *Gut* 50: 730-732.
- Wang, X., et al. 2002. Distribution of plasma α 1-antichymotrypsin levels in Alzheimer disease patients and controls and their genetic controls. *Neurobiol. Aging* 23: 377-382.
- Hsieh, M.C., et al. 2002. Inhibition of prostate-specific antigen (PSA) by α 1-antichymotrypsin: salt-dependent activation mediated by a conformational change. *Biochemistry* 41: 2990-2997.
- Online Mendelian Inheritance in Man, OMIM[™]. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 107280. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
- Schram, M.T., et al. 2007. Systemic markers of inflammation and cognitive decline in old age. *J. Am. Geriatr. Soc.* 55: 708-716.
- Baker, C., et al. 2007. SERPINA3 (aka α 1-antichymotrypsin). *Front. Biosci.* 12: 2821-2835.
- Hollander, C., et al. 2007. Plasma levels of α 1-antichymotrypsin and secretory leukocyte proteinase inhibitor in healthy and chronic obstructive pulmonary disease (COPD) subjects with and without severe α 1-antitrypsin deficiency. *BMC Pulm. Med.* 7: 1.

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: SERPINA3 (human) mapping to 14q32.13.

SOURCE

AACT (1.B.734) is a mouse monoclonal antibody raised against full length native AACT from serum of human origin.

PRODUCT

Each vial contains 100 μ g IgG₁ in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

AACT (1.B.734) is recommended for detection of AACT of 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)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); non cross-reactive with AAT.

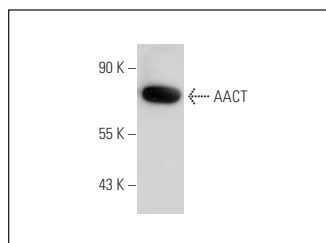
Suitable for use as control antibody for AACT siRNA (h): sc-40944, AACT shRNA Plasmid (h): sc-40944-SH and AACT shRNA (h) Lentiviral Particles: sc-40944-V.

Molecular Weight (predicted) of AACT: 48 kDa.

Molecular Weight (observed) of AACT: 65-76 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, T98G cell lysate: sc-2294 or SK-N-SH cell lysate: sc-2410.

DATA



AACT (1.B.734): sc-69983. Western blot analysis of AACT expression in HeLa whole cell lysate.

SELECT PRODUCT CITATIONS

- Zhao, K.W., et al. 2015. Fibroblastic synoviocytes secrete plasma proteins via α ₂-macroglobulins serving as intracellular and extracellular chaperones. *J. Cell. Biochem.* 116: 2563-2576.

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.