



# AACT (h2): 293 Lysate: sc-113631

## 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  $\alpha$ 1-antitrypsin (AAT) and  $\alpha$ 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

1. Miyake, H., et al. 2001. Value of prostate specific antigen  $\alpha$ 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.
2. Kalsheker, N., et al. 2002. Gene regulation of the serine proteinase inhibitors  $\alpha$ 1-antitrypsin and  $\alpha$ 1-antichymotrypsin. *Biochem. Soc. Trans.* 30: 93-98.
3. Yoon, D., et al. 2002. Role of  $\alpha$ 1-antichymotrypsin deficiency in promoting cirrhosis in two siblings with heterozygous  $\alpha$ 1-antitrypsin deficiency phenotype SZ. *Gut* 50: 730-732.
4. Wang, X., et al. 2002. Distribution of plasma  $\alpha$ 1-antichymotrypsin levels in Alzheimer disease patients and controls and their genetic controls. *Neurobiol. Aging* 23: 377-382.
5. Hsieh, M.C., et al. 2002. Inhibition of prostate-specific antigen (PSA) by  $\alpha$ 1-antichymotrypsin: salt-dependent activation mediated by a conformational change. *Biochem.* 41: 2990-2997.
6. 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/>
7. Schram, M.T., et al. 2007. Systemic markers of inflammation and cognitive decline in old age. *J. Am. Geriatr. Soc.* 55: 708-716.
8. Baker, C., et al. 2007. SERPINA3 (aka  $\alpha$ 1-antichymotrypsin). *Front. Biosci.* 12: 2821-2835.
9. Hollander, C., et al. 2007. Plasma levels of  $\alpha$ 1-antichymotrypsin and secretory leukocyte proteinase inhibitor in healthy and chronic obstructive pulmonary disease (COPD) subjects with and without severe  $\alpha$ 1-antitrypsin deficiency. *BMC Pulm Med.* 7: 1.

## CHROMOSOMAL LOCATION

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

## RESEARCH USE

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

## PRODUCT

AACT (h2): 293 Lysate represents a lysate of human AACT transfected 293 cells and is provided as 100  $\mu$ g protein in 200  $\mu$ l SDS-PAGE buffer.

## APPLICATIONS

AACT (h2): 293 Lysate is suitable as a Western Blotting positive control for human reactive AACT antibodies. Recommended use: 10-20  $\mu$ l per lane.

Control 293 Lysate: sc-110760 is available as a Western Blotting negative control lysate derived from non-transfected 293 cells.

## STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.