

ALDH1L1 (h): 293T Lysate: sc-113782

BACKGROUND

Aldehyde dehydrogenases (ALDHs) mediate NADP⁺-dependent oxidation of aldehydes into acids during detoxification of alcohol-derived acetaldehyde, lipid peroxidation and metabolism of corticosteroids, biogenic amines and neurotransmitters. ALDH1L1 (aldehyde dehydrogenase 1 family member L1), also known as FTHFD or 10-FTHFD (10-formyltetrahydrofolate dehydrogenase), is a cytosolic protein that is developmentally regulated in the cerebellum. ALDH1L1 binds to folate and catalyzes the conversion of 10-formyltetrahydrofolate (10-FTHF) to tetrahydrofolate (THF). This suggests a possible role for ALDH1L1 in the regulation of cellular THF levels as well as in the inhibition of cell proliferation (as 10-FTHF is essential for the synthesis of purine). In addition, the overexpression of ALDH1L1 can restrict cell proliferation *in vitro*.

REFERENCES

1. Champion, K.M., Cook, R.J., Tollaksen, S.L. and Giometti, C.S. 1994. Identification of a heritable deficiency of the folate-dependent enzyme 10-formyltetrahydrofolate dehydrogenase in mice. *Proc. Natl. Acad. Sci. USA* 91: 11338-11342.
2. Vasilou, V., Pappa, A. and Petersen, D.R. 2000. Role of aldehyde dehydrogenases in endogenous and xenobiotic metabolism. *Chem. Biol. Interact.* 129: 1-19.
3. Online Mendelian Inheritance in Man, OMIM[™]. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 600249. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
4. Sládek, N.E. 2003. Human aldehyde dehydrogenases: potential pathological, pharmacological, and toxicological impact. *J. Biochem. Mol. Toxicol.* 17: 7-23.
5. Strolin Benedetti, M., Whomsley, R. and Baltes, E. 2006. Involvement of enzymes other than CYPs in the oxidative metabolism of xenobiotics. *Expert Opin. Drug Metab. Toxicol.* 2: 895-921.
6. Lee, K.M., Lan, Q., Krickler, A., Purdue, M.P., Grulich, A.E., Vajdic, C.M., Turner, J., Whitby, D., Kang, D., Chanock, S., Rothman, N. and Armstrong, B.K. 2007. One-carbon metabolism gene polymorphisms and risk of non-Hodgkin lymphoma in Australia. *Hum. Genet.* 122: 525-533.
7. Stevens, V.L., McCullough, M.L., Pavluck, A.L., Talbot, J.T., Feigelson, H.S., Thun, M.J. and Calle, E.E. 2007. Association of polymorphisms in one-carbon metabolism genes and postmenopausal breast cancer incidence. *Cancer Epidemiol. Biomarkers Prev.* 16: 1140-1147.
8. Anthony, T.E. and Heintz, N. 2007. The folate metabolic enzyme ALDH1L1 is restricted to the midline of the early CNS, suggesting a role in human neural tube defects. *J. Comp. Neurol.* 500: 368-383.
9. Cahoy, J.D., Emery, B., Kaushal, A., Foo, L.C., Zamanian, J.L., Christopherson, K.S., Xing, Y., Lubischer, J.L., Krieg, P.A., Krupenko, S.A., Thompson, W.J. and Barres, B.A. 2008. A transcriptome database for astrocytes, neurons, and oligodendrocytes: a new resource for understanding brain development and function. *J. Neurosci.* 28: 264-278.

RESEARCH USE

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

CHROMOSOMAL LOCATION

Genetic locus: ALDH1L1 (human) mapping to 3q21.3.

PRODUCT

ALDH1L1 (h): 293T Lysate represents a lysate of human ALDH1L1 transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

APPLICATIONS

ALDH1L1 (h): 293T Lysate is suitable as a Western Blotting positive control for human reactive ALDH1L1 antibodies. Recommended use: 10-20 µl per lane.

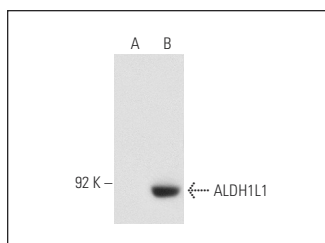
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

ALDH1L1 (YY8): sc-100497 is recommended as a positive control antibody for Western Blot analysis of enhanced human ALDH1L1 expression in ALDH1L1 transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

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.

DATA



ALDH1L1 (YY8): sc-100497. Western blot analysis of ALDH1L1 expression in non-transfected: sc-117752 (A) and human ALDH1L1 transfected: sc-113782 (B) 293T whole cell lysates.

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 for detailed protocols and support products.