

# ALDH1L1 (H-47): sc-292518

## BACKGROUND

Aldehyde dehydrogenases (ALDHs) mediate NADP<sup>+</sup>-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

- Champion, K.M., et al. 1994. Identification of a heritable deficiency of the folate-dependent enzyme 10-formyltetrahydrofolate dehydrogenase in mice. *Proc. Natl. Acad. Sci. USA* 91: 11338-11342.
- Vasilou, V., et al. 2000. Role of aldehyde dehydrogenases in endogenous and xenobiotic metabolism. *Chem. Biol. Interact.* 129: 1-19.
- 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/>
- Sládek, N.E. 2003. Human aldehyde dehydrogenases: potential pathological, pharmacological, and toxicological impact. *J. Biochem. Mol. Toxicol.* 17: 7-23.
- Strolin Benedetti, M., et al. 2006. Involvement of enzymes other than CYPs in the oxidative metabolism of xenobiotics. *Expert Opin. Drug Metab. Toxicol.* 2: 895-921.
- Lee, K.M., et al. 2007. One-carbon metabolism gene polymorphisms and risk of non-Hodgkin lymphoma in Australia. *Hum. Genet.* 122: 525-533.
- Stevens, V.L., et al. 2007. Association of polymorphisms in one-carbon metabolism genes and postmenopausal breast cancer incidence. *Cancer Epidemiol. Biomarkers Prev.* 16: 1140-1147.
- Anthony, T.E., et al. 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.
- Cahoy, J.D., et al. 2008. A transcriptome database for astrocytes, neurons, and oligodendrocytes: a new resource for understanding brain development and function. *J. Neurosci.* 28: 264-278.

## CHROMOSOMAL LOCATION

Genetic locus: ALDH1L1 (human) mapping to 3q21.3; Aldh1l1 (mouse) mapping to 6 D1.

## SOURCE

ALDH1L1 (H-47) is a rabbit polyclonal antibody raised against amino acids 235-281 mapping within an internal region of ALDH1L1 of human origin.

## PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

ALDH1L1 (H-47) is recommended for detection of ALDH1L1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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).

ALDH1L1 (H-47) is also recommended for detection of ALDH1L1 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for ALDH1L1 siRNA (h): sc-78373, ALDH1L1 siRNA (m): sc-141000, ALDH1L1 shRNA Plasmid (h): sc-78373-SH, ALDH1L1 shRNA Plasmid (m): sc-141000-SH, ALDH1L1 shRNA (h) Lentiviral Particles: sc-78373-V and ALDH1L1 shRNA (m) Lentiviral Particles: sc-141000-V.

Molecular Weight of ALDH1L1: 99 kDa.

Positive Controls: NIH/3T3 whole cell lysate: sc-2210.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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 goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## 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](http://www.scbt.com) or our catalog for detailed protocols and support products.



Try **ALDH1L1 (YY8): sc-100497**, our highly recommended monoclonal alternative to ALDH1L1 (H-47).