

# ALDH5A1 (H-226): sc-98597

## BACKGROUND

Aldehyde dehydrogenases (ALDHs) mediate the NADP<sup>+</sup>-dependent oxidation of aldehydes into acids and play an important role in the detoxification of alcohol-derived acetaldehyde, as well as in lipid peroxidation and in the metabolism of corticosteroids, biogenic amines and neurotransmitters. ALDH5A1 (aldehyde dehydrogenase 5 family, member A1), also known as SSDH or SSADH, is a 535 amino acid protein that localizes to the mitochondria and belongs to the aldehyde dehydrogenase family. Expressed in a variety of tissues, including liver, heart, lung, brain, kidney and placenta, ALDH5A1 is required for  $\gamma$ -aminobutyric acid (GABA) recycling from the synaptic cleft. Mutations of ALDH5A1 leads to succinate semialdehyde dehydrogenase deficiency (SSADH deficiency) that is characterized by severe ataxia and by mildly retarded psychomotor development.

## REFERENCES

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2. Leone, O., et al. 2006. A human derived SSADH coding variant is replacing the ancestral allele shared with primates. *Ann. Hum. Biol.* 33: 593-603.
3. Jansen, E.E., et al. 2006. Increased guanidino species in murine and human succinate semialdehyde dehydrogenase (SSADH) deficiency. *Biochim. Biophys. Acta* 1762: 494-498.
4. Blasi, P., et al. 2006. SSADH variation in primates: intra- and interspecific data on a gene with a potential role in human cognitive functions. *J. Mol. Evol.* 63: 54-68.
5. Mehta, A.K., et al. 2006. Succinate semialdehyde dehydrogenase deficiency does not down-regulate  $\gamma$ -hydroxybutyric acid binding sites in the mouse brain. *Mol. Genet. Metab.* 88: 86-89.
6. Barcelo-Coblijn, G., et al. 2007. Lipid abnormalities in succinate semialdehyde dehydrogenase (*Aldh5 $\alpha$ 1*<sup>-/-</sup>) deficient mouse brain provide additional evidence for myelin alterations. *Biochim. Biophys. Acta* 1772: 556-562.
7. Knerr, I., et al. 2007. Therapeutic concepts in succinate semialdehyde dehydrogenase (SSADH; *ALDH5 $\alpha$ 1*) deficiency ( $\gamma$ -hydroxybutyric aciduria). Hypotheses evolved from 25 years of patient evaluation, studies in *Aldh5 $\alpha$ 1*<sup>-/-</sup> mice and characterization of  $\gamma$ -hydroxybutyric acid pharmacology. *J. Inher. Metab. Dis.* 30: 279-294.

## CHROMOSOMAL LOCATION

Genetic locus: ALDH5A1 (human) mapping to 6p22.2; *Aldh5a1* (mouse) mapping to 13 A3.1.

## SOURCE

ALDH5A1 (H-226) is a rabbit polyclonal antibody raised against amino acids 1-226 mapping at the N-terminus of ALDH5A1 of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

ALDH5A1 (H-226) is recommended for detection of ALDH5A1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g 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 ALDH5A1 siRNA (h): sc-72480, ALDH5A1 siRNA (m): sc-72481, ALDH5A1 shRNA Plasmid (h): sc-72480-SH, ALDH5A1 shRNA Plasmid (m): sc-72481-SH, ALDH5A1 shRNA (h) Lentiviral Particles: sc-72480-V and ALDH5A1 shRNA (m) Lentiviral Particles: sc-72481-V.

Molecular Weight of ALDH5A1: 54 kDa.

## 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<sup>™</sup> compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker<sup>™</sup> 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<sup>™</sup> 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 **ALDH5A1 (F-2): sc-515022** or **ALDH5A1 (D-3): sc-390754**, our highly recommended monoclonal alternatives to ALDH5A1 (H-226).