

ALDH18A1 (S-15): sc-104810

BACKGROUND

Aldehyde dehydrogenases (ALDHs) mediate NADP⁺-dependent oxidation of aldehydes into acids during the detoxification of alcohol-derived acetaldehyde, lipid peroxidation, and metabolism of corticosteroids, biogenic amines and neurotransmitters. ALDH18A1 (aldehyde dehydrogenase 18 family member A1), also known as GSAS (glutamate γ -semialdehyde synthetase), P5CS (δ 1-pyrroline-5-carboxylate synthetase) or PYCS, is the major enzyme involved in proline, arginine and ornithine biosynthesis. Localizing to the inner mitochondrial membrane, ALDH18A1 catalyzes the reduction of glutamate to δ 1-pyrroline-5-carboxylate. Due to *ate* synthetase (P5CS) cDNA: a bifunctional enzyme catalyzing the first 2 steps in proline biosynthesis. C. R. Acad. Sci. III, Sci. Vie 319: 171-178. alternative splicing events, two isoforms exist for ALDH18A1, differing by only two amino acids. The longer isoform is widely expressed while the shorter isoform predominantly functions in the gut. A mutation in the gene encoding ALDH18A1 results in P5CS deficiency, a disease characterized by progressive joint laxity, neurodegeneration, bilateral subcapsular cataracts and skin hyperelasticity.

REFERENCES

1. Jones, C. 1975. Synteny between the pro⁺ marker and human glutamate oxaloacetate transaminase. Somatic Cell Genet. 1: 345-354.
2. Liu, G., et al. 1996. Assignment of the human gene encoding the δ 1-pyrroline-5-carboxylate synthetase (P5CS) to 10q24.3 by *in situ* hybridization. Genomics 37: 145-146.
3. Aral, B., et al. 1996. Database cloning human δ 1-pyrroline-5-carboxylate synthetase (P5CS) cDNA: a bifunctional enzyme catalyzing the first 2 steps in proline biosynthesis. C. R. Acad. Sci. III, Sci. Vie 319: 171-178.
4. Hu, C.A., et al. 1999. Molecular enzymology of mammalian δ 1-pyrroline-5-carboxylate synthase. Alternative splice donor utilization generates isoforms with different sensitivity to ornithine inhibition. J. Biol. Chem. 274: 6754-6762.
5. Baumgartner, M.R., et al. 2000. Hyperammonemia with reduced ornithine, citrulline, arginine and proline: a new inborn error caused by a mutation in the gene encoding δ 1-pyrroline-5-carboxylate synthase. Hum. Mol. Genet. 9: 2853-2858.

CHROMOSOMAL LOCATION

Genetic locus: ALDH18A1 (human) mapping to 10q24.1; Aldh18a1 (mouse) mapping to 19 C3.

SOURCE

ALDH18A1 (S-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of ALDH18A1 of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-104810 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

ALDH18A1 (S-15) is recommended for detection of ALDH18A1 of mouse, rat and 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)], 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).

ALDH18A1 (S-15) is also recommended for detection of ALDH18A1 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for ALDH18A1 siRNA (h): sc-90408, ALDH18A1 siRNA (m): sc-140997, ALDH18A1 shRNA Plasmid (h): sc-90408-SH, ALDH18A1 shRNA Plasmid (m): sc-140997-SH, ALDH18A1 shRNA (h) Lentiviral Particles: sc-90408-V and ALDH18A1 shRNA (m) Lentiviral Particles: sc-140997-V.

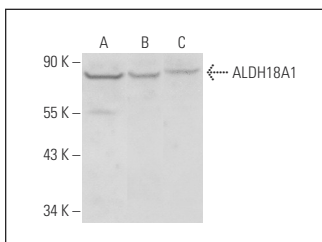
Molecular Weight of ALDH18A1: 87 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203, Jurkat whole cell lysate: sc-2204 or U-251-MG whole cell lysate: sc-364176.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (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 donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



ALDH18A1 (S-15): sc-104810. Western blot analysis of ALDH18A1 expression in K-562 (A), U-251-MG (B) and Jurkat (C) whole cell lysates.

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.