SANTA CRUZ BIOTECHNOLOGY, INC.

ALDH18A1 (G-10): sc-515443

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 (Delta1-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 Delta1-pyrroline-5-carboxylate. Due to 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 δ1-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 319: 171-178.
4. Hu, C.A., et al. 1999. Molecular enzymology of mammalian Delta1-pyrroline-5-carboxylate synthase. Alternative splice donor utilization generates isoforms with different sensitivity to ornithine inhibition. J. Biol. Chem. 274: 6754-6762.

CHROMOSOMAL LOCATION

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

SOURCE

ALDH18A1 (G-10) is a mouse monoclonal antibody raised against amino acids 61-360 mapping near the N-terminus of ALDH18A1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

ALDH18A1 (G-10) is available conjugated to agarose (sc-515443 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-515443 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-515443 PE), fluorescein (sc-515443 FITC), Alexa Fluor® 488 (sc-515443 AF488), Alexa Fluor® 546 (sc-515443 AF546), Alexa Fluor® 594 (sc-515443 AF594) or Alexa Fluor® 647 (sc-515443 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-515443 AF680) or Alexa Fluor® 790 (sc-515443 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

ALDH18A1 (G-10) is recommended for detection of ALDH18A1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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).

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.

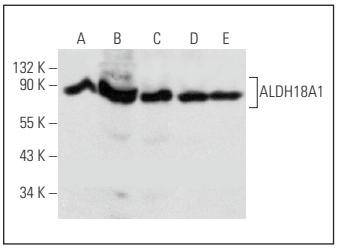
Molecular Weight of ALDH18A1: 87 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203, Hep G2 cell lysate: sc-2227 or HEL 92.1.7 cell lysate: sc-2270.

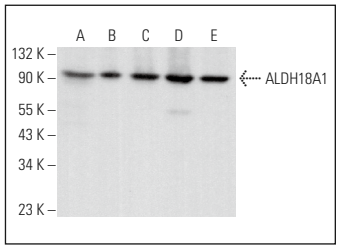
RECOMMENDED SUPPORT REAGENTS

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. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



ALDH18A1 (G-10): sc-515443. Western blot analysis of ALDH18A1 expression in K-562 (**A**), Hep G2 (**B**), U-251-MG (**C**), Jurkat (**D**) and MCF7 (**E**) whole cell lysates.



ALDH18A1 (G-10): sc-515443. Western blot analysis of ALDH18A1 expression in K-562 (**A**), HEL 92.1.7 (**B**), MDA-MB-231 (**C**), c4 (**D**) and BYDP (**E**) 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.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.