

ALDH4A1 (G-18): sc-69145

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. ALDH4A1 (aldehyde dehydrogenase 4 family member A1), also known as P5CD (Δ^1 -pyrroline-5-carboxylate dehydrogenase), P5CDh, P5CDhL, P5CDhS or ALDH4, is a major enzyme involved in the proline degradation pathway. Localizing to the mitochondrial matrix, ALDH4A1 catalyzes the conversion of Δ^1 -pyrroline-5-carboxylate (P5C) to glutamate. A mutation in the gene encoding ALDH4A1 results in HPII (hyperprolinemia type II), a disease characterized by an excess of P5C and proline that is associated with mental retardation and seizures.

REFERENCES

1. Goodman, S.I., Mace, J.W., Miles, B.S., Teng, C.C. and Brown, S.B. 1974. Defective hydroxyproline metabolism in type II hyperprolinemia. *Biochem. Med.* 10: 329-336.
2. Flynn, M.P., Martin, M.C., Moore, P.T., Stafford, J.A., Fleming, G.A. and Phang, J.M. 1989. Type II hyperprolinaemia in a pedigree of Irish travellers (nomads). *Arch. Dis. Child.* 64: 1699-1707.
3. Yoshida, Y., Kiyosue, T., Nakashima, K., Yamaguchi-Shinozaki, K. and Shinozaki, K. 1997. Regulation of levels of proline as an osmolyte in plants under water stress. *Plant Cell Physiol.* 38: 1095-1102.
4. Geraghty, M.T., Vaughn, D., Nicholson, A.J., Lin, W.W., Jimenez-Sanchez, G., Obie, C., Flynn, M.P., Valle, D. and Hu, C.A. 1998. Mutations in the Δ^1 -pyrroline 5-carboxylate dehydrogenase gene cause type II hyperprolinemia. *Hum. Mol. Genet.* 7: 1411-1415.

CHROMOSOMAL LOCATION

Genetic locus: ALDH4A1 (human) mapping to 1p36.13; Aldh4a1 (mouse) mapping to 4 D3.

SOURCE

ALDH4A1 (G-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of ALDH4A1 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-69145 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

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.

APPLICATIONS

ALDH4A1 (G-18) is recommended for detection of ALDH4A1 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

ALDH4A1 (G-18) is also recommended for detection of ALDH4A1 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for ALDH4A1 siRNA (h): sc-72478, ALDH4A1 siRNA (m): sc-72479, ALDH4A1 shRNA Plasmid (h): sc-72478-SH, ALDH4A1 shRNA Plasmid (m): sc-72479-SH, ALDH4A1 shRNA (h) Lentiviral Particles: sc-72478-V and ALDH4A1 shRNA (m) Lentiviral Particles: sc-72479-V.

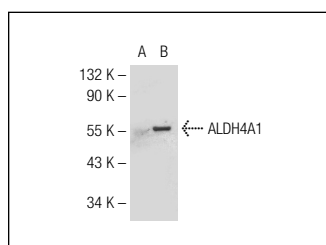
Molecular Weight of ALDH4A1: 62 kDa.

Positive Controls: ALDH4A1 (m2): 293T Lysate: sc-124945, human fetal liver tissue extract or HeLa whole cell lysate: sc-2200.

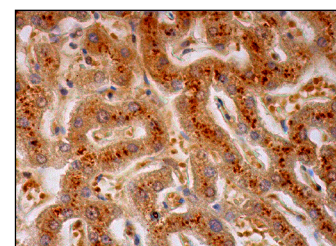
RECOMMENDED SECONDARY REAGENTS

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. 4) Immunohistochemistry: use ImmunoCruz™: sc-2053 or ABC: sc-2023 goat IgG Staining Systems.

DATA



ALDH4A1 (G-18): sc-69145. Western blot analysis of ALDH4A1 expression in non-transfected: sc-117752 (A) and mouse ALDH4A1 transfected: sc-124945 (B) 293T whole cell lysates.



ALDH4A1 (G-18): sc-69145. Immunoperoxidase staining of formalin fixed, paraffin-embedded human liver tissue showing cytoplasmic staining of hepatocytes.

PROTOCOLS

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