

# ALDH4A1 (672): sc-100499

## 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. ALDH4A1 (aldehyde dehydrogenase 4 family member A1), also known as P5CD ( $\Delta^1$ -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  $\Delta^1$ -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., et al. 1974. Defective hydroxyproline metabolism in type II hyperprolinemia. *Biochem. Med.* 10: 329-336.
2. Flynn, M.P., et al. 1989. Type II hyperprolinaemia in a pedigree of Irish travellers (nomads). *Arch. Dis. Child.* 64: 1699-1707.

## CHROMOSOMAL LOCATION

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

## SOURCE

ALDH4A1 (672) is a mouse monoclonal antibody raised against recombinant ALDH4A1 of human origin.

## PRODUCT

Each vial contains 100  $\mu$ g IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.

## APPLICATIONS

ALDH4A1 (672) 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  $\mu$ 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), 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).

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.

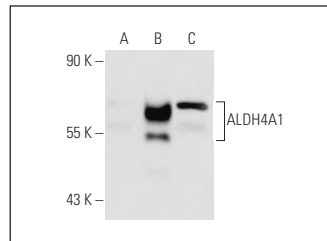
Molecular Weight of ALDH4A1: 62 kDa.

Positive Controls: ALDH4A1 (m): 293T Lysate: sc-124944, HeLa whole cell lysate: sc-2200 or ALDH4A1 (h2): 293T Lysate: sc-174976.

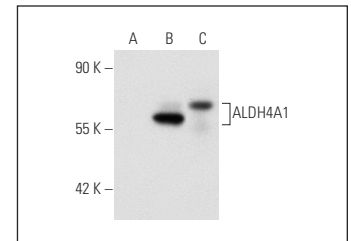
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgG $\kappa$  BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

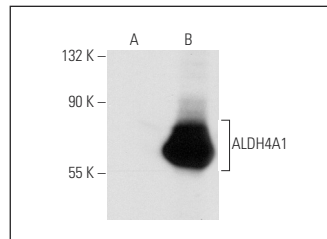
## DATA



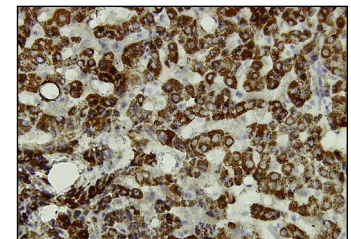
ALDH4A1 (672): sc-100499. Western blot analysis of ALDH4A1 expression in non-transfected 293T: sc-117752 (A), human ALDH4A1 transfected 293T: sc-174976 (B) and HeLa (C) whole cell lysates.



ALDH4A1 (672): sc-100499. Western blot analysis of ALDH4A1 expression in non-transfected 293T: sc-117752 (A), mouse ALDH4A1 transfected 293T: sc-124944 (B) and HeLa (C) whole cell lysates.



ALDH4A1 (672): sc-100499. Western blot analysis of ALDH4A1 expression in non-transfected: sc-117752 (A) and mouse ALDH4A1 transfected: sc-124945 (B) 293T whole cell lysates.



ALDH4A1 (672): sc-100499. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human liver tissue showing cytoplasmic localization.

## SELECT PRODUCT CITATIONS

1. Choi, W.M., et al. 2019. Glutamate signaling in hepatic stellate cells drives alcoholic steatosis. *Cell Metab.* 30: 877-889.e7.

## STORAGE

Store at 4° C, \*\*DO NOT FREEZE\*\* Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.