

# ALDH4A1 (m): 293T Lysate: sc-124944

## 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

- 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.
- 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.
- 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.
- 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  $\Delta^1$ -pyrroline 5-carboxylate dehydrogenase gene cause type II hyperprolinemia. *Hum. Mol. Genet.* 7: 1411-1415.
- Vasilou, V., Bairoch, A., Tipton, K.F. and Nebert, D.W. 1999. Eukaryotic aldehyde dehydrogenase (ALDH) genes: human polymorphisms, and recommended nomenclature based on divergent evolution and chromosomal mapping. *Pharmacogenetics* 9: 421-434.
- Vasilou, V. and Pappa, A. 2000. Polymorphisms of human aldehyde dehydrogenases. Consequences for drug metabolism and disease. *Pharmacology* 61: 192-198.
- Online Mendelian Inheritance in Man, OMIM<sup>™</sup>. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 606811. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
- Onenli-Mungan, N., Yuksel, B., Elkay, M., Topaloglu, A.K., Baykal, T. and Ozer, G. 2004. Type II hyperprolinemia: a case report. *Turk. J. Pediatr.* 46: 167-169.
- Yoon, K.A., Nakamura, Y. and Arakawa, H. 2004. Identification of ALDH4 as a p53-inducible gene and its protective role in cellular stresses. *J. Hum. Genet.* 49: 134-140.

## CHROMOSOMAL LOCATION

Genetic locus: Aldh4a1 (mouse) mapping to 4 D3.

## RESEARCH USE

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

## PRODUCT

ALDH4A1 (m): 293T Lysate represents a lysate of mouse ALDH4A1 transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

## APPLICATIONS

ALDH4A1 (m): 293T Lysate is suitable as a Western Blotting positive control for mouse reactive ALDH4A1 antibodies. Recommended use: 10-20 µl per lane.

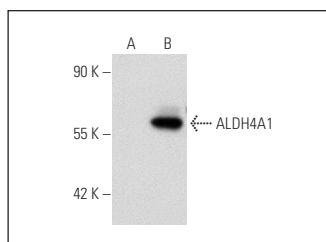
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

ALDH4A1 (672): sc-100499 is recommended as a positive control antibody for Western Blot analysis of enhanced mouse ALDH4A1 expression in ALDH4A1 transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

## 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<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048.

## DATA



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

## STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

## PROTOCOLS

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