SANTA CRUZ BIOTECHNOLOGY, INC.

ADH4 (NB-B2): sc-134249

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

ADH4 (alcohol dehydrogenase 4) is a 380 amino acid protein that belongs to the zinc-containing alcohol dehydrogenase family of enzymes that function to metabolize a wide variety of substrates, including retinol, hydroxysteroids, ethanol, aliphatic alcohols and lipid peroxidation products. Localized to the cytoplasm and existing as a homodimer, ADH4 uses zinc as a cofactor to catalyze the NAD^+-dependent conversion of an alcohol to an aldehyde or a ketone, thereby participating in the metabolic degradation of alcohols within the body. Multiple isoforms of ADH4 exist due to alternative splicing events. The gene encoding ADH4 maps to a cluster of alcohol dehydrogenase genes on human chromosome 4, a chromosome that encodes nearly 6% of the human genome and has the largest gene deserts (regions of the genome with no protein encoding genes) of all of the human chromosomes.

REFERENCES

1. Li, T.K., et al. 1977. Isolation of π-alcohol dehydrogenase of human liver: is it a determinant of alcoholism? Proc. Natl. Acad. Sci. USA 74: 4378-4381.
2. Mardh, G., et al. 1986. Human class II (π) alcohol dehydrogenase has a redox-specific function in norepinephrine metabolism. Proc. Natl. Acad. Sci. USA 83: 8908-8912.
3. von Bahr-Lindström, H., et al. 1991. Cloning and characterization of the human ADH4 gene. Gene 103: 269-274.
4. Edman, K. and Maret, W. 1992. Alcohol dehydrogenase genes: restriction fragment length polymorphisms for ADH4 (π-ADH) and ADH5 (χ-ADH) and construction of haplotypes among different ADH classes. Hum. Genet. 90: 395-401.
5. Kuo, P.H., et al. 2008. Association of ADH and ALDH genes with alcohol dependence in the Irish Affected Sib Pair Study of alcohol dependence (IASPSAD) sample. Alcohol. Clin. Exp. Res. 32: 785-795.
6. Luo, X., et al. 2008. Recessive genetic mode of an ADH4 variant in substance dependence in African-Americans: a model of utility of the HWD test. Behav. Brain Funct. 4: 42.
7. Macgregor, S., et al. 2009. Associations of ADH and ALDH2 gene variation with self report alcohol reactions, consumption and dependence: an integrated analysis. Hum. Mol. Genet. 18: 580-593.
8. Birley, A.J., et al. 2009. ADH single nucleotide polymorphism associations with alcohol metabolism *in vivo*. Hum. Mol. Genet. 18: 1533-1542.

CHROMOSOMAL LOCATION

Genetic locus: ADH4 (human) mapping to 4q23.

SOURCE

ADH4 (NB-B2) is a mouse monoclonal antibody raised against recombinant ADH4 protein of human origin.

PRODUCT

Each vial contains 100 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

ADH4 (NB-B2) is recommended for detection of ADH4 of human origin by Western Blotting (starting dilution 1:200, 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), 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 ADH4 siRNA (h): sc-105043, ADH4 shRNA Plasmid (h): sc-105043-SH and ADH4 shRNA (h) Lentiviral Particles: sc-105043-V.

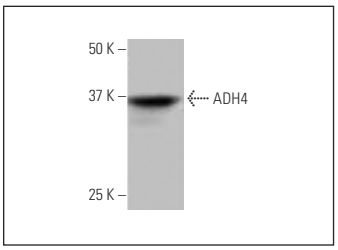
Molecular Weight of ADH4: 40 kDa.

Positive Controls: HeLa nuclear extract: sc-2120.

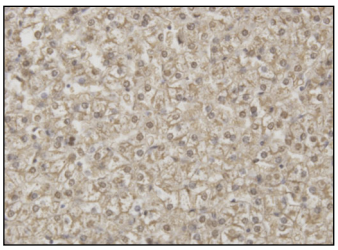
RECOMMENDED SUPPORT REAGENTS

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. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



ADH4 (NB-B2): sc-134249. Western blot analysis of ADH4 expression in HeLa nuclear extract.



ADH4 (NB-B2): sc-134249. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human liver tissue showing cytoplasmic and membrane localization.

SELECT PRODUCT CITATIONS

1. Baker, S.S., et al. 2010. Role of alcohol metabolism in non-alcoholic steatohepatitis. PLoS ONE 5: e9570.

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.