

# ADH4 (F-6): sc-515217

## 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<sup>+</sup>-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 4q23, 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

- Li, T.K., et al. 1977. Isolation of  $\pi$ -alcohol dehydrogenase of human liver: is it a determinant of alcoholism? Proc. Natl. Acad. Sci. USA 74: 4378-4381.
- Mardh, G., et al. 1986. Human class II ( $\pi$ ) alcohol dehydrogenase has a redox-specific function in norepinephrine metabolism. Proc. Natl. Acad. Sci. USA 83: 8908-8912.
- von Bahr-Lindström, H., et al. 1991. Cloning and characterization of the human ADH4 gene. Gene 103: 269-274.
- Edman, K. and Maret, W. 1992. Alcohol dehydrogenase genes: restriction fragment length polymorphisms for ADH4 ( $\pi$ -ADH) and ADH5 ( $\chi$ -ADH) and construction of haplotypes among different ADH classes. Hum. Genet. 90: 395-401.
- 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.

## CHROMOSOMAL LOCATION

Genetic locus: ADH4 (human) mapping to 4q23; Adh4 (mouse) mapping to 3 G3.

## SOURCE

ADH4 (F-6) is a mouse monoclonal antibody raised against amino acids 36-75 mapping near the N-terminus of ADH4 of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

ADH4 (F-6) is available conjugated to agarose (sc-515217 AC), 500  $\mu$ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-515217 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-515217 PE), fluorescein (sc-515217 FITC), Alexa Fluor<sup>®</sup> 488 (sc-515217 AF488), Alexa Fluor<sup>®</sup> 546 (sc-515217 AF546), Alexa Fluor<sup>®</sup> 594 (sc-515217 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-515217 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-515217 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-515217 AF790), 200  $\mu$ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

## APPLICATIONS

ADH4 (F-6) is recommended for detection of ADH4 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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) 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 siRNA (m): sc-140879, ADH4 shRNA Plasmid (h): sc-105043-SH, ADH4 shRNA Plasmid (m): sc-140879-SH, ADH4 shRNA (h) Lentiviral Particles: sc-105043-V and ADH4 shRNA (m) Lentiviral Particles: sc-140879-V.

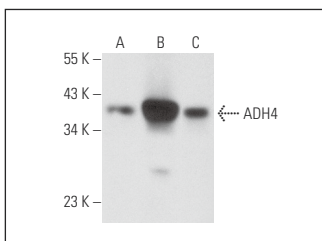
Molecular Weight of ADH4: 40 kDa.

Positive Controls: HeLa nuclear extract: sc-2120, HeLa whole cell lysate: sc-2200 or Hep G2 cell lysate: sc-2227.

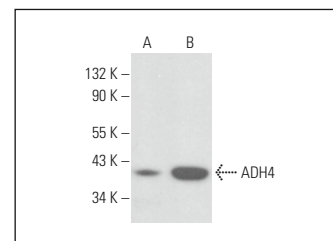
## RECOMMENDED SUPPORT REAGENTS

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<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> 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<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

## DATA



ADH4 (F-6): sc-515217. Western blot analysis of ADH4 expression in HeLa nuclear extract (A) and Hep G2 (B) and HeLa (C) whole cell lysates.



ADH4 (F-6): sc-515217. Western blot analysis of ADH4 expression in BW5147 (A) and P19 (B) whole cell lysates.

## SELECT PRODUCT CITATIONS

- Li, H., et al. 2018. Alcohol metabolism in the progression of human nonalcoholic steatohepatitis. Toxicol. Sci. 164: 428-438.

## 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.

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