

ADH5 (H-54): sc-135338

BACKGROUND

The alcohol dehydrogenase family of proteins metabolize a wide variety of substrates, including retinol, hydroxysteroids, ethanol, aliphatic alcohols and lipid peroxidation products. ADH5 (alcohol dehydrogenase 5 (class III)), also known as FDH (formaldehyde dehydrogenase), ADHX, ADH-3 or GSNOR, is a 374 amino acid cytoplasmic protein that belongs to the class III subfamily of alcohol dehydrogenases. Expressed ubiquitously, ADH5 uses iron as a cofactor to catalytically oxidize both long-chain primary alcohols and S-hydroxymethyl-glutathione, a product formed spontaneously between formaldehyde and glutathione. ADH5 exists as a homodimer and, via its ability to oxidize S-hydroxymethyl-glutathione and thus eliminate formaldehyde, functions as an important component of cellular metabolism. Genetic variations in the gene encoding ADH5 may affect drug and alcohol dependence in humans.

REFERENCES

1. Kaiser, R., et al. 1988. Class III human liver alcohol dehydrogenase: a novel structural type equidistantly related to the class I and class II enzymes. *Biochemistry* 27: 1132-1140.
2. Giri, P.R., et al. 1989. Cloning and comparative mapping of a human class III (χ) alcohol dehydrogenase cDNA. *Biochem. Biophys. Res. Commun.* 164: 453-460.
3. Hur, M.W. and Edenberg, H.J. 1992. Cloning and characterization of the ADH5 gene encoding human alcohol dehydrogenase 5, formaldehyde dehydrogenase. *Gene* 121: 305-311.
4. Holmquist, B., et al. 1993. Role of arginine 115 in fatty acid activation and formaldehyde dehydrogenase activity of human class III alcohol dehydrogenase. *Biochemistry* 32: 5139-5144.
5. Engeland, K., et al. 1993. Mutation of Arg 115 of human class III alcohol dehydrogenase: a binding site required for formaldehyde dehydrogenase activity and fatty acid activation. *Proc. Natl. Acad. Sci. USA* 90: 2491-2494.

CHROMOSOMAL LOCATION

Genetic locus: ADH5 (human) mapping to 4q23; Adh5 (mouse) mapping to 3 G3.

SOURCE

ADH5 (H-54) is a rabbit polyclonal antibody raised against amino acids 260-313 mapping near the C-terminus of ADH5 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.

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

ADH5 (H-54) is recommended for detection of ADH5 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); non cross-reactive with other ADH family members.

ADH5 (H-54) is also recommended for detection of ADH5 in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for ADH5 siRNA (h): sc-105044, ADH5 siRNA (m): sc-105045, ADH5 shRNA Plasmid (h): sc-105044-SH, ADH5 shRNA Plasmid (m): sc-105045-SH, ADH5 shRNA (h) Lentiviral Particles: sc-105044-V and ADH5 shRNA (m) Lentiviral Particles: sc-105045-V.

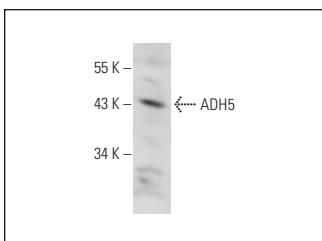
Molecular Weight of ADH5: 40 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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 goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



ADH5 (H-54): sc-135338. Western blot analysis of ADH5 expression in K-562 whole cell lysate.

PROTOCOLS

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

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Try **ADH5 (2D11): sc-293460**, our highly recommended monoclonal alternative to ADH5 (H-54).