SANTA CRUZ BIOTECHNOLOGY, INC.

ADH5 (2D11): sc-293460



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 (chi) alcohol dehydrogenase cDNA. Biochem. Biophys. Res. Commun. 164: 453-460.
- 3. Hur, M.W., et al. 1992. Cloning and characterization of the ADH5 gene encoding human alcohol dehydrogenase 5, formaldehyde dehydrogenase. Gene 121: 305-311.

CHROMOSOMAL LOCATION

Genetic locus: ADH5 (human) mapping to 4q23.

SOURCE

ADH5 (2D11) is a mouse monoclonal antibody raised against amino acids 1-374 representing full length ADH5 of human origin.

PRODUCT

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

APPLICATIONS

ADH5 (2D11) is recommended for detection of ADH5 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)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

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

Molecular Weight of ADH5: 40 kDa.

Positive Controls: IMR-32 cell lysate: sc-2409, Hep G2 cell lysate: sc-2227 or K-562 whole cell lysate: sc-2203.

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).

DATA





ADH5 (2D11): sc-293460. Western blot analysis of ADH5 expression in IMR-32 (A), Hep G2 (B), Caki-1 (C) and K-562 (D) whole cell lysates.

ADH5 (2D11): sc-293460. Western blot analysis of ADH5 expression in non-transfected (**A**) and ADH5 transfected (**B**) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

- 1. Rizza, S., et al. 2020. Mitophagy contributes to α -tocopheryl succinate toxicity in GSNOR-deficient hepatocellular carcinoma. Biochem. Pharmacol. 176: 113885.
- Capitanio, D., et al. 2020. Can serum nitrosoproteome predict longevity of aged women? Int. J. Mol. Sci. 21: 9009.
- Cirotti, C., et al. 2021. Redox activation of ATM enhances GSNOR translation to sustain mitophagy and tolerance to oxidative stress. EMBO Rep. 22: e50500.
- Gani, M., et al. 2022. Bystander effect in photosensitized prostate cancer cells with a different grade of malignancy: the role of nitric oxide. Nitric Oxide 128: 25-36.
- Rizza, S., et al. 2023. GSNOR deficiency promotes tumor growth via FAK1 S-nitrosylation. Cell Rep. 42: 111997.
- Blottner, D., et al. 2024. Nitrosative stress in astronaut skeletal muscle in spaceflight. Antioxidants 13: 432.

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.

PROTOCOLS

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