SANTA CRUZ BIOTECHNOLOGY, INC.

IDH3A (B-7): sc-514358

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

IDH3A (isocitrate dehydrogenase [NAD] subunit a (mitochondrial), NAD^+-specific ICDH) is a 366 amino acid protein encoded by the human gene IDH3A. IDH3A belongs to the isocitrate and isopropylmalate dehydrogenases family and can bind one magnesium or manganese ion per subunit. It is usually found in the mitochondrion as a heterooligomer of subunits α, β, and γ in the apparent ratio of 2:1:1. Human NAD-dependent isocitrate dehydrogenase (IDH) is allosterically activated by ADP by lowering the Km for isocitrate. NAD-dependent isocitrate dehydrogenase is a tricarboxylic acid cycle enzyme that produces 2-oxoglutarate, an organic acid required by the glutamine synthetase/glutamate synthase cycle to assimilate ammonium.

REFERENCES

1. Kim, Y.O., et al. 1995. Characterization of a cDNA clone for human NAD^+-specific isocitrate dehydrogenase α-subunit and structural comparison with its isoenzymes from different species. Biochem. J. 308: 63-68.
2. Hong, G., et al. 1997. Molecular cloning of a highly conserved mouse and human integral membrane protein (Itm1) and genetic mapping to mouse chromosome 9. Genomics 31: 295-300.
3. Huh, T.L., et al. 1997. Assignment of the human mitochondrial NAD^+-specific isocitrate dehydrogenase α subunit (IDH3A) gene to 15q25.1→q25.2 by *in situ* hybridization. Genomics 32: 295-296.
4. Dash, D.P., et al. 2006. Fine mapping of the keratoconus with cataract locus on chromosome 15q and candidate gene analysis. Mol. Vis. 12: 499-505.
5. Soundar, S., et al. 2006. Identification of Mn^{2+}-binding aspartates from α, β, and γ subunits of human NAD-dependent isocitrate dehydrogenase. J. Biol. Chem. 281: 21073-21081.
6. Imabayashi, F., et al. 2006. Substrate-free structure of a monomeric NADP isocitrate dehydrogenase: an open conformation phylogenetic relationship of isocitrate dehydrogenase. Proteins 63: 100-112.
7. Veena, C.K., et al. 2007. Mitochondrial dysfunction in an animal model of hyperoxaluria: a prophylactic approach with fucoidan. Eur. J. Pharmacol. 579: 330-336.

CHROMOSOMAL LOCATION

Genetic locus: IDH3A (human) mapping to 15q25.1; Idh3a (mouse) mapping to 9 A5.3.

SOURCE

IDH3A (B-7) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 225-249 within an internal region of IDH3A of human origin.

PRODUCT

Each vial contains 200 µg IgM kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-514358 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

IDH3A (B-7) is recommended for detection of IDH3A of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for IDH3A siRNA (h): sc-62489, IDH3A siRNA (m): sc-62490, IDH3A shRNA Plasmid (h): sc-62489-SH, IDH3A shRNA Plasmid (m): sc-62490-SH, IDH3A shRNA (h) Lentiviral Particles: sc-62489-V and IDH3A shRNA (m) Lentiviral Particles: sc-62490-V.

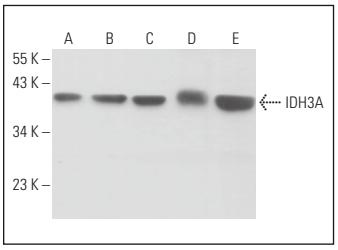
Molecular Weight of IDH3A: 40 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, rat heart extract: sc-2393 or A-10 cell lysate: sc-3806.

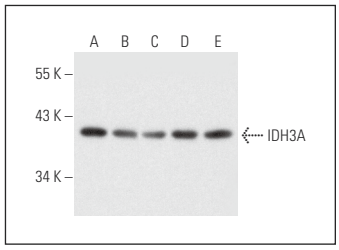
RECOMMENDED SUPPORT REAGENTS

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 L-Agarose: sc-2336 (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.

DATA



IDH3A (B-7): sc-514358. Western blot analysis of IDH3A expression in RAW 264.7 (**A**), 3T3-L1 (**B**) and A-10 (**C**) whole cell lysates and mouse heart (**D**) and rat heart (**E**) tissue extracts.



IDH3A (B-7): sc-514358. Western blot analysis of IDH3A expression in HeLa (**A**), Jurkat (**B**), A-673 (**C**), A-431 (**D**) and Hep G2 (**E**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Haffar, T., et al. 2016. Lipotoxic palmitate impairs the rate of β-oxidation and citric acid cycle flux in rat neonatal cardiomyocytes. Cell. Physiol. Biochem. 40: 969-981.

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.