SANTA CRUZ BIOTECHNOLOGY, INC.

IDH1 (F-3): sc-515396

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The Isocitrate dehydrogenase (IDHC or IDH) cytoplasmic enzyme is a homodimer of 416 residues that belongs to the isocitrate and isopropylmalate dehydrogenases family. IDHC catalyzes the third step of the citric acid cycle, which involves the oxidative decarboxylation of isocitrate, forming α-ketoglutarate and CO_2 in a two step reaction. The first step involves the oxidation of isocitrate to the intermediate oxalosuccinate, while the second step involves the production of α-ketoglutarate. During this process, either NADH or NADPH is produced along with CO_2. Ca^{2+} can bind to IDHC as a complex with isocitrate, acting as a competitive inhibitor of Mg^{2+}. The IDHC enzyme is inactivated by phosphorylation at Ser 113 and contains a clasp-like domain wherein both polypeptide chains in the dimer interlock. IDHC is expressed in a wide range of species and also in organisms that lack a complete citric acid cycle.

CHROMOSOMAL LOCATION

Genetic locus: IDH1 (human) mapping to 2q34; Idh1 (mouse) mapping to 1 C2.

SOURCE

IDH1 (F-3) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 33-58 near the N-terminus of IDH1 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-515396 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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

IDH1 (F-3) is recommended for detection of IDH1 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 IDH1 siRNA (h): sc-60829, IDH1 siRNA (m): sc-60830, IDH1 shRNA Plasmid (h): sc-60829-SH, IDH1 shRNA Plasmid (m): sc-60830-SH, IDH1 shRNA (h) Lentiviral Particles: sc-60829-V and IDH1 shRNA (m) Lentiviral Particles: sc-60830-V.

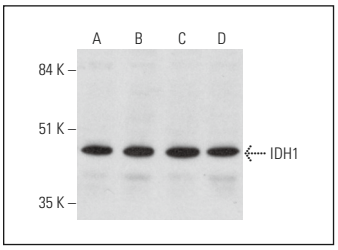
Molecular Weight of IDH1: 45 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, Caki-1 cell lysate: sc-2224 or SW480 cell lysate: sc-2219.

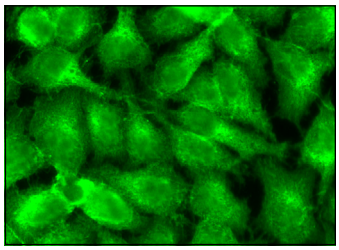
RECOMMENDED SUPPORT REAGENTS

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



IDH1 (F-3): sc-515396. Western blot analysis of IDH1 expression in DU 145 (**A**), SW480 (**B**), HeLa (**C**) and Caki-1 (**D**) whole cell lysates.



IDH1 (F-3): sc-515396. Immunofluorescence staining of formalin-fixed HeLa cells showing cytoplasmic and nuclear localization.

SELECT PRODUCT CITATIONS

1. Zou, Y., et al. 2020. Illuminating NAD^+ metabolism in live cells and *in vivo* using a genetically encoded fluorescent sensor. Dev. Cell 53: 240-252.e7.
2. Cai, Z., et al. 2020. Phosphorylation of PDHA by AMPK drives TCA cycle to promote cancer metastasis. Mol. Cell 80: 263-278.e7.
3. Panzarini, E., et al. 2020. Molecular characterization of temozolomide-treated and non temozolomide-treated glioblastoma cells released extracellular vesicles and their role in the macrophage response. Int. J. Mol. Sci. 21: 8353.
4. Shi, J., et al. 2024. ABCG2 and SLC1A5 functionally interact to rewire metabolism and confer a survival advantage to cancer cells under oxidative stress. J. Biol. Chem. 300: 107299.

PROTOCOLS

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