

IDH1 (N-20): sc-49996

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 (N-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of IDH1 of human origin.

PRODUCT

Each vial contains 200 μg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-49996 P, (100 μg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

IDH1 (N-20) is recommended for detection of IDH1 of mouse, rat and 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)], 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).

IDH1 (N-20) is also recommended for detection of IDH1 in additional species, including equine, canine, bovine, porcine and avian.

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, SW480 cell lysate: sc-2219 or DU 145 cell lysate: sc-2268.

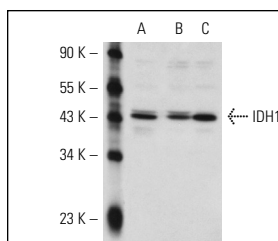
STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

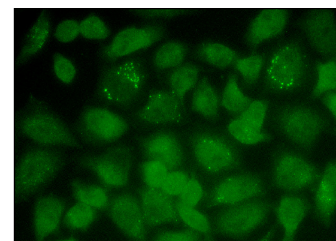
RESEARCH USE

For research use only, not for use in diagnostic procedures.

DATA



IDH1 (N-20): sc-49996. Western blot analysis of IDH1 expression in SW480 (A), HeLa (B) and DU 145 (C) whole cell lysates.



IDH1 (N-20): sc-49996. Immunofluorescence staining of formalin-fixed HeLa cells showing cytoplasmic and nuclear localization. Kindly provided by Yang Xiang, Ph.D., Division of Newborn Medicine, Boston Children's Hospital, Cell Biology Department, Harvard Medical School.

SELECT PRODUCT CITATIONS

- Dang, L., et al. 2009. Cancer-associated IDH1 mutations produce 2-hydroxyglutarate. *Nature* 462: 739-744.
- Ward, P.S., et al. 2010. The common feature of leukemia-associated IDH1 and IDH2 mutations is a neomorphic enzyme activity converting α -ketoglutarate to 2-hydroxyglutarate. *Cancer Cell* 17: 225-234.
- Jin, G., et al. 2011. 2-hydroxyglutarate production, but not dominant negative function, is conferred by glioma-derived NADP-dependent isocitrate dehydrogenase mutations. *PLoS ONE* 6: e16812.
- Robbins, D., et al. 2012. Isocitrate dehydrogenase 1 is downregulated during early skin tumorigenesis which can be inhibited by overexpression of manganese superoxide dismutase. *Cancer Sci.* 103: 1429-1433.
- Ward, P.S., et al. 2013. The potential for isocitrate dehydrogenase mutations to produce 2-hydroxyglutarate depends on allele specificity and subcellular compartmentalization. *J. Biol. Chem.* 288: 3804-3815.
- Li, W. and Zhao, Y. 2013. Withaferin A suppresses tumor promoter 12-O-tetradecanoylphorbol 13-acetate-induced decreases in isocitrate dehydrogenase 1 activity and mitochondrial function in skin epidermal JB6 cells. *Cancer Sci.* 104: 143-148.

PROTOCOLS

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



Try **IDH1 (F-3): sc-515396** or **IDH1/2 (G-11): sc-373816**, our highly recommended monoclonal alternatives to IDH1 (N-20).