

IDH1/2 (W-16): sc-55668

BACKGROUND

IDH2 (isocitrate dehydrogenase 2 (NAD⁺), mitochondrial), also designated NADP⁺-specific ICDH; isocitrate dehydrogenase, mitochondrial; and oxalosuccinate decarboxylase, is a 452 amino acid enzyme encoded by the human gene IDH2. IDH2 belongs to the isocitrate and isopropylmalate dehydrogenases family and contains two nucleotide binding regions. IDH2 is involved in the reduction of NADP⁺ to NADPH and maintains the supply of glutathione (GSH) in mitochondria. It is believed to play a role in intermediary metabolism and energy production. IDH2 also tightly associates with the pyruvate dehydrogenase complex. IDH2 is found in the mitochondrion as a homodimer and can bind one magnesium or manganese ion per subunit.

REFERENCES

1. Grzeschik, K.H. 1976. Assignment of a gene for human mitochondrial isocitrate dehydrogenase (ICD-M, EC 1.1.1.41) to chromosome 15. *Hum. Genet.* 34: 23-28.
2. Champion, M.J., et al. 1979. Assignment of cytoplasmic α -mannosidase (MANA) and confirmation of mitochondrial isocitrate dehydrogenase (IDHM) to the q11 leads to qter region of chromosome 15 in man. *Cytogenet. Cell Genet.* 22: 498-502.
3. Luo, H., et al. 1996. Expression of human mitochondrial NADP-dependent isocitrate dehydrogenase during lymphocyte activation. *J. Cell. Biochem.* 60: 495-507.
4. Huh, T.L., et al 1997. Assignment of the human mitochondrial NAD⁺-specific isocitrate dehydrogenase α subunit (IDH3A) gene to 15q25.1-15q25.2 by *in situ* hybridization. *Genomics* 32: 295-296.
5. Oh, I.U., et al. 1997. Assignment of the human mitochondrial NADP⁺-specific isocitrate dehydrogenase (IDH2) gene to 15q26.1 by *in situ* hybridization. *Genomics* 38: 104-106.
6. Lancien, M., et al. 1999. Molecular characterization of higher plant NAD-dependent isocitrate dehydrogenase: evidence for a heteromeric structure by the complementation of yeast mutants. *Plant J.* 16: 325-333.
7. Johnson, C.H., et al. 1999. Isolation of a histoplasma capsulatum cDNA that complements a mitochondrial NAD⁺-isocitrate dehydrogenase subunit I-deficient mutant of *Saccharomyces cerevisiae*. *Yeast* 15: 799-804.

CHROMOSOMAL LOCATION

Genetic locus: IDH1 (human) mapping to 2q34, IDH2 (human) mapping to 15q26.1; Idh1 (mouse) mapping to 1 C2, Idh2 (mouse) mapping to 7 D3.

SOURCE

IDH1/2 (W-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of IDH1/2 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.

Blocking peptide available for competition studies, sc-55668 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

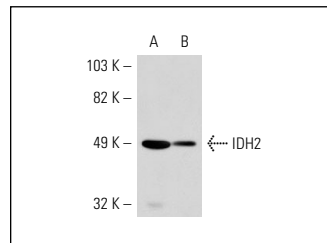
IDH1/2 (W-16) is recommended for detection of IDH1 and IDH2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

IDH1/2 (W-16) is also recommended for detection of IDH1 and IDH2 in additional species, including equine, canine, bovine, porcine and avian.

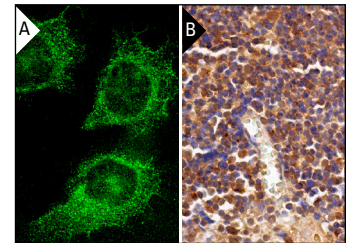
Molecular Weight of IDH1/2: 51 kDa.

Positive Controls: DU 145 cell lysate: sc-2268, mouse heart extract: sc-2254 or rat heart extract: sc-2393.

DATA



IDH1/2 (W-16): sc-55668. Western blot analysis of IDH2 expression in rat heart (A) and mouse heart (B) tissue extracts.



IDH1/2 (W-16): sc-55668. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human lymph node tissue showing cytoplasmic staining of cells in germinal and non-germinal centers (B).

SELECT PRODUCT CITATIONS

1. 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.
2. 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.

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.



Try **IDH1/2 (G-11): sc-373816** or **IDH1 (F-3): sc-515396**, our highly recommended monoclonal alternatives to IDH1/2 (W-16).