

Id2 (E-7): sc-398104

BACKGROUND

Members of the Id family of basic helix-loop-helix (bHLH) proteins include Id1, Id2, Id3 and Id4. They are ubiquitously expressed and dimerize with members of the class A and B HLH proteins. Due to the absence of the basic region, the resulting heterodimers cannot bind DNA. The Id-type proteins thus appear to negatively regulate DNA binding of bHLH proteins. Since Id1 inhibits DNA binding of E12 and MyoD, it apparently functions to inhibit muscle-specific gene expression. Under conditions that facilitate muscle cell differentiation, the Id protein levels fall, allowing E12 and/or E47 to form heterodimers with MyoD and myogenin, which in turn activate myogenic differentiation. It has been shown that expression of each of the Id proteins is strongly dependent on growth factor activation and that reduction of Id mRNA levels by antisense oligonucleotides leads to a delayed reentry of arrested cells into the cell cycle following growth factor stimulation.

REFERENCES

1. Benezra, R., et al. 1990. The protein Id: a negative regulator of helix-loop-helix DNA binding proteins. *Cell* 61: 49-59.
2. Christy, B.A., et al. 1991. An Id-related helix-loop-helix protein encoded by a growth factor-inducible gene. *Proc. Natl. Acad. Sci. USA* 88: 1815-1819.
3. Sun, X., et al. 1991. Id proteins Id1 and Id2 selectively inhibit DNA binding by one class of helix-loop-helix proteins. *Mol. Cell. Biol.* 11: 5603-5611.
4. Neuhold, L.A., et al. 1993. HLH forced dimers: tethering MyoD to E47 generates a dominant positive myogenic factor insulated from negative regulation by Id. *Cell* 74: 1033-1042.

CHROMOSOMAL LOCATION

Genetic locus: ID2 (human) mapping to 2p25.1; Id2 (mouse) mapping to 12 A1.3.

SOURCE

Id2 (E-7) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 105-134 at the C-terminus of Id2 of mouse origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-398104 X, 200 µg/0.1 ml.

Id2 (E-7) is available conjugated to agarose (sc-398104 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-398104 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-398104 PE), fluorescein (sc-398104 FITC), Alexa Fluor[®] 488 (sc-398104 AF488), Alexa Fluor[®] 546 (sc-398104 AF546), Alexa Fluor[®] 594 (sc-398104 AF594) or Alexa Fluor[®] 647 (sc-398104 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-398104 AF680) or Alexa Fluor[®] 790 (sc-398104 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-398104 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

Id2 (E-7) is recommended for detection of Id2 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).

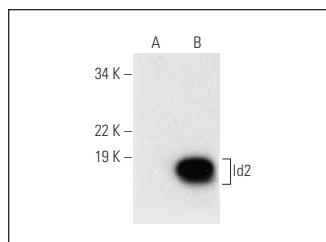
Suitable for use as control antibody for Id2 siRNA (h): sc-38000, Id2 siRNA (m): sc-38001, Id2 shRNA Plasmid (h): sc-38000-SH, Id2 shRNA Plasmid (m): sc-38001-SH, Id2 shRNA (h) Lentiviral Particles: sc-38000-V and Id2 shRNA (m) Lentiviral Particles: sc-38001-V.

Id2 (E-7) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

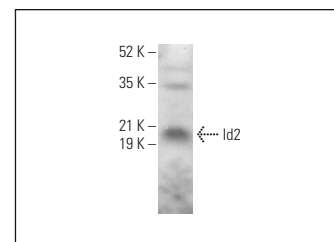
Molecular Weight of Id2: 15 kDa.

Positive Controls: Id2 (m2): 293T Lysate: sc-120939 or Neuro-2A whole cell lysate: sc-364185.

DATA



Id2 (E-7): sc-398104. Western blot analysis of Id2 expression in non-transfected: sc-117752 (A) and mouse Id2 transfected: sc-120939 (B) 293T whole cell lysates.



Id2 (E-7): sc-398104. Western blot analysis of Id2 expression in Neuro-2A whole cell lysate.

SELECT PRODUCT CITATIONS

1. Ko, H.R., et al. 2016. Akt1-inhibitor of DNA binding2 is essential for growth cone formation and axon growth and promotes central nervous system axon regeneration. *Elife* 5: e20799.
2. Fortin, J., et al. 2020. Mutant ACVR1 arrests glial cell differentiation to drive tumorigenesis in pediatric gliomas. *Cancer Cell* 37: 308-323.e12.
3. Yun, T., et al. 2021. Inhibitor of DNA binding 2 (Id2) mediates microtubule polymerization in the brain by regulating αK40 acetylation of α-tubulin. *Cell Death Discov.* 7: 257.

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.

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