

Id3 (2B11): sc-56712

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.
5. Riechmann, V., et al. 1994. The expression pattern of Id4, a novel dominant negative helix-loop-helix protein, is distinct from Id1, Id2 and Id3. *Nucleic Acids Res.* 22: 749-755.

CHROMOSOMAL LOCATION

Genetic locus: ID3 (human) mapping to 1p36.12; Id3 (mouse) mapping to 4 D3.

SOURCE

Id3 (2B11) is a mouse monoclonal antibody raised against amino acids 1-119 of Id3 of mouse origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Id3 (2B11) is available conjugated to agarose (sc-56712 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-56712 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-56712 PE), fluorescein (sc-56712 FITC), Alexa Fluor® 488 (sc-56712 AF488), Alexa Fluor® 546 (sc-56712 AF546), Alexa Fluor® 594 (sc-56712 AF594) or Alexa Fluor® 647 (sc-56712 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-56712 AF680) or Alexa Fluor® 790 (sc-56712 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

Id3 (2B11) is recommended for detection of Id3 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)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for Id3 siRNA (h): sc-38002, Id3 siRNA (m): sc-38003, Id3 shRNA Plasmid (h): sc-38002-SH, Id3 shRNA Plasmid (m): sc-38003-SH, Id3 shRNA (h) Lentiviral Particles: sc-38002-V and Id3 shRNA (m) Lentiviral Particles: sc-38003-V.

Molecular Weight of Id3: 20 kDa.

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 A/G PLUS-Agarose: sc-2003 (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.

SELECT PRODUCT CITATIONS

1. Das, J.K., et al. 2015. Id3 contributes to the acquisition of molecular stem cell-like signature in microvascular endothelial cells: its implication for understanding microvascular diseases. *Microvasc. Res.* 98: 126-138.
2. Fortin, J., et al. 2020. Mutant ACVR1 arrests glial cell differentiation to drive tumorigenesis in pediatric gliomas. *Cancer Cell* 37: 308-323.
3. Panahipour, L., et al. 2020. Milk lactoperoxidase decreases Id1 and Id3 expression in human oral squamous cell carcinoma cell lines. *Sci. Rep.* 10: 5836.
4. Wang, X., et al. 2020. LEF1/Id3/HRAS axis promotes the tumorigenesis and progression of esophageal squamous cell carcinoma. *Int. J. Biol. Sci.* 16: 2392-2404.

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.

PROTOCOLS

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