

Id3 (H-70): sc-13046

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 Myo D, 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 Myo D 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. 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.
3. 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.
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. Hara, E., et al. 1994. Id-related genes encoding helix-loop-helix proteins are required for G₁ progression and are repressed in senescent human fibroblasts. *J. Biol. Chem.* 269: 2139-2145.
6. 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 (H-70) is a rabbit polyclonal antibody raised against amino acids 1-70 of Id3 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. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-13046 X, 200 µg/0.1 ml.

STORAGE

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

APPLICATIONS

Id3 (H-70) 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)], 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).

Id3 (H-70) is also recommended for detection of Id3 in additional species, including canine, bovine and porcine.

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.

Id3 (H-70) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

Molecular Weight of Id3: 20 kDa.

Positive Controls: COLO 320DM cell lysate: sc-2226.

SELECT PRODUCT CITATIONS

1. Everly, D.N., Jr., et al. 2004. Induction of Id1 and Id3 by latent membrane protein 1 of Epstein-Barr virus and regulation of p27/Kip and cyclin-dependent kinase 2 in rodent fibroblast transformation. *J. Virol.* 78: 13470-13478.
2. Matsui, C., et al. 2008. Identification of a link between the SAMP repeats of adenomatous polyposis coli tumor suppressor and the Src homology 3 domain of DDEF. *J. Biol. Chem.* 283: 33006-33020.
3. Hauser, J., et al. 2008. B-cell receptor activation inhibits AID expression through calmodulin inhibition of E-proteins. *Proc. Natl. Acad. Sci. USA* 105: 1267-1272.
4. Manthey, C., et al. 2010. Elevated endogenous expression of the dominant negative basic helix-loop-helix protein ID1 correlates with significant centrosome abnormalities in human tumor cells. *BMC Cell Biol.* 11: 2.
5. Hauser, J., et al. 2010. Calmodulin inhibition of E2A stops expression of surrogate light chains of the pre-B-cell receptor and CD19. *Mol. Immunol.* 47: 1031-1038.

RESEARCH USE

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



Try **Id3 (2B11): sc-56712** or **Id3 (4i234): sc-71311**, our highly recommended monoclonal alternatives to Id3 (H-70). Also, for AC, HRP, FITC, PE, Alexa Fluor[®] 488 and Alexa Fluor[®] 647 conjugates, see **Id3 (2B11): sc-56712**.