SANTA CRUZ BIOTECHNOLOGY, INC.

Id4 (H-70): sc-13047

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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: ID4 (human) mapping to 6p22.3; Id4 (mouse) mapping to 13 A5.

SOURCE

Id4 (H-70) is a rabbit polyclonal antibody raised against amino acids 1-70 mapping at the N-terminus of Id4 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-13047 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.

RESEARCH USE

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

APPLICATIONS

Id4 (H-70) is recommended for detection of Id4 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), 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).

Id4 (H-70) is also recommended for detection of Id4 in additional species, including canine and porcine.

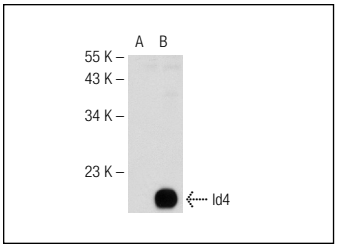
Suitable for use as control antibody for Id4 siRNA (h): sc-38004, Id4 siRNA (m): sc-38005, Id4 shRNA Plasmid (h): sc-38004-SH, Id4 shRNA Plasmid (m): sc-38005-SH, Id4 shRNA (h) Lentiviral Particles: sc-38004-V and Id4 shRNA (m) Lentiviral Particles: sc-38005-V.

Id4 (H-70) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

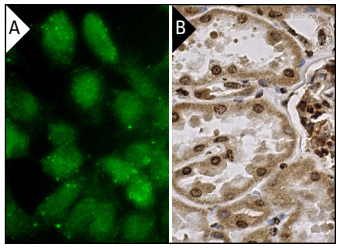
Molecular Weight of Id4: 18 kDa.

Positive Controls: Id4 (h): 293T Lysate: sc-110122.

DATA



Id4 (H-70): sc-13047. Western blot analysis of Id4 expression in non-transfected: sc-117752 (**A**) and human Id4 transfected: sc-110122 (**B**) 293T whole cell lysates.



Id4 (H-70): sc-13047. Immunofluorescence staining of formalin-fixed HeLa cells showing nuclear and cytoplasmic localization. Kindly provided by Yang Xiang, Ph.D., Division of Newborn Medicine, Boston Children's Hospital, Cell Biology Department, Harvard Medical School (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human kidney tissue showing nuclear and cytoplasmic staining of cells in glomeruli and tubules (**B**).

SELECT PRODUCT CITATIONS

1. Yuen, H.F., et al. 2007. Id-1 and Id-2 are markers for metastasis and prognosis in oesophageal squamous cell carcinoma. Br. J. Cancer 97: 1409-1415.
2. 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.