SANTA CRUZ BIOTECHNOLOGY, INC.

Id1 (G-7): sc-374287

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.

SOURCE

Id1 (G-7) is a mouse monoclonal antibody raised against amino acids 1-148 representing full length Id1 of mouse origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

Id1 (G-7) is recommended for detection of Id1, Id2, Id3, and Id4 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).

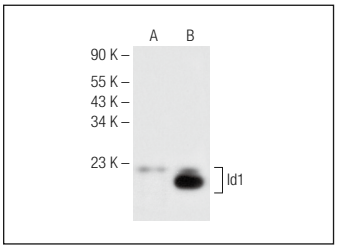
Molecular Weight of Id1: 15 kDa.

Positive Controls: F9 cell lysate: sc-2245, c4 whole cell lysate: sc-364186 or Id1 (h2): 293T Lysate: sc-171632.

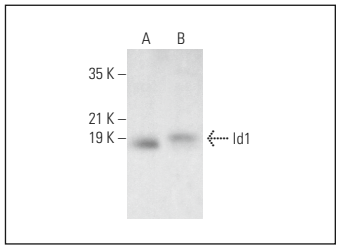
RECOMMENDED SUPPORT REAGENTS

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.

DATA



Id1 (G-7): sc-374287. Western blot analysis of Id1 expression in non-transfected: sc-117752 (**A**) and human Id1 transfected: sc-171632 (**B**) 293T whole cell lysates.



Id1 (G-7): sc-374287. Western blot analysis of Id1 expression in F9 (**A**) and c4 (**B**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Chau, J.F., et al. 2012. A crucial role for bone morphogenetic protein-Smad1 signalling in the DNA damage response. Nat. Commun. 3: 836.
2. Kua, H.Y., et al. 2012. c-Abl promotes osteoblast expansion by differentially regulating canonical and non-canonical BMP pathways and $p16^{INK4a}$ expression. Nat. Cell Biol. 14: 727-737.
3. 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.
4. Cui, J., et al. 2020. Targeting 14-3-3ζ overcomes resistance to epidermal growth factor receptor-tyrosine kinase inhibitors in lung adenocarcinoma via BMP2/Smad/Id1 signaling. Front. Oncol. 10: 542007.
5. Xu, S., et al. 2021. Loss of Id3 drives papillary thyroid cancer metastasis by targeting E47-mediated epithelial to mesenchymal transition. Cell Death Discov. 7: 226.

RESEARCH USE

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

CONJUGATES

See **Id1 (B-8): sc-133104** for Id1 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.