

Id4 (B-5): sc-365656

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.

CHROMOSOMAL LOCATION

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

SOURCE

Id4 (B-5) is a mouse monoclonal antibody raised against amino acids 1-70 mapping at the N-terminus of Id4 of human 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. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-365656 X, 200 µg/0.1 ml.

Id4 (B-5) is available conjugated to agarose (sc-365656 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-365656 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365656 PE), fluorescein (sc-365656 FITC), Alexa Fluor® 488 (sc-365656 AF488), Alexa Fluor® 546 (sc-365656 AF546), Alexa Fluor® 594 (sc-365656 AF594) or Alexa Fluor® 647 (sc-365656 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-365656 AF680) or Alexa Fluor® 790 (sc-365656 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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STORAGE

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

APPLICATIONS

Id4 (B-5) is recommended for detection of 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).

Id4 (B-5) is also recommended for detection of Id4 in additional species, including porcine.

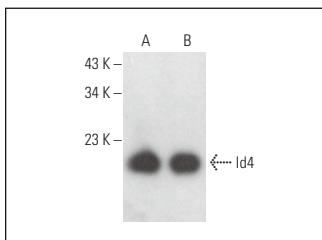
Suitable for use as control antibody for Id4 siRNA (h): sc-38004, Id4 RNA (m): sc-38005, Id4 shRNA Plasmid (h): sc-38004-SH, Id4 shRNA Plasmid (m): sc-38005-SH, Id4 shRNA (h) Lentiviral Particles: sc-38004-V and Id4 shRNA (m) Lentiviral Particles: sc-38005-V.

Id4 (B-5) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

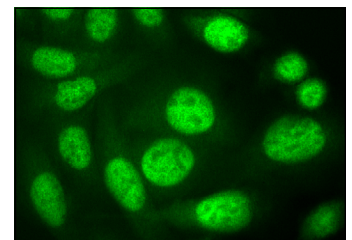
Molecular Weight of Id4: 18 kDa.

Positive Controls: C6 whole cell lysate: sc-364373 or AN3 CA cell lysate: sc-24662.

DATA



Id4 (B-5): sc-365656. Western blot analysis of Id4 expression in C6 (A) and AN3 CA (B) whole cell lysates.



Id4 (B-5) Alexa Fluor® 488: sc-365656 AF488. Direct immunofluorescence staining of formalin-fixed SW480 cells showing nuclear localization. Blocked with UltraCruz® Blocking Reagent: sc-516214.

SELECT PRODUCT CITATIONS

1. Zhang, Y., et al. 2017. Id4 promotes cell proliferation in hepatocellular carcinoma. *Chin. J. Cancer* 36: 19.
2. Turco, C., et al. 2022. MALAT1-dependent hsa_circ_0076611 regulates translation rate in triple-negative breast cancer. *Commun. Biol.* 5: 598.
3. Hayashi, Y., et al. 2023. Id4 modulates salivary gland homeostasis and its expression is downregulated in IgG₄-related disease via miR-486-5p. *Biochim. Biophys. Acta Mol. Cell Res.* 1870: 119404.
4. Benedetti, A., et al. 2024. ID4-dependent secretion of VEGFA enhances the invasion capability of breast cancer cells and activates YAP/TAZ via integrin β3-VEGFR2 interaction. *Cell Death Dis.* 15: 113.

RESEARCH USE

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