SANTA CRUZ BIOTECHNOLOGY, INC.

BETA 3 (K-18): sc-6046

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Members of the myogenic determination family are basic helix-loop-helix (bHLH) proteins that can be separated into two classes. Class A proteins include the ubiquitously expressed E-box binding factors E12/E47, ITF2 and HEB (BETA 1 or HTF4). Class B proteins such as Myo D, myogenin and Neuro D (BETA 2) are transiently expressed and exhibit a more limited tissue distribution. Class A proteins heterodimerize with class B proteins to activate transcription. Working in opposition to these positively acting factors are a specialized group of proteins that function as dominant negative regulators. For instance, the Id family of transcriptional repressors contains a HLH region required for dimerization but lacks a functional DNA-binding domain. The Id family can therefore form heterodimers with the myogenic family, but the resulting complexes are transcriptionally inactive. BETA 3 is a protein that is functionally similar to members of the Id family in that it can inhibit the binding of E47 homodimers as well as E47/Neuro D and E47/Myo D heterodimers to consensus DNA sequences. In contrast to members of the Id family, BETA 3 contains a putative DNA-binding domain.

REFERENCES

1. Lee, J.E., et al. 1995. Conversion of Xenopus ectoderm into neurons by NeuroD, a basic helix-loop-helix protein. Science 268: 836-844.
2. Naya, F.J., et al. 1995. Tissue-specific regulation of the Insulin gene by a novel basic helix-loop-helix transcription factor. Genes and Dev. 9: 1009-1019.
3. Vitola, S.J., et al. 1996. Substitution of basic amino acids in the basic region stabilizes DNA binding by E12 homodimers. Nucl. Acids Res. 24: 1921-1927.
4. Goldfarb, A.N., et al. 1996. Determinants of helix-loop-helix dimerization affinity. Random mutational analysis of SCL/tal. J. Biol. Chem. 271: 2683-2688.
5. Ishiguro, A., et al. 1996. Id2 expression increases the differentiation of human myeloid cells. Blood 87: 5225-5231.
6. Wibley, J., et al. 1996. A homology model of the Id-3 helix-loop-helix domain as a basis for structure-function predictions. Biochim. Biophys. Acta 1294: 138-146.
7. Peyton, M., et al. 1996. BETA3, a novel helix-loop-helix protein, can act as a negative regulator of BETA2 and MyoD-responsive genes. Mol. Cell. Biol. 16: 626-633.

SOURCE

BETA 3 (K-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of BETA 3 of hamster origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-6046 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

Available as TransCruz reagent for Gel Supershift and ChIP applications, sc-6046 X, 200 µg/0.1 ml.

APPLICATIONS

BETA 3 (K-18) is recommended for detection of BETA 3 of mouse, rat, human and hamster 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).

BETA 3 (K-18) is also recommended for detection of BETA 3 in additional species, including avian.

BETA 3 (K-18) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

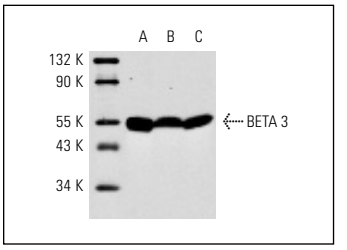
Molecular Weight of BETA 3: 55 kDa.

Positive Controls: rat lung extract: sc-2396, rat brain extract: sc-2392 or rat kidney extract: sc-2394.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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 donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



BETA 3 (K-18): sc-6046. Western blot analysis of BETA 3 expression in rat lung (**A**), kidney (**B**) and brain (**C**) extracts.

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 or our catalog for detailed protocols and support products.