SANTA CRUZ BIOTECHNOLOGY, INC.

BETA 3 siRNA (h): sc-42066

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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

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3. Vitola, S.J., et al. 1996. Substitution of basic amino acids in the basic region stabilizes DNA binding by E12 homodimers. Nucleic 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.
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7. Peyton, M., et al. 1996. BETA 3, a novel helix-loop-helix protein, can act as a negative regulator of BETA 2 and MyoD-responsive genes. Mol. Cell. Biol. 16: 626-633.

CHROMOSOMAL LOCATION

Genetic locus: BHLHE22 (human) mapping to 8q12.3.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

PRODUCT

BETA 3 siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see BETA 3 shRNA Plasmid (h): sc-42066-SH and BETA 3 shRNA (h) Lentiviral Particles: sc-42066-V as alternate gene silencing products.

For independent verification of BETA 3 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-42066A, sc-42066 and sc-42066C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

BETA 3 siRNA (h) is recommended for the inhibition of BETA 3 expression in human cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor BETA 3 gene expression knockdown using RT-PCR Primer: BETA 3 (h)-PR: sc-42066-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.