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SANTA CRUZ BIOTECHNOLOGY, INC.

Mcl-1_L siRNA (h): sc-43912

BACKGROUND

B cell CLL/lymphoma 2 (Bcl-2) blocks cell death following a variety of stimuli and confers a death-sparing effect to certain hematopoietic cell lines following growth factor withdrawal. Myeloid cell leukemia 1 (Mcl-1) shares sequence homology with Bcl-2 and further resembles Bcl-2 in that its expression promotes cell viability. p53 and Mcl-1 demonstrate opposing effects on mitochondrial apoptosis by mediating Bcl-2 antagonist killer (Bak) activity. Mcl-1 is an important and specific regulator that is necessary for the homeostasis of early hematopoietic progenitors. Glycogen synthase kinase 3 (GSK-3) controls Mcl-1 stability, which has an effect on the regulation of apoptosis by growth factors, PI 3-kinase and Akt. Mice with a deficiency of the Mcl-1 protein show a significant reduction in B and T lymphocytes similar to the effects observed in IL-7- or IL-7R-deficient mice. The Mcl-1 mRNA is alternatively spliced into a long and a short form of the protein, designated Mcl-1_L and Mcl-1_S, respectively. Mcl-1_S, unlike Mcl-1_L, does not interact with proapoptotic Bcl-2-related proteins.

REFERENCES

1. Kozopas, K.M., et al. 1993. Mcl-1, a gene expressed in programmed myeloid cell differentiation, has sequence similarity to Bcl-2. Proc. Natl. Acad. Sci. USA 90: 3516-3520.
2. Craig, R.W., et al. 1994. Human and mouse chromosomal mapping of the myeloid cell leukemia-1 gene: Mcl-1 maps to human chromosome 1q21, a region that is frequently altered in preneoplastic and neoplastic disease. Genomics 23: 457-463.
3. Rinkenberger, J.L., et al. 2000. Mcl-1 deficiency results in peri-implantation embryonic lethality. Genes Dev. 14: 23-27.
4. Bae, J., et al. 2000. Mcl-1S, a splicing variant of the antiapoptotic Bcl-2 family member Mcl-1, encodes a proapoptotic protein possessing only the BH3 domain. J. Biol. Chem. 275: 25255-25261.
5. Opferman, J.T., et al. 2003. Development and maintenance of B and T lymphocytes requires antiapoptotic Mcl-1. Nature 426: 671-676.
6. Leu, J.I., et al. 2004. Mitochondrial p53 activates Bak and causes disruption of a Bak-Mcl-1 complex. Nat. Cell Biol. 6: 443-450.

CHROMOSOMAL LOCATION

Genetic locus: MCL1 (human) mapping to 1q21.3.

PRODUCT

Mcl-1_L 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 Mcl-1_L shRNA Plasmid (h): sc-43912-SH and Mcl-1_L shRNA (h) Lentiviral Particles: sc-43912-V as alternate gene silencing products.

For independent verification of Mcl-1_L (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-43912A, sc-43912B and sc-43912C.

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

Mcl-1_L siRNA (h) is recommended for the inhibition of Mcl-1_L 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 Mcl-1_L gene expression knockdown using RT-PCR Primer: Mcl-1_L (h)-PR: sc-43912-PR (20 µl, 455 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

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.