SANTA CRUZ BIOTECHNOLOGY, INC.

MLK1 siRNA (h): sc-39110

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The Power to Question

BACKGROUND

Mixed lineage kinases are a family of protein kinases sharing two leucine zipper-like motifs, which are known to mediate protein dimerization, and a kinase domain whose primary structure is similar to both the tyrosine-specific and the serine/threonine-specific kinase classes. Members of the mixed-lineage kinase (MLK) family include MLK1, MLK2, MLK3 and dual leucine zipper kinase, also designated DLK. MLKs are expressed in neuronal cells where they are likely to interact between Rac1/Cdc42, MKK4 and MKK7 in death signaling. The human MLK1 gene maps to chromosome 14q24.2 and is expressed in epithelial tumor cell lines of the colon, breast, and esophagus. The human MLK2 gene maps to chromosome 19q13.2. and encodes a predicted 954 amino acid, src homology 3 (SH3) domain-containing protein. The human MLK3 gene maps to chromosome 11q13.1 and encodes a 847 amino acid, SH3 domain- and proline rich region-containing protein. Apoptosis mechanisms rely on MLKs as an upstream intermediate of mitochondrial cytochrome c release and caspase activation.

REFERENCES

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2. Ing, Y.L., et al. 1994. MLK-3: identification of a widely-expressed protein kinase bearing an SH3 domain and a leucine zipper-basic region domain. Oncogene 9: 1745-1750.
3. Dorow, D.S., et al. 1995. Complete nucleotide sequence, expression, and chromosomal localisation of human mixed-lineage kinase 2. Eur. J. Biochem. 234: 492-500.
4. Hirai, S., et al. 1997. MST/MLK2, a member of the mixed lineage kinase family, directly phosphorylates and activates SEK1, an activator of c-Jun N-terminal kinase/stress-activated protein kinase. J. Biol. Chem. 272: 15167-15173.
5. Leung, I.W. and Lassam, N. 1998. Dimerization via tandem leucine zippers is essential for the activation of the mitogen-activated protein kinase kinase kinase, MLK-3. J. Biol. Chem. 273: 32408-32415.
6. Nagata, K., et al. 1998. The MAP kinase kinase kinase MLK2 co-localizes with activated JNK along microtubules and associates with kinesin superfamily motor KIF3. EMBO J. 17: 149-158.
7. Online Mendelian Inheritance in Man, OMIM™. 1999. Johns Hopkins University, Baltimore, MD. MIM Number: 600136. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
8. Xu, Z., et al. 2001. The MLK family mediates c-Jun N-terminal kinase activation in neuronal apoptosis. Mol. Cell. Biol. 21: 4713-4724.

CHROMOSOMAL LOCATION

Genetic locus: MAP3K9 (human) mapping to 14q24.2.

PROTOCOLS

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

PRODUCT

MLK1 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 MLK1 shRNA Plasmid (h): sc-39110-SH and MLK1 shRNA (h) Lentiviral Particles: sc-39110-V as alternate gene silencing products.

For independent verification of MLK1 (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-39110A, sc-39110B and sc-39110C.

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

MLK1 siRNA (h) is recommended for the inhibition of MLK1 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 MLK1 gene expression knockdown using RT-PCR Primer: MLK1 (h)-PR: sc-39110-PR (20 µl). 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.