SANTA CRUZ BIOTECHNOLOGY, INC.

MELK siRNA (m): sc-61017

BACKGROUND

Maternal embryonic leucine zipper kinase (KIAA0175, HPK38) or MELK, a new member of the Snf1/AMPK family of kinases, encodes a protein with a kinase catalytic domain and a leucine zipper motif consisting of a periodic repetition of leucine residues at every seventh residue located within the N-terminal catalytic domain. This motif has been observed in myriad DNA-binding proteins and is presumed to be involved in protein-DNA interactions, and potentially protein-protein interactions. Research predicts that the gene product of MELK plays a role in the signal transduction events in the egg and early embryo. Mouse and human MELK proteins share 95% sequence identity in the kinase domain and northern blot analysis in mouse indicates that MELK expression is restricted to spermatogonia in the testis and to oocytes in the ovary.

REFERENCES

1. Nagase, T., et al. 1996. Prediction of the coding sequences of unidentified human genes. V. The coding sequences of 40 new genes (KIAA0161-KIAA0200) deduced by analysis of cDNA clones from human cell line KG-1. DNA Res. 3: 17-24.
2. Heyer, B.S., et al. 1997. New member of the Snf1/AMPK kinase family, MELK, is expressed in the mouse egg and preimplantation embryo. Mol. Reprod. Dev. 47: 148-156.
3. Seong, H.A., et al. 2002. Phosphorylation of a novel zinc finger-like protein, ZPR9, by murine protein serine/threonine kinase 38 (MPK38). Biochem. J. 361: 597-604.
4. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 607025. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
5. Vulsteke, V., et al. 2004. Inhibition of spliceosome assembly by the cell cycle-regulated protein kinase MELK and involvement of splicing factor NIPP1. J. Biol. Chem. 279: 8642-8647.
6. Beullens, M., et al. 2005. Substrate specificity and activity regulation of protein kinase MELK. J. Biol. Chem. 280: 40003-40011.
7. Nakano, I., et al. 2005. Maternal embryonic leucine zipper kinase (MELK) regulates multipotent neural progenitor proliferation. J. Cell Biol. 170: 413-427.
8. Badouel, C., et al. 2006. M-phase MELK activity is regulated by MPF and MAPK. Cell Cycle 5: 883-889.
9. Cordes, S., et al. 2006. The *C. elegans* MELK ortholog PIG-1 cell fate in asymmetric neuroblast divisions. Development 133: 2747-2756.

CHROMOSOMAL LOCATION

Genetic locus: Melk (mouse) mapping to 4 B1.

PROTOCOLS

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

PRODUCT

MELK siRNA (m) 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 MELK shRNA Plasmid (m): sc-61017-SH and MELK shRNA (m) Lentiviral Particles: sc-61017-V as alternate gene silencing products.

For independent verification of MELK (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-61017A, sc-61017B and sc-61017C.

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

MELK siRNA (m) is recommended for the inhibition of MELK expression in mouse 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 MELK gene expression knockdown using RT-PCR Primer: MELK (m)-PR: sc-61017-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.