SANTA CRUZ BIOTECHNOLOGY, INC.

MARK4 siRNA (m): sc-149275

BACKGROUND

The phosphorylation and dephosphorylation of proteins on serine and threonine residues is an essential means of regulating a broad range of cellular functions in eukaryotes, including cell division, homeostasis and apoptosis. The serine/threonine (Ser/Thr) protein kinases are a group of proteins that are intimately involved in this process. MARK4 (MAP/microtubule affinity-regulating kinase 4), also known as MARKL1 or KIAA1860, is a 752 amino acid protein that contains one UBA domain, one protein kinase domain and one kinase-associated domain and belongs to the Ser/Thr protein kinase family. Expressed ubiquitously as two alternatively spliced isoforms, one of which is brain-specific, MARK4 uses ATP to catalyze the phosphorylation of target proteins and is thought to be involved in cell growth. MARK4 is up-regulated in hepatocellular carcinoma cells, suggesting a role for MARK4 in tumorigenesis.

REFERENCES

1. Drewes, G., et al. 1997. MARK, a novel family of protein kinases that phosphorylate microtubule-associated proteins and trigger microtubule disruption. Cell 89: 297-308.
2. Nagase, T., et al. 2001. Prediction of the coding sequences of unidentified human genes. XX. The complete sequences of 100 new cDNA clones from brain which code for large proteins *in vitro*. DNA Res. 8: 85-95.
3. Kato, T., et al. 2001. Isolation of a novel human gene, MARKL1, homologous to MARK3 and its involvement in hepatocellular carcinogenesis. Neoplasia 3: 4-9.
4. Beghini, A., et al. 2003. The neural progenitor-restricted isoform of the MARK4 gene in 19q13.2 is upregulated in human gliomas and overexpressed in a subset of glioblastoma cell lines. Oncogene 22: 2581-2591.
5. Trinczek, B., et al. 2004. MARK4 is a novel microtubule-associated proteins/microtubule affinity-regulating kinase that binds to the cellular microtubule network and to centrosomes. J. Biol. Chem. 279: 5915-5923.

CHROMOSOMAL LOCATION

Genetic locus: Mark4 (mouse) mapping to 7 A3.

PRODUCT

MARK4 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 MARK4 shRNA Plasmid (m): sc-149275-SH and MARK4 shRNA (m) Lentiviral Particles: sc-149275-V as alternate gene silencing products.

For independent verification of MARK4 (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-149275A, sc-149275B and sc-149275C.

PROTOCOLS

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

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

MARK4 siRNA (m) is recommended for the inhibition of MARK4 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 MARK4 gene expression knockdown using RT-PCR Primer: MARK4 (m)-PR: sc-149275-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.