SANTA CRUZ BIOTECHNOLOGY, INC.

CaM IV siRNA (m): sc-72780

BACKGROUND

The level of intracellular calcium is tightly regulated in all eukaryotic cells. A modest increase in this level can result in a myriad of physiological responses, most of which are mediated by calmodulin (CaM), the universal calcium sensor. CaM directly modulates the activity of protein kinases and phosphatases, ion channels and nitric oxide synthetases. It is generally involved in such diverse processes as cell proliferation, endocytosis, cellular adhesion, protein turn over and smooth muscle contraction. CaM IV (calmodulin 4), also known as Calm4, Scarf (skin calmodulin-related factor) or calcium-binding protein Dd112, is a 148 amino acid novel murine protein that contains 4 EF-hand domains and is thought to play a role in early ectopic ossification. Involved in epidermal calcium homeostasis, CaM IV is encoded by a gene that maps to murine chromosome 13 A1.

REFERENCES

1. Vogel, H.J. 1994. The Merck Frosst Award Lecture 1994. Calmodulin: a versatile calcium mediator protein. Biochem. Cell Biol. 72: 357-376.
2. Saimi, Y., et al. 1994. Ion channel regulation by calmodulin binding. FEBS Lett. 350: 155-158.
3. Takuwa, N., et al. 1995. Calcium, calmodulin and cell cycle progression. Cell. Signal. 7: 93-104.
4. Koshizuka, Y., et al. 2001. Isolation of novel mouse genes associated with ectopic ossification by differential display method using ttw, a mouse model for ectopic ossification. Cytogenet. Cell Genet. 94: 163-168.
5. Hwang, M., et al. 2003. The novel murine Ca^{2+}-binding protein, Scarf, is differentially expressed during epidermal differentiation. J. Biol. Chem. 278: 47827-47833.
6. Hwang, M., et al. 2005. The temporal and spatial expression of the novel Ca^{2+}-binding proteins, Scarf and Scarf2, during development and epidermal differentiation. Gene Expr. Patterns 5: 801-808.
7. Hwang, J., et al. 2007. Role of Scarf and its binding target proteins in epidermal calcium homeostasis. J. Biol. Chem. 282: 18645-18653.

CHROMOSOMAL LOCATION

Genetic locus: Calm4 (mouse) mapping to 13 A1.

PRODUCT

CaM IV 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 CaM IV shRNA Plasmid (m): sc-72780-SH and CaM IV shRNA (m) Lentiviral Particles: sc-72780-V as alternate gene silencing products.

For independent verification of CaM IV (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-72780A, sc-72780B and sc-72780C.

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

CaM IV siRNA (m) is recommended for the inhibition of calmodulin 4 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 CaM IV gene expression knockdown using RT-PCR Primer: CaM IV (m)-PR: sc-72780-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.

PROTOCOLS

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