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CaMKI β siRNA (m): sc-141994

BACKGROUND

The Ca²⁺/calmodulin-dependent protein kinases (CaMKs) comprise a structurally related subfamily of serine/threonine kinases. CaMKI β (Ca²⁺/calmodulin-dependent protein kinase type 1B), also known as PNCK (pregnancy up-regulated non-ubiquitously expressed CaM kinase) or BSTK3, is a 343 amino acid protein that localizes to both the nucleus and the cytoplasm and contains one protein kinase domain. Existing as multiple alternatively spliced isoforms, CaMKI β functions to catalyze the ATP-dependent phosphorylation of CaMKI, an event that activates CaMKI activity and may be important for Ca²⁺-triggered signaling cascades within the cell. The gene encoding CaMKI β maps to human chromosome X, which contains nearly 153 million base pairs and houses over 1,000 genes.

REFERENCES

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2. Gardner, H.P., et al. 2000. The caM kinase, Pnck, is spatially and temporally regulated during murine mammary gland development and may identify an epithelial cell subtype involved in breast cancer. *Cancer Res.* 60: 5571-5577.
3. Gardner, H.P., et al. 2000. Cloning, characterization, and chromosomal localization of Pnck, a Ca²⁺/calmodulin-dependent protein kinase. *Genomics* 63: 279-288.
4. Hook, S.S., et al. 2001. Ca²⁺/CaM-dependent kinases: from activation to function. *Annu. Rev. Pharmacol. Toxicol.* 41: 471-505.
5. Uboba, N.V., et al. 2007. A calcium- and calmodulin-dependent kinase I α /microtubule affinity regulating kinase 2 signaling cascade mediates calcium-dependent neurite outgrowth. *J. Neurosci.* 27: 4413-4423.
6. Takemoto-Kimura, S., et al. 2007. Regulation of dendritogenesis via a lipid-raft-associated Ca²⁺/calmodulin-dependent protein kinase CLICKIII/CaMKI γ . *Neuron* 54: 755-770.

CHROMOSOMAL LOCATION

Genetic locus: Pnck (mouse) mapping to X A7.3.

PRODUCT

CaMKI β siRNA (m) is a pool of 2 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see CaMKI β shRNA Plasmid (m): sc-141994-SH and CaMKI β shRNA (m) Lentiviral Particles: sc-141994-V as alternate gene silencing products.

For independent verification of CaMKI β (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-141994A and sc-141994B.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

CaMKI β siRNA (m) is recommended for the inhibition of CaMKI β 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 μ M in 66 μ l. 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 CaMKI β gene expression knockdown using RT-PCR Primer: CaMKI β (m)-PR: sc-141994-PR (20 μ l). 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.