SANTA CRUZ BIOTECHNOLOGY, INC.

PKA Iα reg siRNA (h): sc-39162

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The Power to Question

BACKGROUND

The second messenger cyclic AMP (cAMP) mediates diverse cellular responses to external signals such as proliferation, ion transport, regulation of metabolism and gene transcription by activation of the cAMP-dependent protein kinase (cAPK or PKA). Activation of PKA occurs when cAMP binds to the two regulatory subunits of the tetrameric PKA holoenzyme, resulting in release of active catalytic subunits. Four different PKA regulatory subunits have been identified, designated Iα, Iβ, IIα and IIβ. The PKA Iα reg protein is a tissue-specific extinguisher that downregulates the expression of seven liver genes in hepatoma x fibroblast hybrids. Functional null mutations in the gene that codes for PKA Iα reg cause Carney complex (CNC). CNC is an autosomal dominant multiple neoplasia syndrome. CNC is associated with a variety of characterized symptoms such as cardiac and other myxomas, spotty skin pigmentation, endocrine tumors and psammomatous melanotic schwannomas.

REFERENCES

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2. Krebs, E.G. and Beavo, J.A. 1980. Phosphorylation and dephosphorylation of enzymes. Annu. Rev. Biochem. 48: 923-959.
3. Maldonado, F. and Hanks, S.K. 1988. cAMP-dependent protein kinase, α catalytic subunit. Nucleic Acids Res. 16: 8189-8190.
4. Gonzalez, G.A. and Montminy, M.R. 1989. Cyclic AMP stimulates Somatostatin gene transcription by phosphorylation of CREB at Serine 133. Cell 59: 675-680.
5. Beebe, S.J., et al. 1990. cAMP-dependent protein kinase, β catalytic subunit. Mol. Endocrinol. 4: 465-475.
6. Schneider, L.H., et al. 1991. Infra-additivity of combined treatments with selective D1 and D2 receptor antagonists for inhibiting sucrose reinforcement. Brain Res. 550: 122-124.
7. Meinkoth, J.L., et al. 1993. Signal transduction through the cAMP-dependent protein kinase. Mol. Cell. Biochem. 127/128: 179-186.
8. Kirschner, L.S., et al. 2000. Genetic heterogeneity and spectrum of mutations of the PRKAR1A gene in patients with the carney complex. Hum. Mol. Genet. 9: 3037-3046.

CHROMOSOMAL LOCATION

Genetic locus: PRKAR1A (human) mapping to 17q24.2.

PRODUCT

PKA Iα reg 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 PKA Iα reg shRNA Plasmid (h): sc-39162-SH and PKA Iα reg shRNA (h) Lentiviral Particles: sc-39162-V as alternate gene silencing products.

For independent verification of PKA Iα reg (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-39162A, sc-39162B and sc-39162C.

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

PKA Iα reg siRNA (h) is recommended for the inhibition of PKA Iα reg 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.

GENE EXPRESSION MONITORING

PKA Iα reg (20): sc-136231 is recommended as a control antibody for monitoring of PKA Iα reg gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor PKA Iα reg gene expression knockdown using RT-PCR Primer: PKA Iα reg (h)-PR: sc-39162-PR (20 µl, 458 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Kuras, Z., et al. 2012. Modulation of Kv1.3 channels by protein kinase A I in T lymphocytes is mediated by the disc large 1-tyrosine kinase Lck complex. Am. J. Physiol., Cell Physiol. 302: C1504-C1512.

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.