



# cGKI $\alpha$ / $\beta$ siRNA (h): sc-35059

## BACKGROUND

cGKI (cGMP-dependent protein kinase type II) is a major receptor of intracellular cGMP, and mediates a plethora of physiological responses. cGKI contains a conserved leucine zipper motif at the amino terminus. It is expressed in small intestine, colon, prostate, and human brain tissues, and the cGKI gene maps to chromosome 4q21.21. cGKI has been shown to regulate the ion transport system in the intestine. Myristoylation of the penultimate glycine in cGKI appears to be essential for directing cGKI to the membrane, since cGKI is devoid of any hydrophobic transmembrane domains. The translocation of cGKI from the cytosol to the membrane allows it to function properly in regulating intestinal ion transport. cGMP-dependent protein kinase 1 (cGKI) lowers the intracellular level of calcium and is therefore considered important for the relaxation of vascular smooth muscle. There are two isoforms of cGKI,  $\alpha$  and  $\beta$ , which differ only in their N-terminal sequence.

## REFERENCES

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2. Tamura, N., et al. 1996. cDNA cloning and gene expression of human type I  $\alpha$  cGMP-dependent protein kinase. *Hypertension* 27: 552-5577.
3. Vaandrager, A.B. and de Jonge, H.R. 1996. Signalling by cGMP-dependent protein kinases. *Mol. Cell. Biochem.* 157: 23-30.
4. Orstavik, S., et al. 1997. Characterization of the human gene encoding the type I  $\alpha$  and type I  $\beta$  cGMP-dependent protein kinase (PRKG1). *Genomics* 42: 311-318.
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7. Ruth, P. 1999. Cyclic GMP-dependent protein kinases: understanding *in vivo* functions by gene targeting. *Pharmacol. Ther.* 82: 355-372.

## CHROMOSOMAL LOCATION

Genetic locus: PRKG1 (human) mapping to 10q11.23.

## PRODUCT

cGKI $\alpha$ / $\beta$  siRNA (h) 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see cGKI $\alpha$ / $\beta$  shRNA Plasmid (h): sc-35059-SH and cGKI $\alpha$ / $\beta$  shRNA (h) Lentiviral Particles: sc-35059-V as alternate gene silencing products.

For independent verification of cGKI $\alpha$ / $\beta$  (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-35059A and sc-35059B.

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

## APPLICATIONS

cGKI $\alpha$ / $\beta$  siRNA (h) is recommended for the inhibition of cGKI $\alpha$ / $\beta$  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  $\mu$ M in 66  $\mu$ 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.

## GENE EXPRESSION MONITORING

cGKI $\alpha$ / $\beta$  (G-3): sc-271766 is recommended as a control antibody for monitoring of cGKI $\alpha$ / $\beta$  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).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor cGKI $\alpha$ / $\beta$  gene expression knockdown using RT-PCR Primer: cGKI $\alpha$ / $\beta$  (h)-PR: sc-35059-PR (20  $\mu$ 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.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.