

# GRK 7 siRNA (h): sc-60767

## BACKGROUND

Heterotrimeric G protein-mediated signal transduction is a dynamically regulated process with the intensity of signal decreasing over time despite the continued presence of the agonist. This phenomenon, referred to as agonist-mediated desensitization, involves phosphorylation of the receptor by two classes of enzymes. The first class is comprised of the second messenger-regulated kinases, such as c-AMP dependent protein kinase A and protein kinase C. The second class includes the G protein-coupled receptor kinases (GRKs). At least seven members of the GRK family have been identified. These include rhodopsin kinase (GRK 1), two forms of  $\beta$ -adrenergic receptor kinase: GRK 2 ( $\beta$ ARK,  $\beta$ ARK1) and GRK 3 ( $\beta$ ARK2), IT-11 (GRK 4), GRK 5, GRK 6 and GRK 7. Phosphorylation of receptors by GRKs appears to be strictly dependent on the receptor being in its agonist-activated state.

## REFERENCES

1. Hisatomi, O., et al. 1998. A novel subtype of G protein-coupled receptor kinase, GRK7, in teleost cone photoreceptors. *FEBS Lett.* 424: 159-164.
2. Weiss, E.R., et al. 1998. The cloning of GRK7, a candidate cone opsin kinase, from cone- and rod-dominant mammalian retinas. *Mol. Vis.* 4: 27.
3. Chen, C.K., et al. 2001. Characterization of human GRK7 as a potential cone opsin kinase. *Mol. Vis.* 7: 305-313.
4. Weiss, E.R., et al. 2001. Species-specific differences in expression of G protein-coupled receptor kinase (GRK) 7 and GRK1 in mammalian cone photoreceptor cells: implications for cone cell phototransduction. *J. Neurosci.* 21: 9175-9184.
5. Dzimiri, N., et al. 2004. Differential functional expression of human myocardial G protein receptor kinases in left ventricular cardiac diseases. *Eur. J. Pharmacol.* 489: 167-177.
6. Liu, P., et al. 2005. M opsin phosphorylation in intact mammalian retinas. *J. Neurochem.* 93: 135-144.
7. Norton, A.W., et al. 2005. Evaluation of the 17 kDa prenyl-binding protein as a regulatory protein for phototransduction in retinal photoreceptors. *J. Biol. Chem.* 280: 1248-1256.

## CHROMOSOMAL LOCATION

Genetic locus: GRK7 (human) mapping to 3q23.

## PRODUCT

GRK 7 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see GRK 7 shRNA Plasmid (h): sc-60767-SH and GRK 7 shRNA (h) Lentiviral Particles: sc-60767-V as alternate gene silencing products.

For independent verification of GRK 7 (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-60767A, sc-60767B and sc-60767C.

## 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

GRK 7 siRNA (h) is recommended for the inhibition of GRK 7 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

GRK 7 (C-2): sc-398371 is recommended as a control antibody for monitoring of GRK 7 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 GRK 7 gene expression knockdown using RT-PCR Primer: GRK 7 (h)-PR: sc-60767-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.