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PDE6A α siRNA (m): sc-45462

BACKGROUND

Cyclic guanosine monophosphate (cGMP)-specific phosphodiesterase (PDE6) plays a crucial role in the phototransduction cascade in the vertebrate retina. The enzyme consists of an α and a β subunit, with catalytic and cGMP binding activity, respectively, as well as two inhibitory γ subunits and a δ subunit. PDE6 reduces intracellular cytoplasmic cGMP levels, specifically in photoreceptor cells. Mutations in the human PDE6A gene, which encodes the α subunit, account for roughly 3-4% of the cases of recessive retinitis pigmentosa (RP) in North America.

REFERENCES

- Mohamed, M.K., Taylor, R.E., Feinstein, D.S., Huang, X. and Pittler, S.J. 1998. Structure and upstream region characterization of the human gene encoding rod photoreceptor cGMP phosphodiesterase α subunit. *J. Mol. Neurosci.* 10: 235-250.
- Dryja, T.P., Rucinski, D.E., Chen, S.H. and Berson, E.L. 1999. Frequency of mutations in the gene encoding the α subunit of ROD cGMP-phosphodiesterase in autosomal recessive retinitis pigmentosa. *Invest. Ophthalmol. Vis. Sci.* 40: 1859-1865.
- Dekomien, G. and Epplen, J.T. 2000. Exclusion of the PDE6A gene for generalised progressive retinal atrophy in 11 breeds of dog. *Anim. Genet.* 31: 135-139.
- Pittler, S.J., Zhang, Y., Chen, S., Mears, A.J., Zack, D.J., Ren, Z., Swain, P.K., Yao, S., Swaroop, A. and White, J.B. 2004. Functional analysis of the ROD photoreceptor cGMP phosphodiesterase α subunit gene promoter: Nrl and CRX are required for full transcriptional activity. *J. Biol. Chem.* 279: 19800-19807.

CHROMOSOMAL LOCATION

Genetic locus: Pde6a (mouse) mapping to 18 E1.

PRODUCT

PDE6A α 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see PDE6A α shRNA Plasmid (m): sc-45462-SH and PDE6A α shRNA (m) Lentiviral Particles: sc-45462-V as alternate gene silencing products.

For independent verification of PDE6A α (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-45462A, sc-45462B and sc-45462C.

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

PDE6A α siRNA (m) is recommended for the inhibition of PDE6A α 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 PDE6A α gene expression knockdown using RT-PCR Primer: PDE6A α (m)-PR: sc-45462-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.

PROTOCOLS

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