SANTA CRUZ BIOTECHNOLOGY, INC.

PDE1C siRNA (h): sc-62765

BACKGROUND

Phosphodiesterases (PDEs, also designated cyclic nucleotide phosphodiesterase) are important for the downregulation of intracellular levels of the second messengers cyclic adenosine monophosphate (cAMP) and cyclic guanosine monophosphate (cGMP). The PDE1 family are calmodulin-dependent (CaM-PDE) proteins that undergo stimulation through a calcium-calmodulin complex and function to hydrolyze cAMP to 5'AMP and cGMP to 5'GMP. PDE1C (phosphodiesterase 1C), also known as HCAM3, is a widely expressed protein that has a high affinity for both cAMP and cGMP. Two isoforms, designated PDE1C1 and PDE1C2, exist due to alternative splicing at the C-terminus. While both isoforms are expressed in low levels throughout the body, PDE1C2 is expressed predominately in the brain and heart, while PDE1C1 is expressed predominately in the brain, heart and lung.

REFERENCES

1. Cherry, J.A. and Pho, V. 2002. Characterization of cAMP degradation by phosphodiesterases in the accessory olfactory system. Chem. Senses 27: 643-652.
2. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 602987. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
3. Rybalkin, S.D., et al. 2003. Cyclic GMP phosphodiesterases and regulation of smooth muscle function. Circ. Res. 93: 280-291.
4. Ahlström, M., et al. 2005. Cyclic nucleotide phosphodiesterases (PDEs) in human osteoblastic cells; the effect of PDE inhibition on cAMP accumulation. Cell. Mol. Biol. Lett. 10: 305-319.
5. Evgenov, O.V., et al. 2006. Inhibition of phosphodiesterase 1 augments the pulmonary vasodilator response to inhaled nitric oxide in awake lambs with acute pulmonary hypertension. Am. J. Physiol. Lung Cell. Mol. Physiol. 290: L723-L729.
6. Dolci, S., et al. 2006. Subcellular localization and regulation of type-1C and type-5 phosphodiesterases. Biochem. Biophys. Res. Commun. 341: 837-846.
7. Torsney, C., et al. 2006. Characterization of sensory neuron subpopulations selectively expressing green fluorescent protein in phosphodiesterase 1C BAC transgenic mice. Mol. Pain 2: 17-17.

CHROMOSOMAL LOCATION

Genetic locus: PDE1C (human) mapping to 7p14.3.

PRODUCT

PDE1C 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 PDE1C shRNA Plasmid (h): sc-62765-SH and PDE1C shRNA (h) Lentiviral Particles: sc-62765-V as alternate gene silencing products.

For independent verification of PDE1C (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-62765A, sc-62765B and sc-62765C.

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

PDE1C siRNA (h) is recommended for the inhibition of PDE1C 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

PDE1C (G-7): sc-376474 is recommended as a control antibody for monitoring of PDE1C 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 PDE1C gene expression knockdown using RT-PCR Primer: PDE1C (h)-PR: sc-62765-PR (20 µl). 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.