SANTA CRUZ BIOTECHNOLOGY, INC.

PDE4B siRNA (h): sc-44003

BACKGROUND

PDE4B (phosphodiesterase 4B, cAMP-specific phosphodiesterase E4 dunce homolog, DPDE4, PDEIVB) catalyzes the hydrolysis of the second messenger cyclic adenosine 3',5' monophosphate (cAMP). PDE4B is a member of the type IV, cAMP-specific, cyclic nucleotide PDE family. Cyclic nucleotides are important second messengers that transmit cellular responses to extracellular signals, such as hormones, light and neurotransmitters. Altered activity of PDE4B may have an influence on schizophrenia and bipolar conditions. Transcription splice variants encoding different isoforms have been characterized. PDE4A, PDE4B and PDE4D are widely expressed in human inflammatory cells, including monocytes and T lymphocytes. There are 11 families of PDEs that put together are responsible for the metabolism of cAMP and cGMP.

REFERENCES

1. Huston, E., et al. 1997. Molecular cloning and transient expression in COS7 cells of a novel human PDE4B cAMP-specific phosphodiesterase, HSPDE4B3. Biochem. J. 328: 549-558.
2. Manning, C.D., et al. 1999. Suppression of human inflammatory cell function by subtype-selective PDE4 inhibitors correlates with inhibition of PDE4A and PDE4B. Br. J. Pharmacol. 128: 1393-1398.
3. Farooqui, S.M., et al. 2000. Noradrenergic lesions differentially alter the expression of two subtypes of low Km cAMP-sensitive phosphodiesterase type 4 (PDE4A and PDE4B) in rat brain. Brain Res. 867: 52-61.
4. Jacob, C., et al. 2002. DMSO-treated HL-60 cells: a model of neutrophil-like cells mainly expressing PDE4B subtype. Int. Immunopharmacol. 2: 1647-1656.
5. Jin, S.L., et al. 2002. Induction of the cyclic nucleotide phosphodiesterase PDE4B is essential for LPS-activated TNFα responses. Proc. Natl. Acad. Sci. USA 99: 7628-7633.
6. Ahmed, T., et al. 2005. Phosphodiesterase 4B (PDE4B) and cAMP-level regulation within different tissue fractions of rat hippocampal slices during long-term potentiation *in vitro*. Brain Res. 1041: 212-222.
7. Smith, P.G., et al. 2005. The phosphodiesterase PDE4B limits cAMP-associated PI3K/AKT-dependent apoptosis in diffuse large B-cell lymphoma. Blood 105: 308-316.

CHROMOSOMAL LOCATION

Genetic locus: PDE4B (human) mapping to 1p31.3.

PRODUCT

PDE4B 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 PDE4B shRNA Plasmid (h): sc-44003-SH and PDE4B shRNA (h) Lentiviral Particles: sc-44003-V as alternate gene silencing products.

For independent verification of PDE4B (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-44003A, sc-44003B and sc-44003C.

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

PDE4B siRNA (h) is recommended for the inhibition of PDE4B 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor PDE4B gene expression knockdown using RT-PCR Primer: PDE4B (h)-PR: sc-44003-PR (20 µl, 523 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Ghosh, M., et al. 2012. Proinflammatory cytokine regulation of cyclic AMP-phosphodiesterase 4 signaling in microglia *in vitro* and following CNS injury. Glia 60: 1839-1859.

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.