SANTA CRUZ BIOTECHNOLOGY, INC.

PDE4B3 siRNA (m): sc-45426

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: PDE4B1 (also designated Tm72), PDE4B2 (also designated PDE32) and PDE4B3. PDE4A, PDE4B and PDE4D are widely expressed in human inflammatory cells, including monocytes and T lymphocytes. A group of eleven families of PDEs 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. Jin, S.L., et al. 2002. Induction of the cyclic nucleotide phosphodiesterase PDE4B is essential for LPS-activated TNF-α responses. Proc. Natl. Acad. Sci. USA 99: 7628-7633.
5. Jacob, C., et al. 2002. DMSO-treated HL60 cells: a model of neutrophil-like cells mainly expressing PDE4B subtype. Int. Immunopharmacol. 2: 1647-1656.
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.

CHROMOSOMAL LOCATION

Genetic locus: Pde4b (mouse) mapping to 4 C6.

PRODUCT

PDE4B3 siRNA (m) is a pool of 4 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 PDE4B3 shRNA Plasmid (m): sc-45426-SH and PDE4B3 shRNA (m) Lentiviral Particles: sc-45426-V as alternate gene silencing products.

For independent verification of PDE4B3 (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-45426A, sc-45426B, sc-45426C and sc-45426D.

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

PDE4B3 siRNA (m) is recommended for the inhibition of PDE4B3 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 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 PDE4B3 gene expression knockdown using RT-PCR Primer: PDE4B3 (m)-PR: sc-45426-PR (20 µl, 422 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Ma, H., et al. 2014. Blockade of PDE4B limits lung vascular permeability and lung inflammation in LPS-induced acute lung injury. Biochem. Biophys. Res. Commun. 450: 1560-1567.

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.