SANTA CRUZ BIOTECHNOLOGY, INC.

PEDF siRNA (m): sc-40948

BACKGROUND

Pigment epithelium-derived growth factor (PEDF), also known as EPC-1 (early population doubling level cDNA-1), is a glycoprotein found naturally in the normal eye. PEDF has reported neuroprotective and differentiation properties and is secreted in abundance by retinal pigment epithelium cells. It belongs to the serine protease inhibitor (Serpin) superfamily and has been reported to inhibit angiogenesis and proliferation of several cell types. The "pooling" of PEDF within the interphotoreceptor matrix places this molecule in a prime physical location to affect the underlying neural retina. Additionally, PEDF induces neuronal differentiation and promotes survival of neurons of the central nervous system from degeneration caused by serum withdrawal or glutamate cytotoxicity.

REFERENCES

1. Cayouette, M., Smith, S.B., Becerra, S.P. and Gravel, C. 1999. Pigment epithelium-derived factor delays the death of photoreceptors in mouse models of inherited retinal degenerations. Neurobiol. Dis. 6: 523-532.
2. Cao, W., Tombran-Tink, J., Chen, W., Mrazek, D., Elias, R. and McGinnis, J.F. 1999. Pigment epithelium-derived factor protects cultured retinal neurons against hydrogen peroxide-induced cell death. J. Neurosci. Res. 57: 789-800.
3. Coljee, V.W., Rotenberg, M.O., Tresini, M., Francis, M.K., Cristofalo, V.J. and Sell, C. 2000. Regulation of EPC-1/PEDF in normal human fibroblasts is posttranscriptional. J. Cell. Biochem. 79: 442-452.
4. Jablonski, M.M., Tombran-Tink, J., Mrazek, D.A. and Iannaccone, A. 2000. Pigment epithelium-derived factor supports normal development of photoreceptor neurons and opsin expression after retinal pigment epithelium removal. J. Neurosci. 20: 7149-7157.
5. Stellmach, V., Crawford, S.E., Zhou, W. and Bouck, N. 2001. Prevention of ischemia-induced retinopathy by the natural ocular antiangiogenic agent pigment epithelium-derived factor. Proc. Natl. Acad. Sci. USA 98: 2593-2597.

CHROMOSOMAL LOCATION

Genetic locus: Serpinf1 (mouse) mapping to 11 B5.

PRODUCT

PEDF 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see PEDF shRNA Plasmid (m): sc-40948-SH and PEDF shRNA (m) Lentiviral Particles: sc-40948-V as alternate gene silencing products.

For independent verification of PEDF (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-40948A, sc-40948B and sc-40948C.

PROTOCOLS

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

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

PEDF siRNA (m) is recommended for the inhibition of PEDF 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 PEDF gene expression knockdown using RT-PCR Primer: PEDF (m)-PR: sc-40948-PR (20 µl, 492 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Carnagarin, R., Dharmarajan, A.M. and Dass, C.R. 2016. PEDF attenuates Insulin-dependent molecular pathways of glucose homeostasis in skeletal myocytes. Mol. Cell. Endocrinol. 422: 115-124.
2. Di, G., Zhao, X., Qi, X., Zhang, S., Feng, L., Shi, W. and Zhou, Q. 2017. VEGF-B promotes recovery of corneal innervations and trophic functions in diabetic mice. Sci. Rep. 7: 40582.

RESEARCH USE

For research use only, not for use in diagnostic procedures.