

PDGF-B siRNA (m): sc-39706

BACKGROUND

PDGF is a mitogen for mesenchyme- and glia-derived cells. It consists of two disulfide-bonded polypeptide chains, A and B, and occurs as three isoforms; PDGF AA, AB and BB. The three isoforms bind, with different affinities, to two receptor types, α and β , which are structurally related and endowed with protein-tyrosine kinase domains. Ligand binding induces activation of the receptor kinases by formation of receptor dimers; the A subunit of PDGF binds only to α receptors with high affinity, whereas the B subunit can bind to both α and β receptors. Evidence suggests that PDGF may function as a neurotrophic factor. Receptors for PDGF-A are expressed in oligodendrocyte progenitor cells whereas receptors for PDGF-B are expressed on neurons. These facts suggest that the different isoforms of PDGF may regulate growth and differentiation of different cell types in the developing central nervous system through paracrine and autocrine routes.

REFERENCES

1. Ross, R., et al. 1986. The biology of platelet-derived growth factor. *Cell* 46: 155-169.
2. Hart, C.E., et al. 1988. Two classes of PDGF receptor recognize different isoforms of PDGF. *Science* 240: 1529-1531.
3. Heldin, C.H., et al. 1988. Binding of different dimeric forms of PDGF to human fibroblasts: evidence for two separate receptor types. *EMBO J.* 7: 1387-1393.
4. Seifert, R.A., et al. 1989. Two different subunits associate to create isoform-specific platelet-derived growth factor receptors. *J. Biol. Chem.* 264: 8771-8778.
5. Heldin, C.H., et al. 1989. Dimerization of B-type platelet-derived growth factor receptors occurs after ligand binding and is closely associated with receptor kinase activation. *J. Biol. Chem.* 264: 8905-8912.
6. Bishayee, S., et al. 1989. Ligand-induced dimerization of the platelet-derived growth factor receptor. *J. Biol. Chem.* 264: 11699-11705.
7. Smits, A., et al. 1991. Neurotrophic activity of platelet-derived growth factor (PDGF): rat neural cells possess functional PDGF-B-type receptors and respond to PDGF. *Proc. Natl. Acad. Sci. USA* 88: 8159-8163.

CHROMOSOMAL LOCATION

Genetic locus: *Pdgfb* (mouse) mapping to 15 E1.

PRODUCT

PDGF-B 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 PDGF-B shRNA Plasmid (m): sc-39706-SH and PDGF-B shRNA (m) Lentiviral Particles: sc-39706-V as alternate gene silencing products.

For independent verification of PDGF-B (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-39706A, sc-39706B and sc-39706C.

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

PDGF-B siRNA (m) is recommended for the inhibition of PDGF-B 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.

GENE EXPRESSION MONITORING

PDGF-B (C-5): sc-74494 is recommended as a control antibody for monitoring of PDGF-B 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor PDGF-B gene expression knockdown using RT-PCR Primer: PDGF-B (m)-PR: sc-39706-PR (20 μ l, 530 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Shah, D., et al. 2021. miR-184 mediates hyperoxia-induced injury by targeting cell death and angiogenesis signalling pathways in the developing lung. *Eur. Respir. J.* 58: 1901789.

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.