SANTA CRUZ BIOTECHNOLOGY, INC.

PlGF siRNA (h): sc-44027

BACKGROUND

The onset of angiogenesis is believed to be an early event in tumorigenesis and may facilitate tumor progression and metastasis. Several growth factors with angiogenic activity have been described. These include fibroblast growth factor (FGF), platelet derived growth factor (PDGF), vascular endothelial growth factor (VEGF) and placenta growth factor (PlGF). Like VEGF, several PlGF variants have been shown to arise from alternative mRNA splicings. Evidence has suggested VEGF to be an obligatory component in PlGF signaling. While VEGF homodimers and VEGF/PlGF heterodimers function as potent mediators of mitogenic and chemotactic responses in endothelial cells, PlGF homodimers are effectual only at extremely high concentrations. Indeed, many of the physiological effects attributed to VEGF may actually be a result of VEGF/PlGF. VEGF and PlGF share a common receptor, Flt-1, and may also activate Flk-1/KDR.

CHROMOSOMAL LOCATION

Genetic locus: PGF (human) mapping to 14q24.3.

PRODUCT

PlGF 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 PlGF shRNA Plasmid (h): sc-44027-SH and PlGF shRNA (h) Lentiviral Particles: sc-44027-V as alternate gene silencing products.

For independent verification of PlGF (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-44027A, sc-44027B and sc-44027C.

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

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

PlGF (H-4): sc-518003 is recommended as a control antibody for monitoring of PlGF 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 PlGF gene expression knockdown using RT-PCR Primer: PlGF (h)-PR: sc-44027-PR (20 µl, 566 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Andersson, M.K., et al. 2010. Nuclear expression of FLT1 and its ligand PGF in FUS-DDIT3 carrying myxoid liposarcomas suggests the existence of an intracrine signaling loop. BMC Cancer 10: 249.
2. Yoo, S.A., et al. 2015. Placental growth factor-1 and -2 induce hyperplasia and invasiveness of primary rheumatoid synoviocytes. J. Immunol. 194: 2513-2521.
3. Mahmoodi, F. and Akrami, H. 2017. PlGF knockdown decreases tumorigenicity and stemness properties of spheroid body cells derived from gastric cancer cells. J. Cell. Biochem. 118: 851-859.
4. Tanaka, K., et al. 2018. Tumor necrosis factor-α regulates angiogenesis of BeWo cells via synergy of PlGF/VEGFR1 and VEGF-A/VEGFR2 axes. Placenta 74: 20-27.
5. Jiao, W., et al. 2019. Distinct downstream signaling and the roles of VEGF and PlGF in high glucose-mediated injuries of human retinal endothelial cells in culture. Sci. Rep. 9: 15339.
6. Akrami, H., et al. 2019. PlGF knockdown induced apoptosis through Wnt signaling pathway in gastric cancer stem cells. J. Cell. Biochem. 120: 3268-3276.

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.