

EDG-2 siRNA (h): sc-43746

BACKGROUND

The EDG (endothelial differentiation gene) family of G protein-coupled receptors consists of eight family members that bind lysophospholipid (LPL) mediators, including sphingosine-1-phosphate (SPP) and lysophosphatidic acid (LPA). EDG-1, EDG-3, EDG-5 (also designated H218 and AGR16) and EDG-8 bind SPP with high affinity. EDG-6 is a low affinity receptor for SPP. LPA preferentially binds to EDG-2, EDG-4 and EDG-7. The EDG receptors couple to multiple G proteins to signal through Ras, MAP kinase, Rho, Phospholipase C or other tyrosine kinases, which lead to cell survival, growth, migration and differentiation. EDG-1 signals through G_i proteins to activate Akt and is expressed in glioma cells. EDG-2 is expressed in brain, especially in white matter tract regions, while EDG-3 is expressed in cardiovascular tissue and in cerebellum. EDG-4 is highly expressed on leukocytes and brain, and EDG-5 has wide tissue distribution, including cardiovascular tissue and brain. EDG-6, which is expressed in lymphoid and hematopoietic tissues and in lung, signals through G_{1/0} proteins, which activate growth related pathways.

REFERENCES

- Goetzl, E.J., et al. 1999. A subfamily of G protein-coupled cellular receptors for lysophospholipids and lysosphingolipids. *Adv. Exp. Med. Biol.* 469: 259-264.
- Van Brocklyn, J.R., et al. 2000. Sphingosine-1-phosphate is a ligand for the G protein-coupled receptor EDG-6. *Blood* 95: 2624-2629.

CHROMOSOMAL LOCATION

Genetic locus: LPAR1 (human) mapping to 9q31.3.

PRODUCT

EDG-2 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see EDG-2 shRNA Plasmid (h): sc-43746-SH and EDG-2 shRNA (h) Lentiviral Particles: sc-43746-V as alternate gene silencing products.

For independent verification of EDG-2 (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-43746A, sc-43746B and sc-43746C.

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

EDG-2 siRNA (h) is recommended for the inhibition of EDG-2 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 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

EDG-2 (B-10): sc-515665 is recommended as a control antibody for monitoring of EDG-2 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 EDG-2 gene expression knockdown using RT-PCR Primer: EDG-2 (h)-PR: sc-43746-PR (20 μ l, 485 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

- Chen, S.U., et al. 2008. Lysophosphatidic acid up-regulates expression of interleukin-8 and -6 in granulosa-lutein cells through its receptors and nuclear factor- κ B dependent pathways: implications for angiogenesis of corpus luteum and ovarian hyperstimulation syndrome. *J. Clin. Endocrinol. Metab.* 93: 935-943.
- Zhao, J., et al. 2011. Autotaxin induces lung epithelial cell migration through LysoPLD activity-dependent and -independent pathways. *Biochem. J.* 439: 45-55.
- Chen, R.J., et al. 2012. Lysophosphatidic acid receptor 2/3-mediated IL-8-dependent angiogenesis in cervical cancer cells. *Int. J. Cancer* 131: 789-802.
- Windischhofer, W., et al. 2012. LPA-induced suppression of periostin in human osteosarcoma cells is mediated by the LPA₁/Egr-1 axis. *Biochimie* 94: 1997-2005.
- Lin, C.C., et al. 2013. Lysophosphatidic acid induces reactive oxygen species generation by activating protein kinase C in PC-3 human prostate cancer cells. *Biochem. Biophys. Res. Commun.* 440: 564-569.
- Xu, M., et al. 2017. EDG2 enhanced the progression of hepatocellular carcinoma by LPA/PI3K/AKT/ mTOR signaling. *Oncotarget* 8: 66154-66168.
- Lin, Y.C., et al. 2018. LPA_{1/3} signaling mediates tumor lymphangiogenesis through promoting CRT expression in prostate cancer. *Biochim. Biophys. Acta Mol. Cell Biol. Lipids* 1863: 1305-1315.

RESEARCH USE

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