SANTA CRUZ BIOTECHNOLOGY, INC.

OGFR siRNA (h): sc-75991

BACKGROUND

The proenkephalin precursor proteins belong to the opioid neuropeptide precursor family and are proteolytically processed to form active opiod peptides which function as ligands for opiod receptors. OGFR (opioid growth factor receptor) is a 677 amino acid protein that localizes to both the nucleus and the cytoplasm and functions as a receptor for opiod growth factors. Expressed at high levels in liver and heart and at moderate levels in kidney, brain, pancreas and skeletal muscle, OGFR exists as multiple alternatively spliced isoforms and, via its ability to bind opiod ligands, is thought to play an important role in growth regulation, possibly functioning as a tumor suppressor. Upon DNA damage, OGFR may be phosphorylated by ATM or ATR. The gene encoding OGFR maps to human chromosome 20, which houses over 600 genes and comprises nearly 2% of the human genome.

REFERENCES

1. Zagon, I.S., et al. 2000. Cloning, sequencing, chromosomal location, and function of cDNAs encoding an opioid growth factor receptor (OGFR) in humans. Brain Res. 856: 75-83.
2. Wu, C.J., et al. 2000. Detection of a potent humoral response associated with immune-induced remission of chronic myelogenous leukemia. J. Clin. Invest. 106: 705-714.
3. Zagon, I.S., et al. 2002. The biology of the opioid growth factor receptor (OGFR). Brain Res. Brain Res. Rev. 38: 351-376.
4. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 606459. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
5. Zagon, I.S., et al. 2003. Immunoelectron microscopic localization of the opioid growth factor receptor (OGFR) and OGF in the cornea. Brain Res. 967: 37-47.
6. McLaughlin, P.J. and Zagon, I.S. 2006. Progression of squamous cell carcinoma of the head and neck is associated with down-regulation of the opioid growth factor receptor. Int. J. Oncol. 28: 1577-1583.
7. Zagon, I.S. and McLaughlin, P.J. 2006. Opioid growth factor receptor is unaltered with the progression of human pancreatic and colon cancers. Int. J. Oncol. 29: 489-494.

CHROMOSOMAL LOCATION

Genetic locus: OGFR (human) mapping to 20q13.33.

PRODUCT

OGFR 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 OGFR shRNA Plasmid (h): sc-75991-SH and OGFR shRNA (h) Lentiviral Particles: sc-75991-V as alternate gene silencing products.

For independent verification of OGFR (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-75991A, sc-75991B and sc-75991C.

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

OGFR siRNA (h) is recommended for the inhibition of OGFR 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor OGFR gene expression knockdown using RT-PCR Primer: OGFR (h)-PR: sc-75991-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Kim, J.Y., et al. 2016. Morphine suppresses lung cancer cell proliferation through the interaction with opioid growth factor receptor: an *in vitro* and human lung tissue study. Anesth. Analg. 123: 1429-1436.

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.