SANTA CRUZ BIOTECHNOLOGY, INC.

GPR4 siRNA (h): sc-75179

BACKGROUND

G protein-coupled receptors (GPRs), also known as seven transmembrane receptors, heptahelical receptors or 7TM receptors, comprise a superfamily of proteins that play a role in many different stimulus-response pathways. G protein-coupled receptors translate extracellular signals into intracellular signals (G protein activation) and they respond to a variety of signaling molecules, such as hormones and neurotransmitters. GPR4 (G protein-coupled receptor 4), also known as GPR19, is a 362 amino acid multi-pass membrane protein that belongs to the G protein-coupled receptor family and functions as an orphan receptor. GPR4 is overexpressed in cancer tissue, suggesting a role in tumor formation, and is also believed to play a critical role in endothelial cell function and may mediate the effects of sphingosylphosphorylcholine.

REFERENCES

1. An, S., et al. 1995. Cloning, sequencing and tissue distribution of two related G protein-coupled receptor candidates expressed prominently in human lung tissue. FEBS Lett. 375: 121-124.
2. Mahadevan, M.S., et al. 1995. Isolation of a novel G protein-coupled receptor (GPR4) localized to chromosome 19q13.3. Genomics 30: 84-88.
3. Zhu, K., et al. 2001. Sphingosylphosphorylcholine and lysophosphatidylcholine are ligands for the G protein-coupled receptor GPR4. J. Biol. Chem. 276: 41325-41335.
4. Bektas, M., et al. 2003. The G protein-coupled receptor GPR4 suppresses ERK activation in a ligand-independent manner. Biochemistry 42: 12181-12191.
5. Online Mendelian Inheritance in Man, OMIM™. 2003. Johns Hopkins University, Baltimore, MD. MIM Number: 600551. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
6. Sin, W.C., et al. 2004. G protein-coupled receptors GPR4 and TDAG8 are oncogenic and overexpressed in human cancers. Oncogene 23: 6299-6303.
7. Kim, K.S., et al. 2005. GPR4 plays a critical role in endothelial cell function and mediates the effects of sphingosylphosphorylcholine. FASEB J. 19: 819-821.

CHROMOSOMAL LOCATION

Genetic locus: GPR4 (human) mapping to 19q13.32.

PRODUCT

GPR4 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 GPR4 shRNA Plasmid (h): sc-75179-SH and GPR4 shRNA (h) Lentiviral Particles: sc-75179-V as alternate gene silencing products.

For independent verification of GPR4 (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-75179A, sc-75179B and sc-75179C.

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

GPR4 siRNA (h) is recommended for the inhibition of GPR4 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 GPR4 gene expression knockdown using RT-PCR Primer: GPR4 (h)-PR: sc-75179-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

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.