SANTA CRUZ BIOTECHNOLOGY, INC.

GPR45 siRNA (m): sc-75182

BACKGROUND

G protein-coupled receptors (GPRs) are a protein family of transmembrane receptors that transmit an extracellular signal (ligand binding) into an intracellular signal (G protein activation). GPR signaling is an evolutionarily ancient mechanism used by all eukaryotes to sense environmental stimuli and mediate cell-cell communication. All of the receptors have seven membrane-spanning domains and the extracellular parts of the receptor can be glycosylated. These extracellular loops also contain two highly conserved cysteine residues which create disulfide bonds to stabilize the receptor structure. GPR45, also known as PSP24-1 or PSP24-α, is a 372 amino acid orphan receptor that is suspected to play a role in brain function. Expressed in brain, GPR45 has been detected in the basal forebrain, frontal cortex and caudate, but not in thalamus, hippocampus or putamen.

REFERENCES

1. Marchese, A., et al. 1999. Discovery of three novel orphan G protein-coupled receptors. Genomics 56: 12-21.
2. Kawasawa, Y., et al. 2000. Brain-specific expression of novel G protein-coupled receptors, with homologies to *Xenopus* PSP24 and human GPR45. Biochem. Biophys. Res. Commun. 276: 952-956.
3. Online Mendelian Inheritance in Man, OMIM™. 2000. Johns Hopkins University, Baltimore, MD. MIM Number: 604838. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
4. Alderton, F., et al. 2001. Assessment of agonism at G protein-coupled receptors by phosphatidic acid and lysophosphatidic acid in human embryonic kidney 293 cells. Br. J. Pharmacol. 134: 6-9.
5. Lee, D.K., et al. 2001. Discovery and mapping of ten novel G protein-coupled receptor genes. Gene 275: 83-91.
6. Belous, A.E., et al. 2006. Mitochondrial calcium transport is regulated by P2Y1- and P2Y2-like mitochondrial receptors. J. Cell. Biochem. 99: 1165-1174.
7. Parravicini, C., et al. 2008. GPR17: molecular modeling and dynamics studies of the 3-D structure and purinergic ligand binding features in comparison with P2Y receptors. BMC Bioinformatics 9: 263.

CHROMOSOMAL LOCATION

Genetic locus: Gpr45 (mouse) mapping to 1 B.

PRODUCT

GPR45 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see GPR45 shRNA Plasmid (m): sc-75182-SH and GPR45 shRNA (m) Lentiviral Particles: sc-75182-V as alternate gene silencing products.

For independent verification of GPR45 (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-75182A, sc-75182B and sc-75182C.

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

GPR45 siRNA (m) is recommended for the inhibition of GPR45 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 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 GPR45 gene expression knockdown using RT-PCR Primer: GPR45 (m)-PR: sc-75182-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.