SANTA CRUZ BIOTECHNOLOGY, INC.

GPR50 siRNA (h): sc-61014

BACKGROUND

G protein-coupled receptors (GPCRs) play a central role in mediating the intracellular effects of numerous neurotransmitters and hormones, including melatonin. GPR50, also designated Melatonin-related receptor, GPCR50 and H9, does not bind Melatonin. It is a multi-pass membrane protein primarily detected in hypothalamus and pituitary. GPR50 is a 613 amino acid protein that contains the seven hydrophobic segments that are characteristic of GPCRs, as well as the distinguishing sequence motifs of the Melatonin receptor GPCR family. The GPR50 protein is 45% identical to the Melatonin receptors 1A and 1B and has an unusually long proline-rich C-terminal tail. Research suggests that a deletion variant within the GPR50 gene is a sex-specific risk factor for susceptibility to BPAD (bipolar affective disorder) and that other variants in the gene may be sex-specific risk factors in the development of schizophrenia.

REFERENCES

1. Reppert, S.M., et al. 1996. Cloning of a Melatonin-related receptor from human pituitary. FEBS Lett. 386: 219-224.
2. Gubitz, A.K., et al. 1999. Assignment of the Melatonin-related receptor to human chromosome X (GPR50) and mouse chromosome X (Gpr50). Genomics 55: 248-251.
3. Conway, S., et al. 2000. Chimeric Melatonin MT1 and Melatonin-related receptors. Identification of domains and residues participating in ligand binding and receptor activation of the Melatonin MT1 receptor. J. Biol. Chem. 275: 20602-20609.
4. Drew, J.E., et al. 2001. Localization of the Melatonin-related receptor in the rodent brain and peripheral tissues. J. Neuroendocrinol. 13: 453-458.
5. Barrett, P., et al. 2003. Digging deep—structure-function relationships in the Melatonin receptor family. J. Pineal Res. 35: 221-230.
6. Thomson, P.A., et al. 2005. Sex-specific association between bipolar affective disorder in women and GPR50, an X-linked orphan G protein-coupled receptor. Mol. Psychiatry 10: 470-478.

CHROMOSOMAL LOCATION

Genetic locus: GPR50 (human) mapping to Xq28.

PRODUCT

GPR50 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 GPR50 shRNA Plasmid (h): sc-61014-SH and GPR50 shRNA (h) Lentiviral Particles: sc-61014-V as alternate gene silencing products.

For independent verification of GPR50 (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-61014A, sc-61014B and sc-61014C.

RESEARCH USE

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

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

GPR50 siRNA (h) is recommended for the inhibition of GPR50 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 GPR50 gene expression knockdown using RT-PCR Primer: GPR50 (h)-PR: sc-61014-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. Xu, L., et al. 2020. Tetramethylpyrazine attenuated sevoflurane-induced neurotoxicity by enhancing autophagy through GPR50/CREB pathway in SH-SY5Y cells. Am. J. Chin. Med. E-published.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.