SANTA CRUZ BIOTECHNOLOGY, INC.

GPR105 siRNA (h): sc-60731

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The Power to Question

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. GPR105, also designated P2Y14, is widely expressed throughout many brain regions where it localizes to glial cells, and specifically co-localizes with astrocytes. GPR105 is upregulated when a tissue is immunologically challenged with lipopolysaccharide, leading to the theory that GPR105 may play an important role in modulating peripheral and neuroimmune function.

REFERENCES

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3. Abbracchio, M.P., et al. 2003. Characterization of the UDP-glucose receptor (renamed here the P2Y14 receptor) adds diversity to the P2Y receptor family. Trends Pharmacol. Sci. 24: 52-55.
4. Skelton, L., et al. 2003. Human immature monocyte-derived dendritic cells express the G protein-coupled receptor GPR105 (KIAA0001, P2Y14) and increase intracellular calcium in response to its agonist, uridine diphosphoglucose. J. Immunol. 171: 1941-1949.
5. Moore, D.J., et al. 2003. GPR105, a novel $G_{i/o}$-coupled UDP-glucose receptor expressed on brain glia and peripheral immune cells, is regulated by immunologic challenge: possible role in neuroimmune function. Mol. Brain Res. 118: 10-23.
6. Muller, T., et al. 2005. The P2Y14 receptor of airway epithelial cells: coupling to intracellular Ca^{2+} and IL-8 secretion. Am. J. Respir. Cell Mol. Biol. 33: 601-609.
7. Scrivens, M. and Dickenson, J.M. 2005. Functional expression of the P2Y14 receptor in murine T-lymphocytes. Br. J. Pharmacol. 146: 435-444.
8. Scrivens, M. and Dickenson, J.M. 2005. Pharmacological effects mediated by UDP-glucose that are independent of P2 receptor expression. Pharmacol. Res. 51: 533-538.
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CHROMOSOMAL LOCATION

Genetic locus: P2RY14 (human) mapping to 3q25.1.

PROTOCOLS

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

PRODUCT

GPR105 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 GPR105 shRNA Plasmid (h): sc-60731-SH and GPR105 shRNA (h) Lentiviral Particles: sc-60731-V as alternate gene silencing products.

For independent verification of GPR105 (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-60731A, sc-60731B and sc-60731C.

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

GPR105 siRNA (h) is recommended for the inhibition of GPR105 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 GPR105 gene expression knockdown using RT-PCR Primer: GPR105 (h)-PR: sc-60731-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.