SANTA CRUZ BIOTECHNOLOGY, INC.

GPR41 siRNA (h): sc-97148

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. GPRs translate extracellular signals into intracellular signals (a process called G protein-activation) and they respond to a variety of signaling molecules, such as hormones and neurotransmitters. GPR41 (G protein-coupled receptor 41), also known as FFAR3 (free fatty acid receptor 3), is a 346 amino acid multi-pass membrane protein that belongs to the G protein-coupled receptor family. Expressed at high levels in adipose tissue, and at lower levels throughout the body, GPR41 functions as a receptor for short chain fatty acids via elevation of intracellular calcium levels and inhibition of adenylyl cyclase.

REFERENCES

1. Sawzdargo, M., et al. 1997. A cluster of four novel human G protein-coupled receptor genes occurring in close proximity to CD22 gene on chromosome 19q13.1. Biochem. Biophys. Res. Commun. 239: 543-547.
2. Online Mendelian Inheritance in Man, OMIM™. 1999. Johns Hopkins University, Baltimore, MD. MIM Number: 603821. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
3. Brown, A.J., et al. 2003. The orphan G protein-coupled receptors GPR41 and GPR43 are activated by propionate and other short chain carboxylic acids. J. Biol. Chem. 278: 11312-11319.
4. Le Poul, E., et al. 2003. Functional characterization of human receptors for short chain fatty acids and their role in polymorphonuclear cell activation. J. Biol. Chem. 278: 25481-25489.
5. Xiong, Y., et al. 2004. Short-chain fatty acids stimulate leptin production in adipocytes through the G protein-coupled receptor GPR41. Proc. Natl. Acad. Sci. USA 101: 1045-1050.
6. Brown, A.J., et al. 2005. A family of fatty acid binding receptors. DNA Cell Biol. 24: 54-61.
7. Covington, D.K., et al. 2006. The G protein-coupled receptor 40 family (GPR40-GPR43) and its role in nutrient sensing. Biochem. Soc. Trans. 34: 770-773.

CHROMOSOMAL LOCATION

Genetic locus: FFAR3 (human) mapping to 19q13.12.

PRODUCT

GPR41 siRNA (h) is a target-specific 19-25 nt siRNA 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 GPR41 shRNA Plasmid (h): sc-97148-SH and GPR41 shRNA (h) Lentiviral Particles: sc-97148-V as alternate gene silencing products.

PROTOCOLS

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

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

GPR41 siRNA (h) is recommended for the inhibition of GPR41 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 GPR41 gene expression knockdown using RT-PCR Primer: GPR41 (h)-PR: sc-97148-PR (20 µl, 378 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Guo, J., et al. 2023. The short-chain fatty acid butyrate exerts a specific effect on VE-cadherin phosphorylation and alters the integrity of aortic endothelial cells. Front. Cell Dev. Biol. 11: 1076250.

RESEARCH USE

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