

GPR120 siRNA (m): sc-60738

BACKGROUND

GPR120, a member of the rhodopsin family of G protein-coupled receptors (GPCRs), is a 377 amino acid protein which is expressed in the intestine. GPR120 is a receptor for unsaturated long-chain FFAs (free fatty acids). FFAs act as signaling molecules and are an important energy source. They also employ various physiological responses through their GPCRs. One such response occurs when dietary FFAs stimulate GPR120. This stimulation promotes the secretion of glucagon-like peptide 1 (GLP-1) *in vivo* and *in vitro*. GLP-1 belongs to the class of molecules known as the incretins, which are associated with Insulin secreted from the pancreas as a result of food intake. GLP-1 also inhibits glucagon and gastric acid secretion and gastric emptying. Consequently, the role of GPR120 in the secretion of GLP-1 is critical in the treatment of diabetes.

REFERENCES

1. Ferrannini, E., et al. 1983. Effect of fatty acids on glucose production and utilization in man. *J. Clin. Invest.* 72: 1737-1747.
2. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 609044. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
3. Fredriksson, R., et al. 2003. Seven evolutionarily conserved human rhodopsin G protein-coupled receptors lacking close relatives. *FEBS Lett.* 554: 381-388.
4. González, N., et al. 2005. Effect of GLP-1 on glucose transport and its cell signalling in human myocytes. *Regul. Pept.* 126: 203-211.

CHROMOSOMAL LOCATION

Genetic locus: Ffar4 (mouse) mapping to 19 C2.

PRODUCT

GPR120 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see GPR120 shRNA Plasmid (m): sc-60738-SH and GPR120 shRNA (m) Lentiviral Particles: sc-60738-V as alternate gene silencing products.

For independent verification of GPR120 (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-60738A, sc-60738B and sc-60738C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

GPR120 siRNA (m) is recommended for the inhibition of GPR120 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 μ M in 66 μ l. 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.

GENE EXPRESSION MONITORING

GPR120 (H-10): sc-390752 is recommended as a control antibody for monitoring of GPR120 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor GPR120 gene expression knockdown using RT-PCR Primer: GPR120 (m)-PR: sc-60738-PR (20 μ l, 550 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Gong, Z., et al. 2014. G protein-coupled receptor 120 signaling regulates ghrelin secretion *in vivo* and *in vitro*. *Am. J. Physiol. Endocrinol. Metab.* 306: E28-E35.
2. Fujii, K., et al. 2017. Pro-metastatic intracellular signaling of the elaidic *trans* fatty acid. *Int. J. Oncol.* 50: 85-92.
3. Yamada, H., et al. 2017. Eicosapentaenoic acid shows anti-inflammatory effect via GPR120 in 3T3-L1 adipocytes and attenuates adipose tissue inflammation in diet-induced obese mice. *Nutr. Metab.* 14: 33.
4. Yan, C.H., et al. 2022. AMPK α 2 controls the anti-atherosclerotic effects of fish oils by modulating the SUMOylation of GPR120. *Nat. Commun.* 13: 7721.

RESEARCH USE

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