SANTA CRUZ BIOTECHNOLOGY, INC.

LGR4 siRNA (h): sc-62557

BACKGROUND

G protein-coupled receptors (GPCRs), also designated seven transmembrane (7TM) receptors or heptahelical receptors, interact with G proteins (heterotrimeric GTPases) to synthesize intracellular second messengers, such as diacylglycerol, cyclic AMP, inositol phosphates and calcium ions. Their diverse biological functions range from vision and olfaction to neuronal and endocrine signaling and are involved in many pathological conditions. LGR4 (leucine-rich repeat-containing G protein-coupled receptor 4), also known as GPR48, is a 951 amino acid multi-pass membrane protein that contains 15 LRR (leucine-rich repeats) and belongs to the GPCR family. Expressed in multiple tissues, including testis, ovary, placenta, stomach, heart, kidney, pancreas and spleen, LGR4 functions as an orphan receptor that may be involved in physiologic activities throughout the cell. LGR4 is overexpressed in various cancer types and is thought to enhance carcinoma invasiveness and metastasis, suggesting an important role in tumor progression.

REFERENCES

1. Hsu, S.Y., et al. 1998. Characterization of two LGR genes homologous to gonadotropin and thyrotropin receptors with extracellular leucine-rich repeats and a G protein-coupled, seven-transmembrane region. Mol. Endocrinol. 12: 1830-1845.
2. Loh, E.D., et al. 2000. Chromosomal localization of GPR48, a novel glycoprotein hormone receptor like GPCR, in human and mouse with radiation hybrid and interspecific backcross mapping. Cytogenet. Cell Genet. 89: 2-5.
3. Loh, E.D., et al. 2001. Molecular characterization of a novel glycoprotein hormone G protein-coupled receptor. Biochem. Biophys. Res. Commun. 282: 757-764.
4. Gao, Y., et al. 2006. Up-regulation of GPR48 induced by down-regulation of $p27^{Kip1}$ enhances carcinoma cell invasiveness and metastasis. Cancer Res. 66: 11623-11631.
5. Mohri, Y., et al. 2008. Impaired hair placode formation with reduced expression of hair follicle-related genes in mice lacking LGR4. Dev. Dyn. 237: 2235-2242.
6. Song, H., et al. 2008. Inactivation of G protein-coupled receptor 48 (GPR48/LGR4) impairs definitive erythropoiesis at midgestation through down-regulation of the ATF4 signaling pathway. J. Biol. Chem. 283: 36687-36697.

CHROMOSOMAL LOCATION

Genetic locus: LGR4 (human) mapping to 11p14.1.

PRODUCT

LGR4 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 LGR4 shRNA Plasmid (h): sc-62557-SH and LGR4 shRNA (h) Lentiviral Particles: sc-62557-V as alternate gene silencing 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

LGR4 siRNA (h) is recommended for the inhibition of LGR4 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.

GENE EXPRESSION MONITORING

LGR4 (C-12): sc-390630 is recommended as a control antibody for monitoring of LGR4 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 LGR4 gene expression knockdown using RT-PCR Primer: LGR4 (h)-PR: sc-62557-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.