SANTA CRUZ BIOTECHNOLOGY, INC.

GPR54 siRNA (h): sc-60747

BACKGROUND

G protein-coupled receptors (GPCRs), also designated seven transmembrane (7TM) receptors and heptahelical receptors, are a protein family which 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. G protein receptor 54 (GPR54), a member of the rhodopsin family of GCPRs, is the receptor for the Kiss1 gene product, metastin. Mutations in GPCR54 are associated with a lack of puberty onset and autosomal recessive idiopathic hypogonadotropic hypogonadism, a deficient or decreased function of the gonads. Proper function of GRP54 is essential for puberty. In the rat, GRP54 is expressed in the liver, intestine and most areas of the brain, while in the human it is expressed in the placenta, pituitary, pancreas and spinal cord.

REFERENCES

1. Lee, D.K., et al. 1999. Discovery of a receptor related to the galanin receptors. FEBS Lett. 446: 103-107.
2. Seminara, S.B., et al. 2003. The GPR54 gene as a regulator of puberty. N. Engl. J. Med. 349: 1614-1627.
3. Navarro, V.M., et al. 2004. Developmental and hormonally regulated messenger ribonucleic acid expression of KiSS-1 and its putative receptor, GPR54, in rat hypothalamus and potent luteinizing hormone-releasing activity of KiSS-1 peptide. Endocrinology 145: 4565-4574.
4. Kaiser, U.B. and Kuohung, W. 2005. KiSS-1 and GPR54 as new players in gonadotropin regulation and puberty. Endocrine 26: 277-284.
5. Stathatos, N., et al. 2005. KiSS-1/G protein-coupled receptor 54 metastasis suppressor pathway increases myocyte-enriched calcineurin interacting protein 1 expression and chronically inhibits calcineurin activity. J. Clin. Endocrinol. Metab. 90: 5432-5440.
6. Jiang, T., et al. 2005. Expression and clinical significance of KISS-1 and GPR54 mRNA in endometrial carcinoma. Zhonghua Zhong Liu Za Zhi 27: 229-231.

CHROMOSOMAL LOCATION

Genetic locus: KISS1R (human) mapping to 19p13.3.

PRODUCT

GPR54 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 GPR54 shRNA Plasmid (h): sc-60747-SH and GPR54 shRNA (h) Lentiviral Particles: sc-60747-V as alternate gene silencing products.

For independent verification of GPR54 (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-60747A, sc-60747B and sc-60747C.

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

GPR54 siRNA (h) is recommended for the inhibition of GPR54 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 GPR54 gene expression knockdown using RT-PCR Primer: GPR54 (h)-PR: sc-60747-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. Milton, N.G., et al. 2012. Kisspeptin prevention of Amyloid-β peptide neurotoxicity *in vitro*. ACS Chem. Neurosci. 3: 706-719.
2. Kim, T.H., et al. 2020. Kisspeptin promotes glioblastoma cell invasiveness via the Gq-PLC-PKC pathway. Anticancer Res. 40: 213-220.

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.