SANTA CRUZ BIOTECHNOLOGY, INC.

Relaxin Receptor 1 siRNA (m): sc-40178

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). Relaxin Receptor 1, also known as Relaxin/insulin-like family peptide receptor 1, RXFP1, LGR7 or RXFPR1, is a leucine-rich repeat G protein-coupled receptor that binds Relaxins and INSL3 (insulin-like peptide 3). Expressed in brain, placenta, uterus, kidney, prostate, testis, adrenal, heart, ovary and skin, Relaxin Receptor 1 localizes to the cell membrane and contains ten LRR (leucine-rich repeats) and an LDL-receptor class A domain. Upon Relaxin or INSL3 binding to Relaxin Receptor 1, adenylate (A) cyclase is activated, leading to an increased intracellular concentration of cAMP. cAMP is a key intracellular regulator; it mediates the activities of numerous hormones, including ACTH, Glucagon and epinephrine, and plays an important role in modulating cellular activity. Due to alternative splicing events, two Relaxin Receptor 1 isoforms are expressed.

REFERENCES

1. Zhao, L., et al. 1999. Mice without a functional relaxin gene are unable to deliver milk to their pups. Endocrinology 140: 445-453.
2. Lee, P.C., et al. 2000. Effectiveness of an organ-sharing program in providing zero HLA-A,B,DR mismatched kidneys for transplantation in Taiwan. J. Formos. Med. Assoc. 99: 447-452.
3. Hsu, S.Y., et al. 2002. Activation of orphan receptors by the hormone relaxin. Science 295: 671-674.
4. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 606654. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
5. Muda, M., et al. 2005. Splice variants of the relaxin and INSL3 receptors reveal unanticipated molecular complexity. Mol. Hum. Reprod. 11: 591-600.
6. Bathgate, R.A., et al. 2005. Receptors for Relaxin family peptides. Ann. N.Y. Acad. Sci. 1041: 61-76.
7. Ma, S., et al. 2006. Comparative localization of leucine-rich repeat-containing G protein-coupled receptor-7 (RXFP1) mRNA and [^{33}P]-Relaxin binding sites in rat brain: restricted somatic co-expression a clue to relaxin action? Neuroscience 141: 329-344.
8. Halls, M.L., et al. 2007. Relaxin family peptide receptors—former orphans reunite with their parent ligands to activate multiple signalling pathways. Br. J. Pharmacol. 150: 677-691.
9. Kern, A., et al. 2007. The low-density lipoprotein class A module of the Relaxin Receptor (leucine-rich repeat containing G protein-coupled receptor 7): its role in signaling and trafficking to the cell membrane. Endocrinology 148: 1181-1194.

CHROMOSOMAL LOCATION

Genetic locus: Rxfp1 (mouse) mapping to 3 E3.

PROTOCOLS

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

PRODUCT

Relaxin Receptor 1 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Relaxin Receptor 1 shRNA Plasmid (m): sc-40178-SH and Relaxin Receptor 1 shRNA (m) Lentiviral Particles: sc-40178-V as alternate gene silencing products.

For independent verification of Relaxin Receptor 1 (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-40178A, sc-40178B and sc-40178C.

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

Relaxin Receptor 1 siRNA (m) is recommended for the inhibition of Relaxin Receptor 1 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 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 Relaxin Receptor 1 gene expression knockdown using RT-PCR Primer: Relaxin Receptor 1 (m)-PR: sc-40178-PR (20 µl, 466 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Ahmad, N., et al. 2012. Relaxin induces matrix-metalloproteinases-9 and -13 via RXFP1: induction of MMP-9 involves the PI3K, ERK, Akt and PKC-ζ pathways. Mol. Cell. Endocrinol. 363: 46-61.

RESEARCH USE

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