SANTA CRUZ BIOTECHNOLOGY, INC.

GPR31 siRNA (h): sc-95170

BACKGROUND

G protein-coupled receptors (GPCRs), also designated seven transmembrane (7TM) receptors and heptahelical receptors, are a protein family which interacts 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, along with involvement in many pathological conditions. GPR31 (G protein-coupled receptor 31) is a 319 amino acid orphan receptor that localizes to the cell membrane. GPR31 shares 25-33% homology with members of the chemokine, purino and somatostatin receptor gene families.

REFERENCES

1. Larhammar, D., et al. 1993. The receptor revolution—multiplicity of G protein-coupled receptors. Drug Des. Discov. 9: 179-188.
2. Zingoni, A., et al. 1997. Isolation and chromosomal localization of GPR31, a human gene encoding a putative G protein-coupled receptor. Genomics 42: 519-523.
3. Ji, T.H., et al. 1998. G protein-coupled receptors. I. Diversity of receptor-ligand interactions. J. Biol. Chem. 273: 17299-17302.
4. Schimenti, J.C. 1999. ORFless, intronless, and mutant transcription units in the mouse t complex responder (Tcr) locus. Mamm. Genome 10: 969-976.
5. Schöneberg, T., et al. 1999. Structural basis of G protein-coupled receptor function. Mol. Cell. Endocrinol. 151: 181-193.
6. Schaub, A., et al. 2001. PUMA-G, an IFN-γ-inducible gene in macrophages is a novel member of the seven transmembrane spanning receptor superfamily. Eur. J. Immunol. 31: 3714-3725.
7. Kawasawa, Y., et al. 2003. G protein-coupled receptor genes in the FANTOM2 database. Genome Res. 13: 1466-1477.
8. Ludwig, M.G., et al. 2003. Proton-sensing G protein-coupled receptors. Nature 425: 93-98.
9. Sellick, G.S., et al. 2005. Dominantly inherited cutaneous small-vessel lymphocytic vasculitis maps to chromosome 6q26-q27. Hum. Genet. 118: 82-86.

CHROMOSOMAL LOCATION

Genetic locus: GPR31 (human) mapping to 6q27.

PRODUCT

GPR31 siRNA (h) is a pool of 2 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 GPR31 shRNA Plasmid (h): sc-95170-SH and GPR31 shRNA (h) Lentiviral Particles: sc-95170-V as alternate gene silencing products.

For independent verification of GPR31 (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-95170A and sc-95170B.

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

GPR31 siRNA (h) is recommended for the inhibition of GPR31 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 GPR31 gene expression knockdown using RT-PCR Primer: GPR31 (h)-PR: sc-95170-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. Sharma, I., et al. 2022. Modulation of gentamicin-induced acute kidney injury by myo-inositol oxygenase via the ROS/ALOX-12/12-HETE/GPR31 signaling pathway. JCI Insight 7: e155487.

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.