SANTA CRUZ BIOTECHNOLOGY, INC.

GPR30 siRNA (h): sc-60743

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 30 (GPR30), also designated chemokine receptor-like 2 (CMKRL2), is a 375-amino acid protein orphan GCPR. GRP30 is an intracellular transmembrane estrogen receptor localized to the endoplasmic reticulum which binds estrogen and estrogen derivatives.

CHROMOSOMAL LOCATION

Genetic locus: GPER (human) mapping to 7p22.3.

PRODUCT

GPR30 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 GPR30 shRNA Plasmid (h): sc-60743-SH and GPR30 shRNA (h) Lentiviral Particles: sc-60743-V as alternate gene silencing products.

For independent verification of GPR30 (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-60743A, sc-60743B and sc-60743C.

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

GPR30 siRNA (h) is recommended for the inhibition of GPR30 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 GPR30 gene expression knockdown using RT-PCR Primer: GPR30 (h)-PR: sc-60743-PR (20 µl, 428 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

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3. Weibenborn, C., et al. 2014. GPER functions as a tumor suppressor in triple-negative breast cancer cells. J. Cancer Res. Clin. Oncol. 140: 713-723.
4. Liu, Y., et al. 2015. G15 sensitizes epithelial breast cancer cells to doxorubicin by preventing epithelial-mesenchymal transition through inhibition of GPR30. Am. J. Transl. Res. 7: 967-975.
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7. Cortes, E., et al. 2018. Tamoxifen mechanically deactivates hepatic stellate cells via the G protein-coupled estrogen receptor. Oncogene 38: 2910-2922.
8. Cortes, E., et al. 2019. GPER is a mechanoregulator of pancreatic stellate cells and the tumor microenvironment. EMBO Rep. 20: e46556.
9. Zhang, F., et al. 2019. Chronic BDE-47 exposure aggravates malignant phenotypes and chemoresistance by activating ERK through ERα and GPR30 in endometrial carcinoma. Front. Oncol. 9: 1079.
10. Wang, X., et al. 2020. Cisplatin resistance in gastric cancer cells is involved with GPR30-mediated epithelial-mesenchymal transition. J. Cell. Mol. Med. 24: 3625-3633.
11. Shi, D., et al. 2020. Inhibition of PI3K/Akt molecular pathway mediated by membrane estrogen receptor GPER accounts for cryptotanshinone induced antiproliferative effect on breast cancer SKBR-3 cells. BMC Pharmacol. Toxicol. 21: 32.
12. Castillo-Sanchez, R., et al. 2020. Bisphenol A induces focal adhesions assembly and activation of FAK, Src and ERK2 via GPER in MDA-MB-231 breast cancer cells. Toxicol. In Vitro 66: 104871.
13. Meng, Q., et al. 2020. β-estradiol adjusts intestinal function via ERβ and GPR30 mediated PI3K/Akt signaling activation to alleviate postmenopausal dyslipidemia. Biochem. Pharmacol. 180: 114134.

RESEARCH USE

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