SANTA CRUZ BIOTECHNOLOGY, INC.

CaSR siRNA (h): sc-44373

BACKGROUND

Extracellular calcium-sensing receptor (CaSR), also designated parathyroid cell calcium-sensing receptor, is an integral membrane protein that belongs to the G protein-coupled receptor 3 family. CaSR is involved in maintaining a stable calcium concentration by acting as an sensor of the extracellular calcium levels for the parathyroid and kidney. Its activity is mediated by a G protein which activates a phosphatidylinositol-calcium second messenger system. Defects that activate CaSR cause autosomal dominant hypocalcemia, whereas mutations that inactivate the protein cause familial hypocalciuric hypercalcemia. CaSR is expressed mainly in kidney, and is also expressed in intestine, placenta and brain.

CHROMOSOMAL LOCATION

Genetic locus: CASR (human) mapping to 3q21.1.

PRODUCT

CaSR 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 CaSR shRNA Plasmid (h): sc-44373-SH and CaSR shRNA (h) Lentiviral Particles: sc-44373-V as alternate gene silencing products.

For independent verification of CaSR (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-44373A, sc-44373B and sc-44373C.

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

CaSR siRNA (h) is recommended for the inhibition of CaSR 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

CaSR (6D4): sc-47741 is recommended as a control antibody for monitoring of CaSR 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor CaSR gene expression knockdown using RT-PCR Primer: CaSR (h)-PR: sc-44373-PR (20 µl, 443 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. Chowdhury, P., et al. 2011. Thermostable direct hemolysin downregulates human colon carcinoma cell proliferation with the involvement of E-cadherin, and β-catenin/Tcf-4 signaling. PLoS ONE 6: e20098.
4. Molostvov, G., et al. 2015. Arterial expression of the calcium-sensing receptor is maintained by physiological pulsation and protects against calcification. PLoS ONE 10: e0138833.
5. Rocha, G., et al. 2015. Preadipocyte proliferation is elevated by calcium sensing receptor activation. Mol. Cell. Endocrinol. 412: 251-256.
6. Grant, M.P., et al. 2016. Human cartilaginous endplate degeneration is induced by calcium and the extracellular calcium-sensing receptor in the intervertebral disc. Eur. Cell. Mater. 32: 137-151.
7. D'Espessailles, A., et al. 2018. Calcium-sensing receptor activates the NLRP3 inflammasome in LS14 preadipocytes mediated by ERK1/2 signaling. J. Cell. Physiol. 233: 6232-6240.
8. Shin, S., et al. 2019. l-ornithine activates Ca^{2+} signaling to exert its protective function on human proximal tubular cells. Cell. Signal. 67: 109484.
9. Liu, L., et al. 2020. CaSR induces osteoclast differentiation and promotes bone metastasis in lung adenocarcinoma. Front. Oncol. 10: 305.
10. Rybchyn, M.S., et al. 2021. The mTORC2 regulator homer1 modulates protein levels and sub-cellular localization of the CaSR in osteoblast-lineage cells. Int. J. Mol. Sci. 22: 6509.

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.