

MRGD siRNA (h): sc-96591

BACKGROUND

Mas-related G protein-coupled receptors are sensory neuron-specific G protein-coupled receptors that are usually involved in the development and function of nociceptive neurons and may also regulate the sensation or modulation of pain. MRGD (Mas-related GPR, member D), also known as MRGPRD or TGR7, is a 321 amino acid multi-pass membrane protein that belongs to the G protein-coupled receptor 1 family and the Mas subfamily. MRGD is suggested to function specifically as a receptor for β -alanine, a naturally occurring β amino acid. β -alanine induces Ca^{2+} influx and decreases forskolin-stimulated cAMP production in cells expressing MRGD. Neurons of outer epidermis that express MRGD act as nociceptors in which they respond indirectly to external stimuli by detecting ATP release in the skin. MRGD is encoded by a gene located on human chromosome 11q13.3.

REFERENCES

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3. Zylka, M.J., et al. 2005. Topographically distinct epidermal nociceptive circuits revealed by axonal tracers targeted to Mrgprd. *Neuron* 45: 17-25.
4. Dussor, G., et al. 2008. Cutaneous sensory neurons expressing the Mrgprd receptor sense extracellular ATP and are putative nociceptors. *J. Neurophysiol.* 99: 1581-1589.
5. Rau, K.K., et al. 2009. Mrgprd enhances excitability in specific populations of cutaneous murine polymodal nociceptors. *J. Neurosci.* 29: 8612-8619.
6. Wang, H. and Zylka, M.J. 2009. Mrgprd-expressing polymodal nociceptive neurons innervate most known classes of substantia gelatinosa neurons. *J. Neurosci.* 29: 13202-13209.
7. Cavanaugh, D.J., et al. 2009. Distinct subsets of unmyelinated primary sensory fibers mediate behavioral responses to noxious thermal and mechanical stimuli. *Proc. Natl. Acad. Sci. USA* 106: 9075-9080.
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CHROMOSOMAL LOCATION

Genetic locus: MRGPRD (human) mapping to 11q13.3.

PRODUCT

MRGD 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 MRGD shRNA Plasmid (h): sc-96591-SH and MRGD shRNA (h) Lentiviral Particles: sc-96591-V as alternate gene silencing products.

For independent verification of MRGD (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-96591A, sc-96591B and sc-96591C.

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

MRGD siRNA (h) is recommended for the inhibition of MRGD 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 MRGD gene expression knockdown using RT-PCR Primer: MRGD (h)-PR: sc-96591-PR (20 μl). Annealing temperature for the primers should be $55-60^{\circ}\text{C}$ and the extension temperature should be $68-72^{\circ}\text{C}$.

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.