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SANTA CRUZ BIOTECHNOLOGY, INC.

MrgB3 siRNA (m): sc-149564

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Mas-related G-protein coupled receptor member B3 (MAS-related GPR, member B3, MrgB3, Mrgprb3) is an orphan receptor to the G protein-coupled receptor family (seven-(pass)-transmembrane domain receptors) having mechanistic association to phosphatidylinositol (inositol phospholipid) lipid/membrane signaling. MrgB3 G protein-coupled membrane receptor activity influences neuropeptide binding activity, positive regulation of cytokinesis, and mast cell (myeloid type white blood cell of connective tissues, skin, vessels, lymph, nerves, lung and intestine) immediate response/release degranulation. Orthologous genes include Mrgprx2, Mrgpre and MrgprF. MAS-related GPR family member X2 (Mrgprx2) on mast cells is a principle receptor for pseudo-allergic reactions. MAS-related GPR family member (Mrgprx2) contributes to IgE-independent adverse drug reaction (ADR). MAS related GPR family member E (MrgprE) is a downstream target gene of microRNA (miR)-dependent (chronic) inflammatory, and neuropathic rheumatoid arthritis pain networks. MAS related GPR family member F (MrgprF) signaling restricts phosphoinositol-3-kinase (PI3K) complex formation between p101 and p110γ subunits, reduces phosphatidylinositol-(3,4)-P2 (PIP2) conversion to phosphatidylinositol-(3,4,5)-P3 (PIP3), and downregulates PI3K/Akt signaling. Interestingly, cutaneous melanoma (CM) patients with more abundant levels of MrgprF expression show improvement in clinical outcome.

REFERENCES

1. Dong, X., et al. 2001. A diverse family of GPCRs expressed in specific subsets of nociceptive sensory neurons. Cell 106: 619-632.
2. Han, S.K., et al. 2002. Orphan G protein-coupled receptors MrgA1 and MrgC11 are distinctively activated by RF-amide-related peptides through the $G\alpha_{q/11}$ pathway. Proc. Natl. Acad. Sci. USA 99: 14740-14745.
3. Zhou, L.L., et al. 2018. MicroRNA-143-3p contributes to the regulation of pain responses in collagen–induced arthritis. Mol. Med. Rep. 18: 3219-3228.
4. Mencarelli, A., et al. 2020. A humanized mouse model to study mast cells mediated cutaneous adverse drug reactions. J. Leukoc. Biol. 107: 797-807.
5. Xue, Z., et al. 2021. Licochalcone A inhibits MAS-related GPR family member X2-induced pseudo-allergic reaction by suppressing nuclear migration of nuclear factor-κB. Phytother. Res. 35: 6270-6280.

CHROMOSOMAL LOCATION

Genetic locus: Mrgprb3 (mouse) mapping to 7 B4.

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.

PRODUCT

MrgB3 siRNA (m) is a target-specific 19-25 nt siRNA 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 MrgB3 shRNA Plasmid (m): sc-149564-SH and MrgB3 shRNA (m) Lentiviral Particles: sc-149564-V as alternate gene silencing products.

APPLICATIONS

MrgB3 siRNA (m) is recommended for the inhibition of MrgB3 expression in MrgB 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 MrgB3 gene expression knockdown using RT-PCR Primer: MrgB3 (m)-PR: sc-149564-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° 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.