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SZABO-SCANDIC HandelsgmbH

Quellenstraße 110, A-1100 Wien

T. +43(0)1 489 3961-0

F. +43(0)1 489 3961-7

mail@szabo-scandic.com

www.szabo-scandic.com

linkedin.com/company/szaboscandic

SANTA CRUZ BIOTECHNOLOGY, INC.

T2R4 siRNA (m): sc-154023

BACKGROUND

The sense of taste provides animals with valuable information about the quality and nutritional value of food. A family of G protein-coupled receptors are involved in taste perception and include T1R, which is involved in sweet and umami taste perception, and T2R, which is involved in bitter taste perception. Both types of taste receptors couple to various G proteins to initiate signal transduction cascades. Single taste receptor cells express a variety of T2Rs, suggesting that each cell is capable of recognizing multiple tastants. T2R4 (taste receptor type 2 member 4), also known as TAS2R4 or MGC163311, is a 299 amino acid member of the G protein-coupled receptor T2R protein family. Localized to the cell membrane of gustducin-positive cells, T2R4 is a gustducin-coupled receptor for denatonium and N(6)-propyl-2-thiouracil and is involved in the perception of bitter compounds in the oral cavity and the gastrointestinal tract. In airway epithelial cells, binding of denatonium to T2R4 increases the intracellular calcium ion concentration, which stimulates ciliary beat frequency.

REFERENCES

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2. Matsunami, H., et al. 2000. A family of candidate taste receptors in human and mouse. Nature 404: 601-604.
3. Kinnamon, S.C. 2000. A plethora of taste receptors. Neuron 25: 507-510.
4. Ueda, T., et al. 2001. Identification of coding single-nucleotide polymorphisms in human taste receptor genes involving bitter tasting. Biochem. Biophys. Res. Commun. 285: 147-151.
5. Montmayeur, J.P., et al. 2002. Receptors for bitter and sweet taste. Curr. Opin. Neurobiol. 12: 366-371.
6. Margolskee, R.F. 2002. Molecular mechanisms of bitter and sweet taste transduction. J. Biol. Chem. 277: 1-4.
7. Zhang, Y., et al. 2003. Coding of sweet, bitter, and umami tastes: different receptor cells sharing similar signaling pathways. Cell 112: 293-301.
8. Go, Y., et al. 2005. Lineage-specific loss of function of bitter taste receptor genes in humans and nonhuman primates. Genetics 170: 313-326.

CHROMOSOMAL LOCATION

Genetic locus: Tas2r108 (mouse) mapping to 6 B1.

PRODUCT

T2R4 siRNA (m) 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 T2R4 shRNA Plasmid (m): sc-154023-SH and T2R4 shRNA (m) Lentiviral Particles: sc-154023-V as alternate gene silencing products.

For independent verification of T2R4 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-154023A, sc-154023B and sc-154023C.

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

T2R4 siRNA (m) is recommended for the inhibition of T2R4 expression in 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 T2R4 gene expression knockdown using RT-PCR Primer: T2R4 (m)-PR: sc-154023-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.