SANTA CRUZ BIOTECHNOLOGY, INC.

Orai3 siRNA (m): sc-76006

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The Power to Question

BACKGROUND

Orai3 (ORAI calcium release-activated calcium modulator 3), also known as TMEM142C (transmembrane protein 142C), is a 295 amino acid multi-pass membrane protein that belongs to the Orai family of proteins. Localizing to the plasma membrane, Orai3 plays an important role in store-operated calcium (SOC) entry, a process involving Ca^{2+} influx and replenishment of Ca^{2+} stores formerly emptied through the action of inositol 1,4,5-trisphosphate production and other Ca^{2+} mobilizing agents. CRAC channels are responsible for mediating calcium influx in T cells and play an important role in the immune response. Orai3, specifically, also acts as a regulator or component of the nuclear import of transcription factor NFAT.

REFERENCES

1. DeHaven, W.I., et al. 2007. Calcium inhibition and calcium potentiation of Orai1, Orai2, and Orai3 calcium release-activated calcium channels. J. Biol. Chem. 282: 17548-17556.
2. Online Mendelian Inheritance in Man, OMIM™. 2007. Johns Hopkins University, Baltimore, MD. MIM Number: 610930. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
3. Zhang, S.L., et al. 2008. Store-dependent and -independent modes regulating Ca^{2+} release-activated Ca^{2+} channel activity of human Orai1 and Orai3. J. Biol. Chem. 283: 17662-17671.
4. Schindl, R., et al. 2008. 2-aminoethoxydiphenyl borate alters selectivity of Orai3 channels by increasing their pore size. J. Biol. Chem. 283: 20261-20267.
5. Mignen, O., et al. 2008. Both Orai1 and Orai3 are essential components of the arachidonate-regulated Ca^{2+}-selective (ARC) channels. J. Physiol. 586: 185-195.
6. Peinelt, C., et al. 2008. 2-aminoethoxydiphenyl borate directly facilitates and indirectly inhibits STIM1-dependent gating of CRAC channels. J. Physiol. 586: 3061-3073.

CHROMOSOMAL LOCATION

Genetic locus: Orai3 (mouse) mapping to 7 F3.

PRODUCT

Orai3 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 Orai3 shRNA Plasmid (m): sc-76006-SH and Orai3 shRNA (m) Lentiviral Particles: sc-76006-V as alternate gene silencing products.

For independent verification of Orai3 (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-76006A, sc-76006B and sc-76006C.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

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

Orai3 siRNA (m) is recommended for the inhibition of Orai3 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 Orai3 gene expression knockdown using RT-PCR Primer: Orai3 (m)-PR: sc-76006-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Sundivakkam, P.C., et al. 2012. The Ca^{2+} sensor stromal interaction molecule 1 (STIM1) is necessary and sufficient for the store-operated Ca^{2+} entry function of transient receptor potential canonical (TRPC) 1 and 4 channels in endothelial cells. Mol. Pharmacol. 81: 510-526.
2. Velmurugan, G.V., et al. 2015. Depletion of H_2S during obesity enhances store-operated Ca^{2+} entry in adipose tissue macrophages to increase cytokine production. Sci. Signal. 8: ra128.
3. Goldberg, J., et al. 2020. Targeting of intracellular Ca^{2+} stores as a therapeutic strategy against age-related neurotoxicities. NPJ Aging Mech. Dis. 6: 10.

RESEARCH USE

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