SANTA CRUZ BIOTECHNOLOGY, INC.

Stim1 siRNA (h): sc-76589

BACKGROUND

Ca^{2+} influx is essential for a variety of cellular functions including, secretion and transcription. Stromal interaction molecule 1 (Stim1) is a ubiquitously expressed cell surface transmembrane glycoprotein that plays a role in mediating Ca^{2+} influx following the depletion of intracellular Ca^{2+} stores. Stim1 functions in the endoplasmic reticulum (ER) where it acts as a Ca^{2+} sensor via its EF-hand domain which causes large conformational changes. When Ca^{2+} levels drop, Stim1 translocates from the ER to the plasma membrane, where it activates the Ca^{2+} release-activated Ca^{2+} (CRAC) channel subunit, TMEM142A/Orai1. Stim2 is a potent inhibitor of Stim1-mediated store-operated calcium (SOC) entry. Stim1 is implicated in tumor growth suppression and stromal-hematopoietic cell interactions.

CHROMOSOMAL LOCATION

Genetic locus: STIM1 (human) mapping to 11p15.4.

PRODUCT

Stim1 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 Stim1 shRNA Plasmid (h): sc-76589-SH and Stim1 shRNA (h) Lentiviral Particles: sc-76589-V as alternate gene silencing products.

For independent verification of Stim1 (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-76589A, sc-76589B and sc-76589C.

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

Stim1 siRNA (h) is recommended for the inhibition of Stim1 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

Stim1 (A-8): sc-166840 is recommended as a control antibody for monitoring of Stim1 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 Stim1 gene expression knockdown using RT-PCR Primer: Stim1 (h)-PR: sc-76589-PR (20 µl, 586 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Song, M.Y., et al. 2011. Stim2 contributes to enhanced store-operated Ca entry in pulmonary artery smooth muscle cells from patients with idiopathic pulmonary arterial hypertension. Pulm. Circ. 1: 84-94.
2. Chen, Y.F., et al. 2011. Calcium store sensor stromal-interaction molecule 1-dependent signaling plays an important role in cervical cancer growth, migration, and angiogenesis. Proc. Natl. Acad. Sci. USA 108: 15225-15230.
3. Chantôme, A., et al. 2013. Pivotal role of the lipid raft SK3-Orai1 complex in human cancer cell migration and bone metastases. Cancer Res. 73: 4852-4861.
4. Chen, Y.T., et al. 2013. The ER Ca^{2+} sensor Stim1 regulates actomyosin contractility of migratory cells. J. Cell Sci. 126: 1260-1267.
5. Shi, Z.X., et al. 2015. Modeled microgravity suppressed invasion and migration of human glioblastoma U87 cells through downregulating store-operated calcium entry. Biochem. Biophys. Res. Commun. 457: 378-384.
6. Guéguinou, M., et al. 2016. SK3/TRPC1/Orai1 complex regulates SOCE-dependent colon cancer cell migration: a novel opportunity to modulate anti-EGFR mAb action by the alkyl-lipid Ohmline. Oncotarget 7: 36168-36184.
7. Wang, Y., et al. 2016. Elevated expression of Stim1 is involved in lung tumorigenesis. Oncotarget 7: 86584-86593.
8. Chakraborty, S., et al. 2016. Phemindole, a synthetic di-indole derivative maneuvers the store operated calcium entry (SOCE) to induce potent anti-carcinogenic activity in human triple negative breast cancer cells. Front. Pharmacol. 7: 114.
9. Wang, Y., et al. 2017. Stim1 silencing inhibits the migration and invasion of A549 cells. Mol. Med. Rep. 16: 3283-3289.
10. Olianas, M.C., et al. 2018. Muscarinic acetylcholine receptors potentiate 5'-adenosine monophosphate-activated protein kinase stimulation and glucose uptake triggered by thapsigargin-induced store-operated Ca^{2+} entry in human neuroblastoma cells. Neurochem. Res. 43: 245-258.

RESEARCH USE

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