

# Stim2 siRNA (m): sc-76592

## BACKGROUND

Ca<sup>2+</sup> influx is essential for a variety of cellular functions, such as secretion and transcription. Stim1 (stromal interaction molecule 1) is a ubiquitously expressed cell surface transmembrane glycoprotein that plays a role in mediating Ca<sup>2+</sup> influx following the depletion of intracellular Ca<sup>2+</sup> stores. Stim1 functions in the endoplasmic reticulum (ER) where it acts as a Ca<sup>2+</sup> sensor via its EF-hand domain and is capable of causing large conformational changes in response to varying Ca<sup>2+</sup> levels. When Ca<sup>2+</sup> levels drop, Stim1 translocates from the ER to the plasma membrane, where it activates the Ca<sup>2+</sup> release-activated Ca<sup>2+</sup> (CRAC) channel subunit, Orai1. Stim2 (stromal interaction molecule 2) is a 746 amino acid protein that contains one EF-hand domain and one SAM domain and localizes to the ER as a single-pass type I membrane protein. Stim2 exists as an oligomer with Stim1 and plays an essential role in the inhibition of Stim1-mediated Ca<sup>2+</sup> influx.

## REFERENCES

- Williams, R.T., et al. 2001. Identification and characterization of the Stim (stromal interaction molecule) gene family: coding for a novel class of transmembrane proteins. *Biochem. J.* 357: 673-685.
- Liou, J., et al. 2005. Stim is a Ca<sup>2+</sup> sensor essential for Ca<sup>2+</sup>-store-depletion-triggered Ca<sup>2+</sup> influx. *Curr. Biol.* 15: 1235-1241.
- Soboloff, J., et al. 2006. Stim2 is an inhibitor of Stim1-mediated store-operated Ca<sup>2+</sup> entry. *Curr. Biol.* 16: 1465-1470.
- Brandman, O., et al. 2007. Stim2 is a feedback regulator that stabilizes basal cytosolic and endoplasmic reticulum Ca<sup>2+</sup> levels. *Cell* 131: 1327-1339.
- Zheng, L., et al. 2008. Biophysical characterization of the EF-hand and SAM domain containing Ca<sup>2+</sup> sensory region of Stim1 and Stim2. *Biochem. Biophys. Res. Commun.* 369: 240-246.
- Bojarski, L., et al. 2009. Presenilin-dependent expression of STIM proteins and dysregulation of capacitative Ca<sup>2+</sup> entry in familial Alzheimer's disease. *Biochim. Biophys. Acta* 1793: 1050-1057.

## CHROMOSOMAL LOCATION

Genetic locus: Stim2 (mouse) mapping to 5 C1.

## PRODUCT

Stim2 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Stim2 shRNA Plasmid (m): sc-76592-SH and Stim2 shRNA (m) Lentiviral Particles: sc-76592-V as alternate gene silencing products.

For independent verification of Stim2 (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-76592A, sc-76592B and sc-76592C.

## PROTOCOLS

See our web site at [www.scbt.com](http://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  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

Stim2 siRNA (m) is recommended for the inhibition of Stim2 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  $\mu$ M in 66  $\mu$ l. 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 Stim2 gene expression knockdown using RT-PCR Primer: Stim2 (m)-PR: sc-76592-PR (20  $\mu$ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

- Antony, C., et al. 2015. Regulation of L-type voltage gated calcium channel CACNA1S in macrophages upon *Mycobacterium tuberculosis* infection. *PLoS ONE* 10: e0124263.
- Vashishta, M., et al. 2015. Pneumococcal surface protein A (PspA) regulates programmed death ligand 1 expression on dendritic cells in a Toll-like receptor 2 and calcium dependent manner. *PLoS ONE* 10: e0133601.
- Wendimu, M.Y., et al. 2021. RGS10 physically and functionally interacts with STIM2 and requires store-operated calcium entry to regulate pro-inflammatory gene expression in microglia. *Cell. Signal.* 83: 109974.

## RESEARCH USE

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