SANTA CRUZ BIOTECHNOLOGY, INC.

Stim1 siRNA (m): sc-76590

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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, causing large conformational changes. When Ca^{2+} levels drop, Stim1 translocates from the ER to the plasma membrane, where it activates the calcium release-activated calcium (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-haematopoietic cell interactions.

REFERENCES

1. Manji, S.S., et al. 2000. Stim1: a novel phosphoprotein located at the cell surface. Biochim. Biophys. Acta 1481: 147-155.
2. Williams, R.T., et al. 2002. Stromal interaction molecule 1 (Stim1), a transmembrane protein with growth suppressor activity, contains an extracellular Sam domain modified by N-linked glycosylation. Biochim. Biophys. Acta 1596: 131-137.
3. Zhang, S.L., et al. 2005. Stim1 is a Ca^{2+} sensor that activates CRAC channels and migrates from the Ca^{2+} store to the plasma membrane. Nature 437: 902-905.

CHROMOSOMAL LOCATION

Genetic locus: Stim1 (mouse) mapping to 7 E3.

PRODUCT

Stim1 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 Stim1 shRNA Plasmid (m): sc-76590-SH and Stim1 shRNA (m) Lentiviral Particles: sc-76590-V as alternate gene silencing products.

For independent verification of Stim1 (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-76590A, sc-76590B and sc-76590C.

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 (m) is recommended for the inhibition of Stim1 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.

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).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Stim1 gene expression knockdown using RT-PCR Primer: Stim1 (m)-PR: sc-76590-PR (20 µl, 562 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. 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.
2. Antony, C., et al. 2015. Regulation of L-type voltage gated calcium channel CACNA1S in macrophages upon *Mycobacterium tuberculosis* infection. PLoS ONE 10: e0124263.
3. Vashishta, M., et al. 2015. Pneumococal 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.
4. Zhang, L., et al. 2021. Upregulated SOCC and IP3R calcium channels and subsequent elevated cytoplasmic calcium signaling promote nonalcoholic fatty liver disease by inhibiting autophagy. Mol. Cell. Biochem. 476: 3163-3175.

RESEARCH USE

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