

CLIC1 siRNA (h): sc-60400

BACKGROUND

Chloride intracellular channel 1 (CLIC1), also referred to as NCC27, is a member of the highly conserved family of chloride ion channels that function in both soluble and integral membrane forms. CLIC1 is a monomeric protein that contains a redox-active site similar to glutaredoxin; it functions as a anion-selective channel. CLIC1 forms a dimer when oxidized and is then able to form chloride ion channels in bilayers and vesicles, whereas a reducing environment prevents this from occurring. Insulin concentration also plays a role in CLIC1 regulation, and the hormone may cause a subnuclear relocation of CLIC1. CLIC1 is associated with macrophage activation; a down-regulation of CLIC1 function prevents TNF α release induced by β -Amyloid protein (A- β) stimulation. This suggests a role for CLIC1 in several neurodegenerative processes, such as Alzheimer's disease, a syndrome characterized by an accumulation of β -Amyloid.

REFERENCES

1. Harrop, S.J., et al. 2001. Crystal structure of a soluble form of the intracellular chloride ion channel CLIC1 (NCC27) at 1.4-Å resolution. *J. Biol. Chem.* 276: 44993-45000.
2. Tulk, B.M., et al. 2002. CLIC1 inserts from the aqueous phase into phospholipid membranes, where it functions as an anion channel. *Am. J. Physiol., Cell Physiol.* 282: C1103-C1112.
3. Warton, K., et al. 2002. Recombinant CLIC1 (NCC27) assembles in lipid bilayers via a pH-dependent two-state process to form chloride ion channels with identical characteristics to those observed in Chinese hamster ovary cells expressing CLIC1. *J. Biol. Chem.* 277: 26003-26011.

CHROMOSOMAL LOCATION

Genetic locus: CLIC1 (human) mapping to 6p21.33.

PRODUCT

CLIC1 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see CLIC1 shRNA Plasmid (h): sc-60400-SH and CLIC1 shRNA (h) Lentiviral Particles: sc-60400-V as alternate gene silencing products.

For independent verification of CLIC1 (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-60400A, sc-60400B and sc-60400C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

CLIC1 siRNA (h) is recommended for the inhibition of CLIC1 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 μ M in 66 μ 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.

GENE EXPRESSION MONITORING

CLIC1 (F-9): sc-374202 is recommended as a control antibody for monitoring of CLIC1 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-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz MarkerTM Molecular Weight Standards: sc-2035, UltraCruz[®] Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 CLIC1 gene expression knockdown using RT-PCR Primer: CLIC1 (h)-PR: sc-60400-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Wang, P., et al. 2012. Regulation of colon cancer cell migration and invasion by CLIC1-mediated RVD. *Mol. Cell. Biochem.* 365: 313-321.
2. Fujimoto, M., et al. 2018. Transcriptional repression of human epidermal growth factor receptor 2 by CIC-3 Cl⁻/H⁺ transporter inhibition in human breast cancer cells. *Cancer Sci.* 109: 2781-2791.
3. Müller, M., et al. 2019. Chikungunya virus requires cellular chloride channels for efficient genome replication. *PLoS Negl. Trop. Dis.* 13: e0007703.

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.