SANTA CRUZ BIOTECHNOLOGY, INC.

Junctophilin-4 siRNA (h): sc-92281

BACKGROUND

Junctophilins, which are present in all excitable cells, are components of the junctional complexes between the plasma membrane and the endoplasmic or sarcoplasmic reticulum. Junctophilins contain a cytoplasmic domain that binds to the plasma membrane, as well as an ER/SR membrane spanning hydrophobic C-terminal segment. Junctophilin-4, also known as JP4, JPHL1 or JPH4, is a 628 amino acid single-pass type IV membrane protein that contains eight MORN repeats. The MORN (membrane occupation and recognition nexus) repeats are thought to contribute to plasma membrane binding, possibly by interacting with phospholipids. Expressed specifically in brain, Junctophilin-4 may be involved in subsurface cistern formation in neurons.

REFERENCES

1. Takeshima, H., et al. 2000. Junctophilins: a novel family of junctional membrane complex proteins. Mol. Cell 6: 11-22.
2. Takeshima, H. 2001. Junctophilins: molecular components contributing junctional membrane complexes between the cell-surface membrane and endoplasmic/sarcoplasmic reticulum. Clin. Calcium 11: 758-762.
3. Nishi, M., et al. 2003. Coexpression of junctophilin type 3 and type 4 in brain. Brain Res. Mol. Brain Res. 118: 102-110.
4. Minamisawa, S., et al. 2004. Junctophilin type 2 is associated with caveolin-3 and is down-regulated in the hypertrophic and dilated cardiomyopathies. Biochem. Biophys. Res. Commun. 325: 852-856.
5. Kakizawa, S., et al. 2007. Junctophilin-mediated channel crosstalk essential for cerebellar synaptic plasticity. EMBO J. 26: 1924-1933.
6. Kakizawa, S., et al. 2008. Functional crosstalk between cell-surface and intracellular channels mediated by junctophilins essential for neuronal functions. Cerebellum 7: 385-391.
7. Yamazaki, D., et al. 2009. New molecular components supporting ryanodine receptor-mediated Ca^{2+} release: roles of junctophilin and TRIC channel in embryonic cardiomyocytes. Pharmacol. Ther. 121: 265-272.

CHROMOSOMAL LOCATION

Genetic locus: JPH4 (human) mapping to 14q11.2.

PRODUCT

Junctophilin-4 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 Junctophilin-4 shRNA Plasmid (h): sc-92281-SH and Junctophilin-4 shRNA (h) Lentiviral Particles: sc-92281-V as alternate gene silencing products.

For independent verification of Junctophilin-4 (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-92281A, sc-92281B and sc-92281C.

RESEARCH USE

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

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

Junctophilin-4 siRNA (h) is recommended for the inhibition of Junctophilin-4 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Junctophilin-4 gene expression knockdown using RT-PCR Primer: Junctophilin-4 (h)-PR: sc-92281-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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