SANTA CRUZ BIOTECHNOLOGY, INC.

SLITRK2 siRNA (h): sc-91358

BACKGROUND

SLITRK family proteins are integral membrane proteins that have a C-terminal domain that is partially similar to TRK neurotrophin receptor proteins and two leucine-rich repeat (LRR) domains that are similar to those of SLIT proteins. SLITRK2 (SLIT and NTRK-like protein 2) is a 845 amino acid single-pass type I membrane protein that contains 14 LRR (leucine-rich repeats) and is expressed in neural tissues, with highest levels found in adult cerebral cortex. Overexpression of SLITRK2 leads to inhibition of unipolar neurites in cultured cells, suggesting that it suppresses neurite outgrowth. Inhibitory activity of SLITRK2 is localized to its C-terminal intracellular domain and without this region the protein induces neurite outgrowth. Variants in the gene encoding SLITRK2 may contribute to the development of bipolar disorder, autism spectrum disorder and schizophrenia. There are two isoforms of SLITRK2 that are produced as a result of alternative splicing events.

REFERENCES

1. Aruga, J., Yokota, N. and Mikoshiba, K. 2003. Human SLITRK family genes: genomic organization and expression profiling in normal brain and brain tumor tissue. Gene 315: 87-94.
2. Aruga, J. and Mikoshiba, K. 2003. Identification and characterization of Slitrk, a novel neuronal transmembrane protein family controlling neurite outgrowth. Mol. Cell. Neurosci. 24: 117-129.
3. Online Mendelian Inheritance in Man, OMIM™. 2005. Johns Hopkins University, Baltimore, MD. MIM Number: 300561. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
4. Milde, T., Shmelkov, S.V., Jensen, K.K., Zlotchenko, G., Petit, I. and Rafii, S. 2007. A novel family of slitrk genes is expressed on hematopoietic stem cells and leukemias. Leukemia 21: 824-827.
5. Imami, K., Sugiyama, N., Kyono, Y., Tomita, M. and Ishihama, Y. 2008. Automated phosphoproteome analysis for cultured cancer cells by two-dimensional nanoLC-MS using a calcined titania/C18 biphasic column. Anal. Sci. 24: 161-166.
6. Beaubien, F. and Cloutier, J.F. 2009. Differential expression of Slitrk family members in the mouse nervous system. Dev. Dyn. 238: 3285-3296.
7. Stillman, A.A., Krsnik, Z., Sun, J., Rasin, M.R., State, M.W., Sestan, N. and Louvi, A. 2009. Developmentally regulated and evolutionarily conserved expression of SLITRK1 in brain circuits implicated in Tourette syndrome. J. Comp. Neurol. 513: 21-37.
8. Smith, E.N., Bloss, C.S., Badner, J.A., Barrett, T., Belmonte, P.L., Berrettini, W., Byerley, W., Coryell, W., Craig, D., Edenberg, H.J., Eskin, E., Foroud, T., Gershon, E., Greenwood, T.A., Hipolito, M., Koller, D.L., Lawson, W.B., et al. 2009. Genome-wide association study of bipolar disorder in European American and African American individuals. Mol. Psychiatry 14: 755-763.
9. Piton, A., Gauthier, J., Hamdan, F.F., Lafrenière, R.G., Yang, Y., Henrion, E., Laurent, S., Noreau, A., Thibodeau, P., Karemera, L., Spiegelman, D., Kuku, F., Duguay, J., Destroismaisons, L., Jolivet, P., et al. 2010. Systematic resequencing of X-chromosome synaptic genes in autism spectrum disorder and schizophrenia. Mol. Psychiatry 16: 867-880.

CHROMOSOMAL LOCATION

Genetic locus: SLITRK2 (human) mapping to Xq27.3.

PRODUCT

SLITRK2 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 SLITRK2 shRNA Plasmid (h): sc-91358-SH and SLITRK2 shRNA (h) Lentiviral Particles: sc-91358-V as alternate gene silencing products.

For independent verification of SLITRK2 (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-91358A, sc-91358B and sc-91358C.

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

SLITRK2 siRNA (h) is recommended for the inhibition of SLITRK2 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 SLITRK2 gene expression knockdown using RT-PCR Primer: SLITRK2 (h)-PR: sc-91358-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

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.