SANTA CRUZ BIOTECHNOLOGY, INC.

MLC1 siRNA (h): sc-75793

BACKGROUND

MLC1 is a 377 amino acid multi-pass membrane protein that may serve as a non-selective neuronal cation channel in brain. Mutant MLC1 proteins that show impaired folding have been corrected *in vitro* with the addition of a Ca^{2+}-ATPase inhibitor, curcumin. Mutations in the gene encoding MLC1 is the cause of megalencephalic leukoencephalopathy with subcortical cysts, also known as van der Knaap disease, a rare syndrome characterized early in life by progressive brain destruction causing mental retardation and incoordination. Single nucleotide polymorphisms within the MLC1 gene may be associated with periodic catatonia, but there seems to be conflicting evidence on whether or not the gene is implicated in general schizophrenia.

REFERENCES

1. Leegwater, P.A., et al. 2001. Mutations of MLC1 (KIAA0027), encoding a putative membrane protein, cause megalencephalic leukoencephalopathy with subcortical cysts. Am. J. Hum. Genet. 68: 831-838.
2. Meyer, J., et al. 2001. A missense mutation in a novel gene encoding a putative cation channel is associated with catatonic schizophrenia in a large pedigree. Mol. Psychiatry 6: 302-306.
3. Leegwater, P.A., et al. 2002. Identification of novel mutations in MLC1 responsible for megalencephalic leukoencephalopathy with subcortical cysts. Hum. Genet. 110: 279-283.
4. Ben-Zeev, B., et al. 2002. Megalencephalic leukoencephalopathy with subcortical cysts; a founder effect in Israeli patients and a higher than expected carrier rate among Libyan Jews. Hum. Genet. 111: 214-218.
5. Rubie, C., et al. 2003. Sequence diversity of KIAA0027/MLC1: are megalencephalic leukoencephalopathy and schizophrenia allelic disorders? Hum. Mutat. 21: 45-52.
6. Gevaert, K., et al. 2003. Exploring proteomes and analyzing protein processing by mass spectrometric identification of sorted N-terminal peptides. Nat. Biotechnol. 21: 566-569.
7. Ilja Boor, P.K., et al. 2006. Megalencephalic leukoencephalopathy with subcortical cysts: an update and extended mutation analysis of MLC1. Hum. Mutat. 27: 505-512.
8. Selch, S., et al. 2007. MLC1 polymorphisms are specifically associated with periodic catatonia, a subgroup of chronic schizophrenia. Biol. Psychiatry 61: 1211-1214.
9. Online Mendelian Inheritance in Man, OMIM™. 2007. Johns Hopkins University, Baltimore, MD. MIM Number: 605908. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/

CHROMOSOMAL LOCATION

Genetic locus: MLC1 (human) mapping to 22q13.33.

PROTOCOLS

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

PRODUCT

MLC1 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 MLC1 shRNA Plasmid (h): sc-75793-SH and MLC1 shRNA (h) Lentiviral Particles: sc-75793-V as alternate gene silencing products.

For independent verification of MLC1 (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-75793A, sc-75793B and sc-75793C.

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

MLC1 siRNA (h) is recommended for the inhibition of MLC1 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 MLC1 gene expression knockdown using RT-PCR Primer: MLC1 (h)-PR: sc-75793-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.