SANTA CRUZ BIOTECHNOLOGY, INC.

MTMR12 siRNA (h): sc-91717

BACKGROUND

Myotubularin and the myotubularin-related proteins belong to a highly conserved family of eukaryotic phosphatases that utilize inositol phospholipids, rather than phosphoproteins, as substrates. MTMR12 (myotubularin-related protein 12), also known as 3-PAP (3-phosphatase adapter protein) or PIP3AP (phosphatidylinositol-3 phosphate 3-phosphatase adapter subunit), is a 747 amino acid cytoplasmic protein that belongs to the protein-tyrosine phosphatase family and non-receptor class myotubularin subfamily. Existing as three alternatively spliced isoforms, MTMR12 contains one myotubularin phosphatase domain and is ubiquitously expressed with highest levels found in lung, brain, kidney, heart and placenta. The gene encoding MTMR12 maps to human chromosome 5, which contains 181 million base pairs and comprises nearly 6% of the human genome. Deletion of the p arm of chromosome 5 leads to Cri du chat syndrome, while deletion of the q arm or of chromosome 5 altogether is common in therapy-related acute myelogenous leukemias and myelodys-plastic syndrome.

REFERENCES

1. Nandurkar, H.H., Caldwell, K.K., Whisstock, J.C., Layton, M.J., Gaudet, E.A., Norris, F.A., Majerus, P.W. and Mitchell, C.A. 2001. Characterization of an adapter subunit to a phosphatidylinositol (3)P 3-phosphatase: identification of a myotubularin-related protein lacking catalytic activity. Proc. Natl. Acad. Sci. USA 98: 9499-9504.
2. Wishart, M.J. and Dixon, J.E. 2002. PTEN and myotubularin phosphatases: from 3-phosphoinositide dephosphorylation to disease. Trends Cell Biol. 12: 579-585.
3. Nandurkar, H.H., Layton, M., Laporte, J., Selan, C., Corcoran, L., Caldwell, K.K., Mochizuki, Y., Majerus, P.W. and Mitchell, C.A. 2003. Identification of myotubularin as the lipid phosphatase catalytic subunit associated with the 3-phosphatase adapter protein, 3-PAP. Proc. Natl. Acad. Sci. USA 100: 8660-8665.
4. Yu, L.R., Zhu, Z., Chan, K.C., Issaq, H.J., Dimitrov, D.S. and Veenstra, T.D. 2007. Improved titanium dioxide enrichment of phosphopeptides from HeLa cells and high confident phosphopeptide identification by cross-validation of MS/MS and MS/MS/MS spectra. J. Proteome Res. 6: 4150-4162.
5. Vera-Carbonell, A., Bafalliu, J.A., Guillén-Navarro, E., Escalona, A., Ballesta-Martínez, M.J., Fuster, C., Fernández, A. and López-Expósito, I. 2009. Characterization of a *de novo* complex chromosomal rearrangement in a patient with cri-du-chat and trisomy 5p syndromes. Am. J. Med. Genet. A 149A: 2513-2521.
6. Ravandi, F., Issa, J.P., Garcia-Manero, G., O'Brien, S., Pierce, S., Shan, J., Borthakur, G., Verstovsek, S., Faderl, S., Cortes, J. and Kantarjian, H. 2009. Superior outcome with hypomethylating therapy in patients with acute myeloid leukemia and high-risk myelodysplastic syndrome and chromosome 5 and 7 abnormalities. Cancer 115: 5746-5751.
7. Sazawal, S., Kumar, B., Hasan, S.K., Dutta, P., Kumar, R., Chaubey, R., Mir, R. and Saxena, R. 2009. Haematological & molecular profile of acute myelogenous leukaemia in India. Indian J. Med. Res. 129: 256-261.

CHROMOSOMAL LOCATION

Genetic locus: MTMR12 (human) mapping to 5p13.3.

PRODUCT

MTMR12 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 MTMR12 shRNA Plasmid (h): sc-91717-SH and MTMR12 shRNA (h) Lentiviral Particles: sc-91717-V as alternate gene silencing products.

For independent verification of MTMR12 (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-91717A, sc-91717B and sc-91717C.

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

MTMR12 siRNA (h) is recommended for the inhibition of MTMR12 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 MTMR12 gene expression knockdown using RT-PCR Primer: MTMR12 (h)-PR: sc-91717-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.