SANTA CRUZ BIOTECHNOLOGY, INC.

PATL1 siRNA (h): sc-96855

BACKGROUND

PATL1, also known as Pat1b, is a 770 amino acid cytoplasmic protein that belongs to the PAT1 family and exists as four alternatively spliced isoforms. As a scaffolding protein that connects deadenylation and decapping machinery, PATL1 is involved in the deadenylation-dependent decapping and degradation of mRNAs. PATL1 is also required for assembly of cytoplasmic mRNA processing body (P-body) and is ubiquitously expressed. The gene that encodes PATL1 consists of about 32,323 bases and maps to human chromosome 11q12.1. Chromosome 11 houses over 1,400 genes and comprises nearly 4% of the human genome. Jervell and Lange-Nielsen syndrome, Jacobsen syndrome, Niemann-Pick disease, hereditary angioedema and Smith-Lemli-Opitz syndrome are associated with defects in genes that map to chromosome 11.

REFERENCES

1. Fabiani, J.E., Avigliano, A., Dupont, J.C. and Fabiana, J.E. 2000. Hereditary angioedema. Long-term follow-up of 88 patients. Experience of the Argentine Allergy and Immunology Institute. Allergol. Immunopathol 28: 267-271.
2. Scheller, N., Resa-Infante, P., de la Luna, S., Galao, R.P., Albrecht, M., Kaestner, L., Lipp, P., Lengauer, T., Meyerhans, A. and Díez, J. 2007. Identification of PatL1, a human homolog to yeast P body component Pat1. Biochim. Biophys. Acta 1773: 1786-1792.
3. Schuchman, E.H. 2007. The pathogenesis and treatment of acid sphingomyelinase-deficient Niemann-Pick disease. J. Inherit. Metab. Dis. 30: 654-663.
4. Bhuiyan, Z.A., Momenah, T.S., Amin, A.S., Al-Khadra, A.S., Alders, M., Wilde, A.A. and Mannens, M.M. 2008. An intronic mutation leading to incomplete skipping of exon-2 in KCNQ1 rescues hearing in Jervell and Lange-Nielsen syndrome. Prog. Biophys. Mol. Biol. 98: 319-327.
5. Coldren, C.D., Lai, Z., Shragg, P., Rossi, E., Glidewell, S.C., Zuffardi, O., Mattina, T., Ivy, D.D., Curfs, L.M., Mattson, S.N., Riley, E.P., Treier, M. and Grossfeld, P.D. 2009. Chromosomal microarray mapping suggests a role for BSX and Neurogranin in neurocognitive and behavioral defects in the 11q terminal deletion disorder (Jacobsen syndrome). Neurogenetics 10: 89-95.
6. Braun, J.E., Tritschler, F., Haas, G., Igreja, C., Truffault, V., Weichenrieder, O. and Izaurralde, E. 2010. The C-terminal alpha-alpha superhelix of Pat is required for mRNA decapping in metazoa. EMBO J. 29: 2368-2380.
7. Ozgur, S., Chekulaeva, M. and Stoecklin, G. 2010. Human Pat1b connects deadenylation with mRNA decapping and controls the assembly of processing bodies. Mol. Cell. Biol. 30: 4308-4323.
8. Marnef, A., Maldonado, M., Bugaut, A., Balasubramanian, S., Kress, M., Weil, D. and Standart, N. 2010. Distinct functions of maternal and somatic Pat1 protein paralogs. RNA 16: 2094-2107.
9. Totaro, A., Renzi, F., La Fata, G., Mattioli, C., Raabe, M., Urlaub, H. and Achsel, T. 2011. The human Pat1b protein: a novel mRNA deadenylation factor identified by a new immunoprecipitation technique. Nucleic Acids Res. 39: 635-647.

CHROMOSOMAL LOCATION

Genetic locus: PATL1 (human) mapping to 11q12.1.

PRODUCT

PATL1 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 PATL1 shRNA Plasmid (h): sc-96855-SH and PATL1 shRNA (h) Lentiviral Particles: sc-96855-V as alternate gene silencing products.

For independent verification of PATL1 (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-96855A, sc-96855B and sc-96855C.

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

PATL1 siRNA (h) is recommended for the inhibition of PATL1 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 PATL1 gene expression knockdown using RT-PCR Primer: PATL1 (h)-PR: sc-96855-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.