SANTA CRUZ BIOTECHNOLOGY, INC.

I-Plastin siRNA (m): sc-140929

BACKGROUND

Smooth muscle is present in many areas throughout the body, including vascular, respiratory, urinary and gastrointestinal tissue, and its ability to contract is largely due to calcium gradients. I-Plastin (intestine-specific Plastin) is also known as PLS1 (Plastin-1) or Fimbrin and is a 629 amino acid protein that is abundantly expressed in small intestine, colon and kidneys and is also expressed at lower concentrations in lungs and stomach. II-Plastin localizes to the brush border and more specifically to the cytoplasm of cells. I-Plastin is a member of the plastin family of Actin-binding proteins. The ability of I-Plastin to bind Actin allows it to collect Actin filaments into bundles in the absence of calcium, which, when present, is thought to regulate or inhibit Actin bundling. I-Plastin contains four CH (calponin homology) domains that are thought to bind Actin, unless they are phosphorylated. The N-terminus of I-Plastin has a calmodulin-like calcium-binding domain followed by two α-actinin-like Actin binding domains that also bind calcium. I-Plastin also contains two EF hand domains important for calcium binding and protein-protein interactions. I-Plastin is thought to cross-link Actin filaments and to have an inhibitory relationship with calcium, but the extent to which this occurs is not known.

REFERENCES

1. de Arruda, M.V., Watson, S., Lin, C.S., Leavitt, J. and Matsudaira, P. 1990. Fimbrin is a homologue of the cytoplasmic phosphoprotein plastin and has domains homologous with calmodulin and Actin gelation proteins. J. Cell Biol. 111: 1069-1079.
2. Lin, C.S., Park, T., Chen, Z.P. and Leavitt, J. 1993. Human plastin genes. Comparative gene structure, chromosome location, and differential expression in normal and neoplastic cells. J. Biol. Chem. 268: 2781-2792.
3. Lin, C.S., Shen, W., Chen, Z.P., Tu, Y.H. and Matsudaira, P. 1994. Identification of I-Plastin, a human fimbrin isoform expressed in intestine and kidney. Mol. Cell. Biol. 14: 2457-2467.
4. Horowitz, A., Menice, C.B., Laporte, R. and Morgan, K.G. 1996. Mechanisms of smooth muscle contraction. Physiol. Rev. 76: 967-1003.
5. Online Mendelian Inheritance in Man, OMIM™. 1998. Johns Hopkins University, Baltimore, MD. MIM Number: 602734. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
6. Lewit-Bentley, A. and Rety, S. 2000. EF-hand calcium-binding proteins. Curr. Opin. Struct. Biol. 10: 637-643.
7. Janji, B., Giganti, A., De Corte, V., Catillon, M., Bruyneel, E., Lentz, D., Plastino, J., Gettemans, J. and Friederich, E. 2006. Phosphorylation on Ser5 increases the F-Actin-binding activity of L-plastin and promotes its targeting to sites of Actin assembly in cells. J. Cell Sci. 119: 1947-1960.
8. Shinomiya, H., Shinjo, M., Fengzhi, L., Asano, Y. and Kihara, H. 2007. Conformational analysis of the leukocyte-specific EF-hand protein p65/L-plastin by X-ray scattering in solution. Biophys. Chem. 131: 36-42.

PROTOCOLS

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

CHROMOSOMAL LOCATION

Genetic locus: Pls1 (mouse) mapping to 9 E3.3.

PRODUCT

I-Plastin siRNA (m) 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 I-Plastin shRNA Plasmid (m): sc-140929-SH and I-Plastin shRNA (m) Lentiviral Particles: sc-140929-V as alternate gene silencing products.

For independent verification of I-Plastin (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-140929A, sc-140929B and sc-140929C.

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

I-Plastin siRNA (m) is recommended for the inhibition of I-Plastin expression in mouse 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 I-Plastin gene expression knockdown using RT-PCR Primer: I-Plastin (m)-PR: sc-140929-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.