SANTA CRUZ BIOTECHNOLOGY, INC.

Tect1 siRNA (h): sc-96235

BACKGROUND

Tect1 (tectonic-1), also known as TCTN1, is a 587 amino acid secreted protein that belongs to the tectonic family and exists as six alternatively spliced isoforms. As a regulator of Hedgehog (Hh), Tect1 is required for both activation and inhibition of the Hh pathway in the patterning of the neural tube. During neural tube development, Tect1 is required for formation of the most ventral cell types and for full Hh pathway activation. Tect1 functions in Hh signal transduction to fully activate the pathway in the presence of high Hh levels and to repress the pathway in the absence of Hh signals. While it modulates Hh signal transduction downstream of Smo and Rab 23, Tect1 also interacts with MKS1. The gene that encodes Tect1 contains about 35,104 bases and maps to human chromosome 12q24.11. Chromosome 12 comprises approximately 4.5% of the human genome and is associated with a variety of diseases and afflictions, including hypochondrogenesis, achondrogenesis, Kniest dysplasia, Noonan syndrome and trisomy 12p, which causes facial developmental defects and seizure disorders.

REFERENCES

1. Allen, T.L., Brothman, A.R., Carey, J.C. and Chance, P.F. 1996. Cytogenetic and molecular analysis in trisomy 12p. Am. J. Med. Genet. 63: 250-256.
2. Delgado Carrasco, J., Casanova Morcillo, A., Zabalza Alvillos, M. and Ayala Garcés, A. 2001. Achondrogenesis type II-hypochondrogenesis: radiological features.Case report. An. Esp. Pediatr. 55: 553-557.
3. Yokoyama, T., Nakatani, S. and Murakami, A. 2003. A case of Kniest dysplasia with retinal detachment and the mutation analysis. Am. J. Ophthalmol. 136: 1186-1188.
4. Reiter, J.F. and Skarnes, W.C. 2006. Tectonic, a novel regulator of the Hedgehog pathway required for both activation and inhibition. Genes Dev. 20: 22-27.
5. Forzano, F., Lituania, M., Viassolo, A., Superti-Furga, V., Wildhardt, G., Zabel, B. and Faravelli, F. 2007. A familial case of achondrogenesis type II caused by a dominant COL2A1 mutation and "patchy" expression in the mosaic father. Am. J. Med. Genet. A 143A: 2815-2820.
6. Wainwright, H. and Beighton, P. 2008. Visceral manifestations of hypochondrogenesis. Virchows Arch. 453: 203-207.
7. Lo, F.S., Luo, J.D., Lee, Y.J., Shu, S.G., Kuo, M.T. and Chiou, C.C. 2009. High resolution melting analysis for mutation detection for PTPN11 gene: applications of this method for diagnosis of Noonan syndrome. Clin. Chim. Acta 409: 75-77.
8. Benussi, D.G., Costa, P., Zollino, M., Murdolo, M., Petix, V., Carrozzi, M. and Pecile, V. 2009. Trisomy 12p and monosomy 4p: phenotype-genotype correlation. Genet. Test. Mol. Biomarkers 13: 199-204.

CHROMOSOMAL LOCATION

Genetic locus: TCTN1 (human) mapping to 12q24.11.

PROTOCOLS

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

PRODUCT

Tect1 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 Tect1 shRNA Plasmid (h): sc-96235-SH and Tect1 shRNA (h) Lentiviral Particles: sc-96235-V as alternate gene silencing products.

For independent verification of Tect1 (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-96235A, sc-96235B and sc-96235C.

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

Tect1 siRNA (h) is recommended for the inhibition of Tect1 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 Tect1 gene expression knockdown using RT-PCR Primer: Tect1 (h)-PR: sc-96235-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.