SANTA CRUZ BIOTECHNOLOGY, INC.

Tektin 4 siRNA (h): sc-94396

BACKGROUND

The Tektin proteins comprise a family of insoluble, α-helical, filament-forming peptides that interact with Tubulins and, via this interaction, form flagellar and ciliary microtubules. Tektin 4, also known as TEKT4, is a 435 amino acid protein belonging to the tektin family. Localizing to cytoplasm as well as haploid round spermatids in testis, Tektin 4 is expressed in the abaxial surface of outer dense fibers (ORFs) in sperm flagella. Deletion of Tektin 4 is associated with uncoordinated waveform propagation and reduced velocity of sperm flagellum, resulting in subfertility. Tektin 4 may also function as a structural component by forming filamentous polymers of cilliary and flagellar microtubules. The gene encoding Tektin 4 maps to human chromosome 2q11.1. The second largest human chromosome, chromosome 2 consists of 237 million bases, encodes over 1,400 genes and makes up approximately 8% of the human genome.

REFERENCES

1. Ijdo, J.W., Baldini, A., Ward, D.C., Reeders, S.T. and Wells, R.A. 1991. Origin of human chromosome 2: an ancestral telomere-telomere fusion. Proc. Natl. Acad. Sci. USA 88: 9051-9055.
2. Stephens, R.E. and Lemieux, N.A. 1998. Tektins as structural determinants in basal bodies. Cell Motil. Cytoskeleton 40: 379-392.
3. Cao, W., Gerton, G.L. and Moss, S.B. 2006. Proteomic profiling of accessory structures from the mouse sperm flagellum. Mol. Cell. Proteomics 5: 801-810.
4. Iida, H., Honda, Y., Matsuyama, T., Shibata, Y. and Inai, T. 2006. Tektin 4 is located on outer dense fibers, not associated with axonemal tubulins of flagella in rodent spermatozoa. Mol. Reprod. Dev. 73: 929-936.
5. Roy, A., Lin, Y.N., Agno, J.E., DeMayo, F.J. and Matzuk, M.M. 2007. Absence of Tektin 4 causes asthenozoospermia and subfertility in male mice. FASEB J. 21: 1013-1025.
6. Amos, L.A. 2008. The tektin family of microtubule-stabilizing proteins. Genome Biol. 9: 229.
7. Zuccarello, D., Ferlin, A., Garolla, A., Pati, M.A., Moretti, A., Cazzadore, C., Francavilla, S. and Foresta, C. 2008. A possible association of a human tektin-t gene mutation (A229V) with isolated non-syndromic asthenozoospermia: case report. Hum. Reprod. 23: 996-1001.
8. Roy, A., Lin, Y.N., Agno, J.E., DeMayo, F.J. and Matzuk, M.M. 2009. Tektin 3 is required for progressive sperm motility in mice. Mol. Reprod. Dev. 76: 453-459.

CHROMOSOMAL LOCATION

Genetic locus: TEKT4 (human) mapping to 2q11.1.

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.

PRODUCT

Tektin 4 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 Tektin 4 shRNA Plasmid (h): sc-94396-SH and Tektin 4 shRNA (h) Lentiviral Particles: sc-94396-V as alternate gene silencing products.

For independent verification of Tektin 4 (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-94396A, sc-94396B and sc-94396C.

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

Tektin 4 siRNA (h) is recommended for the inhibition of Tektin 4 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 Tektin 4 gene expression knockdown using RT-PCR Primer: Tektin 4 (h)-PR: sc-94396-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.