SANTA CRUZ BIOTECHNOLOGY, INC.

TSEN2 siRNA (h): sc-78520

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The Power to Question

BACKGROUND

The tRNA-splicing endonuclease complex is responsible for identifying and cleaving pre-tRNA at both 5' and 3' splice sites, thereby releasing introns and free tRNA molecules with 2',3' cyclic phosphates and 5'-OH termini. In addition to its role in pre-tRNA splicing, the heterotetrameric endonuclease complex participates in mRNA processing and, via its association with pre-mRNA processing factors, is thought to link pre-tRNA and pre-mRNA splicing events. TSEN2 (tRNA-splicing endonuclease subunit Sen2), also known as tRNA-intron endonuclease Sen2, is a 465 amino acid nuclear protein that constitutes one of the two catalytic subunits of the tRNA-splicing endonuclease complex. There are three isoforms of TSEN2 that are produced as a result of alternative splicing events. Isoform 1 seems to carry the active site for 5'-splice site cleavage. Defects in the gene encoding TSEN2 are the cause of pontocerebellar hypoplasia type 2B, which is characterized by progressive microencephaly with epilepsy, extrapyramidal dyskinesia and chorea without spinal cord findings.

REFERENCES

1. Paushkin, S.V., et al. 2004. Identification of a human endonuclease complex reveals a link between tRNA splicing and pre-mRNA 3' end formation. Cell 117: 311-321.
2. Roux, M., et al. 2006. Cotranscription and intergenic splicing of the PPARG and TSEN2 genes in cattle. BMC Genomics 7: 71.
3. Ibrahim, A.E., et al. 2006. MMASS: an optimized array-based method for assessing CpG island methylation. Nucleic Acids Res. 34: e136.
4. Barth, P.G., et al. 2007. Pontocerebellar hypoplasia type 2: a neuropathological update. Acta Neuropathol. 114: 373-386.
5. Budde, B.S., et al. 2008. tRNA splicing endonuclease mutations cause pontocerebellar hypoplasia. Nat. Genet. 40: 1113-1118.
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CHROMOSOMAL LOCATION

Genetic locus: TSEN2 (human) mapping to 3p25.2.

PRODUCT

TSEN2 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 TSEN2 shRNA Plasmid (h): sc-78520-SH and TSEN2 shRNA (h) Lentiviral Particles: sc-78520-V as alternate gene silencing products.

For independent verification of TSEN2 (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-78520A, sc-78520B and sc-78520C.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

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

TSEN2 siRNA (h) is recommended for the inhibition of TSEN2 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 TSEN2 gene expression knockdown using RT-PCR Primer: TSEN2 (h)-PR: sc-78520-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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