SANTA CRUZ BIOTECHNOLOGY, INC.

TPST-1 siRNA (h): sc-41075

BACKGROUND

The tyrosylprotein sulfotransferases TPST-1 and TPST-2 catalyze the sulfation of tyrosine residues within secreted and membrane-bound proteins, such as cell adhesion molecules, G protein-coupled receptors, coagulation factors, serpins, extracellular matrix proteins, and hormones. Although both TPST-1 and TPST-2 utilize 3'-phosphoadenosine 5'-phosphosulfate as their sulfate donor, they differ in their substrate specificity. The TPSTs are evolutionarily conserved proteins found in a wide variety of species, including human, mouse, *C. elegans*, and plants. They are ubiquitously expressed in several tissues, including liver, lung, heart, and cerebellum. Both TPST-1 and TPST-2 localize to the Golgi complex. Chronic alcohol consumption stimulates a threefold increase in TPST levels in the gastric mucosa and liver, indicating that TPST may play a role in alcoholism. The genes encoding human TPST-1 and TPST-2 map to chromosomes 7q11.21 and 22q12.1, respectively.

REFERENCES

1. Kasinathan, C., et al. 1993. Inhibition of tyrosylprotein sulfotransferase by sphingosine and its reversal by acidic phospholipids. Biochemistry 32: 1194-1198.
2. Beisswanger, R., et al. 1998. Existence of distinct tyrosylprotein sulfotransferase genes: molecular characterization of tyrosylprotein sulfotransferase-2. Proc. Natl. Acad. Sci. USA 95: 11134-11139.
3. Ouyang, Y.B., et al. 1998. Molecular cloning and expression of human and mouse tyrosylprotein sulfotransferase-2 and a tyrosylprotein sulfotransferase homologue in *Caenorhabditis elegans*. J. Biol. Chem. 273: 24770-24774.
4. Kasinathan, C., et al. 1998. Stimulation of tyrosylprotein sulfotransferase activity by ethanol: role of increased enzyme level. Alcohol 15: 271-276.
5. Hanai, H., et al. 2000. Existence of a plant tyrosylprotein sulfotransferase: novel plant enzyme catalyzing tyrosine O-sulfation of preprophytosulfokine variants *in vitro*. FEBS Lett. 470: 97-101.
6. Kasinathan, C., et al. 1993. Inhibition of tyrosylprotein sulfotransferase by sphingosine and its reversal by acidic phospholipids. Biochemistry 32: 1194-1198.

CHROMOSOMAL LOCATION

Genetic locus: TPST1 (human) mapping to 7q11.21.

PRODUCT

TPST-1 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 TPST-1 shRNA Plasmid (h): sc-41075-SH and TPST-1 shRNA (h) Lentiviral Particles: sc-41075-V as alternate gene silencing products.

For independent verification of TPST-1 (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-41075A, sc-41075B and sc-41075C.

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

TPST-1 siRNA (h) is recommended for the inhibition of TPST-1 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 TPST-1 gene expression knockdown using RT-PCR Primer: TPST-1 (h)-PR: sc-41075-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Xu, J., et al. 2013. Tyrosylprotein sulfotransferase-1 and tyrosine sulfation of chemokine receptor 4 are induced by Epstein-Barr virus encoded latent membrane protein 1 and associated with the metastatic potential of human nasopharyngeal carcinoma. PLoS ONE 8: e56114.

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.