SANTA CRUZ BIOTECHNOLOGY, INC.

ASMTL siRNA (h): sc-91584

BACKGROUND

Serotonin, a monoamine neurotransmitter associated with neuronal modulation of emotions, is synthesized by serotonergic neurons of the central nervous system through metabolism of the essential amino acid L-tryptophan. In the pineal gland, serotonin can be transformed into the circadian regulatory hormone melatonin by ASMT (acetylserotonin O-methyltransferase) which catalyzes the final reaction in the synthesis pathway. ASMTL (N-acetylserotonin O-methyltransferase-like protein) is a 621 amino acid protein with a putative catalytic S-adenosyl-L-methionine domain that shares high genetic homology to ASMT. The ASMTL protein is encoded by a gene from the PAR1 region of the X and Y chromosomes, which is considered to be a fusion product of two evolutionarily disparate genes. ASMTL, with potential cytoplasmic localization, is abundant in pancreas, placenta, fibroblast, thymus, prostate, testis, ovary and colon. Low expression levels are found in spleen, small intestine and leukocytes.

REFERENCES

1. Donohue, S.J., et al. 1993. Human hydroxyindole-O-methyltransferase: presence of LINE-1 fragment in a cDNA clone and pineal mRNA. DNA Cell Biol. 12: 715-727.
2. Yi, H., et al. 1993. Localization of the hydroxyindole-O-methyltransferase gene to the pseudoautosomal region: implications for mapping of psychiatric disorders. Hum. Mol. Genet. 2: 127-131.
3. Cavallo, A. 1993. The pineal gland in human beings: relevance to pediatrics. J. Pediatr. 123: 843-851.
4. Ried, K., et al. 1998. Gene duplications as a recurrent theme in the evolution of the human pseudoautosomal region 1: isolation of the gene ASMTL. Hum. Mol. Genet. 7: 1771-1778.
5. Llambías, E.B., et al. 2007. Melatonin formation in pineal gland from rats with hexachlorobenzene experimental porphyria. Int. J. Toxicol. 26: 545-551.
6. Zmijewski, M.A., et al. 2009. The melatonin-producing system is fully functional in retinal pigment epithelium (ARPE-19). Mol. Cell. Endocrinol. 307: 211-216.

CHROMOSOMAL LOCATION

Genetic locus: ASMTL (human) mapping to Xp22.33/Yp11.32.

PRODUCT

ASMTL 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 ASMTL shRNA Plasmid (h): sc-91584-SH and ASMTL shRNA (h) Lentiviral Particles: sc-91584-V as alternate gene silencing products.

For independent verification of ASMTL (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-91584A, sc-91584B and sc-91584C.

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

ASMTL siRNA (h) is recommended for the inhibition of ASMTL 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 ASMTL gene expression knockdown using RT-PCR Primer: ASMTL (h)-PR: sc-91584-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.

PROTOCOLS

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