SANTA CRUZ BIOTECHNOLOGY, INC.

ASMT siRNA (h): sc-91581

BACKGROUND

Melatonin is a natually occurring secreted hormone that exhibits antioxidant capabilities and is crucial in the proper regulation of the circadian rhythm. ASMT (acetylserotonin O-methyltransferase), also known as HIOMT (hydroxyindole O-methyltransferase), is a 345 amino acid protein that belongs to the methyltransferase superfamily and is involved in melatonin biosynthesis. Expressed in brain, retina and pineal gland, ASMT functions to catalyze the final reaction in the synthesis of melatonin, specifically the conversion of S-adenosyl-L-methionine and N-acetylserotonin to S-adenosyl-L-homocysteine and melatonin. Multiple isoforms of ASMT exist due to alternative splicing events. The gene encoding ASMT maps to the pseudoautosomal region of chromosomes X and Y.

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. Rodriguez, I.R., et al. 1994. Structural analysis of the human hydroxyindole-O-methyltransferase gene. Presence of two distinct promoters. J. Biol. Chem. 269: 31969-31977.
5. Online Mendelian Inheritance in Man, OMIM™ 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 402500. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
6. Carrillo-Vico, A., et al. 2006. The modulatory role of melatonin on immune responsiveness. Curr. Opin. Investig. Drugs 7: 423-431.
7. Toma, C., et al. 2007. Is ASMT a susceptibility gene for autism spectrum disorders? A replication study in European populations. Mol. Psychiatry 12: 977-979.

CHROMOSOMAL LOCATION

Genetic locus: ASMT (human) mapping to Xp22.33/Yp11.31.

PRODUCT

ASMT 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 ASMT shRNA Plasmid (h): sc-91581-SH and ASMT shRNA (h) Lentiviral Particles: sc-91581-V as alternate gene silencing products.

For independent verification of ASMT (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-91581A, sc-91581B and sc-91581C.

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

ASMT siRNA (h) is recommended for the inhibition of ASMT 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 ASMT gene expression knockdown using RT-PCR Primer: ASMT (h)-PR: sc-91581-PR (20 µl, 560 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Cheng, H.H., et al. 2012. Control of cyclooxygenase-2 expression and tumorigenesis by endogenous 5-methoxytryptophan. Proc. Natl. Acad. Sci. USA 109: 13231-13236.
2. Cheng, H.H., et al. 2014. Quiescent and proliferative fibroblasts exhibit differential p300 HAT activation through control of 5-methoxytryptophan production. PLoS ONE 9: e88507.

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.