SANTA CRUZ BIOTECHNOLOGY, INC.

PSAT1 siRNA (h): sc-92619

BACKGROUND

PSAT1 (phosphoserine aminotransferase 1), also known as phosphoserine aminotransferase, phosphohydroxythreonine aminotransferase, endometrial progesterone-induced protein, PSA, PSAT, EPIP or MGC1460, is a 370 amino acid protein belonging to the class-V pyridoxal-phosphate-dependent aminotransferase family and serC subfamily. PSAT1 catalyzes the second step in the L-serine synthesis pathway, converting 3-phosphohydroxypyruvate into 3-phosphoserine. While highly expressed in pancreas, brain, kidney and liver, PSAT1 is expressed at very low levels in colon, testis, thymus and prostate. There are two known isoforms of PSAT1 which result from alternative splicing events, and the gene encoding PSAT1 maps to human chromsome 9q21.2. PSAT1 deficiency can cause phosphoserine aminotransferase deficiency (PSATD), whose symptoms include psychomotor retardation, intractable seizures, acquired microcephaly and hypertonia.

REFERENCES

1. Misrahi, M., et al. 1987. A novel progesterone-induced messenger RNA in rabbit and human endometria. Cloning and sequence analysis of the complementary DNA. Biochemistry 26: 3975-3982.
2. Basurko, M.J., et al. 1999. Phosphoserine aminotransferase, the second step-catalyzing enzyme for serine biosynthesis. IUBMB Life 48: 525-529.
3. Baek, J.Y., et al. 2003. Characterization of human phosphoserine aminotransferase involved in the phosphorylated pathway of L-serine biosynthesis. Biochem. J. 373: 191-200.
4. Hart, C.E., et al. 2007. Phosphoserine aminotransferase deficiency: a novel disorder of the serine biosynthesis pathway. Am. J. Hum. Genet. 80: 931-937.
5. Online Mendelian Inheritance in Man, OMIM™. 2007. Johns Hopkins University, Baltimore, MD. MIM Number: 610936. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
6. Vie, N., et al. 2008. Overexpression of phosphoserine aminotransferase PSAT1 stimulates cell growth and increases chemoresistance of colon cancer cells. Mol. Cancer 7: 14.

CHROMOSOMAL LOCATION

Genetic locus: PSAT1 (human) mapping to 9q21.2.

PRODUCT

PSAT1 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 PSAT1 shRNA Plasmid (h): sc-92619-SH and PSAT1 shRNA (h) Lentiviral Particles: sc-92619-V as alternate gene silencing products.

For independent verification of PSAT1 (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-92619A, sc-92619B and sc-92619C.

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

PSAT1 siRNA (h) is recommended for the inhibition of PSAT1 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 PSAT1 gene expression knockdown using RT-PCR Primer: PSAT1 (h)-PR: sc-92619-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. Jin, H.O., et al. 2019. Knock-down of PSAT1 enhances sensitivity of NSCLC cells to Glutamine-limiting conditions. Anticancer Res. 39: 6723-6730.
2. Kim, Y.J., et al. 2022. Knockdown of YAP/TAZ sensitizes tamoxifen-resistant MCF7 breast cancer cells. Biochem. Biophys. Res. Commun. 601: 73-78.

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.