SANTA CRUZ BIOTECHNOLOGY, INC.

MAT IIβ siRNA (h): sc-75753

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The Power to Question

BACKGROUND

Methionine adenosyltransferase (MAT) catalyzes the formation of S-adenosyltransferase (AdoMet) for methionine catabolism in the liver. MAT IIβ (methionine adenosyltransferase II, β), also known as TGR, MAT-II or SDR23E1, is a 334 amino acid protein that is widely expressed and plays an important role in amino acid biosynthesis. Existing as a heterotetramer with two MAT IIα subunits, MAT IIβ functions as a non-catalytic regulatory protein that mediates the activity of MAT IIα, specifically by changing the kinetic properties of MAT IIα, thereby rendering it more susceptible to inhibition. MAT IIβ is expressed in hepatoma cells and is thought to play a role in cell proliferation, possibly by increasing the rate of DNA synthesis. Multiple isoforms of MAT IIβ exist due to alternative splicing events.

REFERENCES

1. Okada, G., et al. 1981. Multiple species of mammalian S-adenosylmethionine synthetase. Partial purification and characterization. Biochemistry 20: 934-940.
2. LeGros, H.L., et al. 2000. Cloning, expression, and functional characterization of the β regulatory subunit of human methionine adenosyltransferase (MAT II). J. Biol. Chem. 275: 2359-2366.
3. LeGros, L., et al. 2001. Regulation of the human MAT2B gene encoding the regulatory β subunit of methionine adenosyltransferase, MAT II. J. Biol. Chem. 276: 24918-24924.
4. Online Mendelian Inheritance in Man, OMIM™. 2001. Johns Hopkins University, Baltimore, MD. MIM Number: 605527. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
5. Martínez-Chantar, M.L., et al. 2003. Methionine adenosyltransferase IIβ subunit gene expression provides a proliferative advantage in human hepatoma. Gastroenterology 124: 940-948.
6. Yang, H., et al. 2008. Expression pattern, regulation, and functions of methionine adenosyltransferase 2β splicing variants in hepatoma cells. Gastroenterology 134: 281-291.
7. Ramani, K., et al. 2008. Leptin's mitogenic effect in human liver cancer cells requires induction of both methionine adenosyltransferase 2A and 2β. Hepatology 47: 521-531.

CHROMOSOMAL LOCATION

Genetic locus: MAT2B (human) mapping to 5q34.

PRODUCT

MAT IIβ 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 MAT IIβ shRNA Plasmid (h): sc-75753-SH and MAT IIβ shRNA (h) Lentiviral Particles: sc-75753-V as alternate gene silencing products.

For independent verification of MAT IIβ (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-75753A, sc-75753B and sc-75753C.

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

MAT IIβ siRNA (h) is recommended for the inhibition of MAT IIβ 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.

GENE EXPRESSION MONITORING

MAT IIβ (A-3): sc-390586 is recommended as a control antibody for monitoring of MAT IIβ gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor MAT IIβ gene expression knockdown using RT-PCR Primer: MAT IIβ (h)-PR: sc-75753-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.