

MAT I α siRNA (m): sc-149291

BACKGROUND

Methionine adenosyltransferase (MAT) catalyzes the formation of S-adenosyltransferase (AdoMet) for methionine catabolism in the liver. Two different genes, MAT1A and MAT2A, encode a liver specific and non-liver specific form of MAT, designated MAT I α and MAT II α , respectively. Inactivation of the liver specific gene product, designated MAT I/III, associates with liver diseases such as cirrhosis. MAT I α expression also correlates with a differentiated phenotype, whereas liver cells expressing MAT II α present a dedifferentiated phenotype and lowered AdoMet synthesis. Likewise, NF κ B and TNF α cause a switch from MAT I α to MAT II α expression in human hepatocellular carcinoma (HCC), which facilitates cancer cell growth.

REFERENCES

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- 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.
- 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.
- 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/>
- Martínez-Chantar, M.L., et al. 2003. Methionine adenosyltransferase II β subunit gene expression provides a proliferative advantage in human hepatoma. *Gastroenterology* 124: 940-948.
- Yang, H., et al. 2008. Expression pattern, regulation, and functions of methionine adenosyltransferase 2 β splicing variants in hepatoma cells. *Gastroenterology* 134: 281-291.
- Ramani, K., et al. 2008. Leptin's mitogenic effect in human liver cancer cells requires induction of both methionine adenosyltransferase 2A and 2 β . *Hepatology* 47: 521-531.

CHROMOSOMAL LOCATION

Genetic locus: Mat1a (mouse) mapping to 14 B.

PRODUCT

MAT I α siRNA (m) 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see MAT I α shRNA Plasmid (m): sc-149291-SH and MAT I α shRNA (m) Lentiviral Particles: sc-149291-V as alternate gene silencing products.

For independent verification of MAT I α (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-149291A, sc-149291B and sc-149291C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

MAT I α siRNA (m) is recommended for the inhibition of MAT I α expression in mouse 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 μ M in 66 μ l. 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 I α /II α (B-10): sc-166452 is recommended as a control antibody for monitoring of MAT I α 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-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 I α gene expression knockdown using RT-PCR Primer: MAT I α (m)-PR: sc-149291-PR (20 μ l). 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.