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MAT II α siRNA (m): sc-149292

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, respectively. Inactivation of the liver specific gene product, designated MAT I/III, associates with liver diseases such as cirrhosis. MAT1A expression also correlates with a differentiated phenotype, whereas liver cells expressing MAT2A present a dedifferentiated phenotype and lowered AdoMet synthesis. Likewise, NF κ B and TNF α cause a switch from MAT1A to MAT2A expression in human hepatocellular carcinoma (HCC), which facilitates cancer cell growth.

REFERENCES

1. Lu, S.C., et al. 2002. Role of abnormal methionine metabolism in alcoholic liver injury. *Alcohol* 27: 155-162.
2. Avila, M.A., et al. 2002. S-adenosylmethionine revisited: its essential role in the regulation of liver function. *Alcohol* 27: 163-167.
3. Martínez-Chantar, M.L., et al. 2003. L-methionine availability regulates expression of the methionine adenosyltransferase 2A gene in human hepatocarcinoma cells: role of S-adenosylmethionine. *J. Biol. Chem.* 278: 19885-19890.
4. Yang, H., et al. 2003. Induction of human methionine adenosyltransferase 2A expression by tumor necrosis factor α . Role of NF κ B and AP-1. *J. Biol. Chem.* 278: 50887-50896.

CHROMOSOMAL LOCATION

Genetic locus: Mat2a (mouse) mapping to 6 C1.

PRODUCT

MAT II 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 II α shRNA Plasmid (m): sc-149292-SH and MAT II α shRNA (m) Lentiviral Particles: sc-149292-V as alternate gene silencing products.

For independent verification of MAT II 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-149292A, sc-149292B and sc-149292C.

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 II α siRNA (m) is recommended for the inhibition of MAT II 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 II (F-12): sc-398917 is recommended as a control antibody for monitoring of MAT II 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 II α gene expression knockdown using RT-PCR Primer: MAT II α (m)-PR: sc-149292-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Cheng, F., et al. 2020. Leptin promotes methionine adenosyltransferase 2A expression in hepatic stellate cells by the downregulation of E2F-4 via the β -catenin pathway. *FASEB J.* E-published.

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.