SANTA CRUZ BIOTECHNOLOGY, INC.

MAT Iα/IIα (A-10): sc-166183

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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, NFκB and TNFα 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 NFκB and AP-1. J. Biol. Chem. 278: 50887-50896.
5. Drummelsmith, J., et al. 2004. Differential protein expression analysis of *Leishmania major* reveals novel roles for methionine adenosyltransferase and S-adenosylmethionine in methotrexate resistance. J. Biol. Chem. 279: 33273-33280.
6. Kim, J.S., et al. 2005. Methionine adenosyltransferase: adrenergic-cAMP mechanism regulates a daily rhythm in pineal expression. J. Biol. Chem. 280: 677-684.
7. Li, M., et al. 2015. silencing of human methionine adenosyltransferase 1A expression by methylation of the coding region. J. Biol. Chem. 290: 19541.

CHROMOSOMAL LOCATION

Genetic locus: MAT1A (human) mapping to 10q23.1, MAT2A (human) mapping to 2p11.2; Mat1a (mouse) mapping to 14 B, Mat2a (mouse) mapping to 6 C1.

SOURCE

MAT Iα/IIα (A-10) is a mouse monoclonal antibody raised against amino acids 1-300 mapping at the N-terminus of MAT II of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

MAT Iα/IIα (A-10) is recommended for detection of MAT Iα and MAT IIα of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

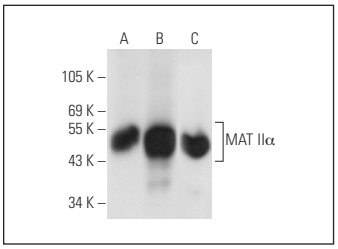
Molecular Weight of MAT Iα/IIα: 44 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227, HeLa nuclear extract: sc-2120 or MAT IIα (m): 293T Lysate: sc-121527.

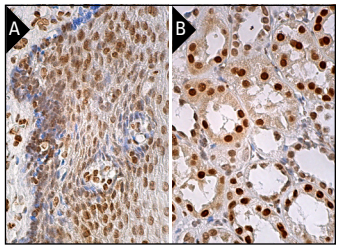
RECOMMENDED SUPPORT REAGENTS

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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



MAT Iα/IIα (A-10): sc-166183. Western blot analysis of MAT IIα expression in non-transfected: sc-117752 (**A**) and mouse MAT IIα transfected: sc-121527 (**B**) 293T whole cell lysates and HeLa nuclear extract (**C**).



MAT Iα/IIα (A-10): sc-166183. Immunoperoxidase staining of formalin fixed, paraffin-embedded human esophagus tissue showing nuclear staining of squamous epithelial cells (**A**) and kidney tissue showing nuclear and cytoplasmic staining of cells in tubules (**B**).

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.