

GNMT (h3): 293T Lysate: sc-170814

BACKGROUND

Glycine N-methyltransferase (GNMT) is a 295 amino acid protein that catalyzes the methylation of glycine by using S-adenosylmethionine (AdoMet) to form N-methylglycine (sarcosine) with the concomitant production of S-adenosyl-homocysteine (AdoHcy). This process indicates that GNMT probably plays a crucial role in the regulation of tissue concentration of AdoMet and in the metabolism of methionine. Originally identified as a methyl donor, AdoMet is now considered a key metabolite that regulates hepatocyte growth, death and differentiation. Biosynthesis of AdoMet occurs in all mammalian cells as the first step in methionine catabolism in a reaction catalyzed by methionine adenosyltransferase (MAT). Decreased hepatic AdoMet biosynthesis is a consequence of all forms of chronic liver injury. In chronic liver AdoMet deficiency, the liver is predisposed to further injury and can develop spontaneous steato-hepatitis and hepatocellular carcinoma. However, impaired AdoMet metabolism, which occurs in patients with mutations of GNMT, can also lead to liver injury.

REFERENCES

1. Pakhomova, S., Luka, Z., Grohmann, S., Wagner, C. and Newcomer, M.E. 2004. Glycine N-methyltransferases: a comparison of the crystal structures and kinetic properties of recombinant human, mouse and rat enzymes. *Proteins* 57: 331-337.
2. Beagle, B., Yang, T.L., Hung, J., Cogger, E.A., Moriarty, D.J. and Caudill, M.A. 2005. The glycine N-methyltransferase (GNMT) 1289 C→T variant influences plasma total homocysteine concentrations in young women after restricting folate intake. *J. Nutr.* 135: 2780-2785.
3. Uthus, E.O., Ross, S.A. and Davis, C.D. 2006. Differential effects of dietary selenium (Se) and folate on methyl metabolism in liver and colon of rats. *Biol. Trace. Elem. Res.* 109: 201-214.
4. Velichkova, P. and Himo, F. 2006. Methyl transfer in glycine N-methyltransferase. A theoretical study. *J. Phys. Chem. B* 109: 8216-8219.
5. Luka, Z., Capdevila, A., Mato, J.M. and Wagner, C. 2006. A glycine N-methyltransferase knockout mouse model for humans with deficiency of this enzyme. *Transgenic Res.* 15: 393-397.
6. Mato, J.M. and Lu, S.C. 2007. Role of S-adenosyl-L-methionine in liver health and injury. *Hepatology* 45: 1306-1312.
7. Liu, S.P., Li, Y.S., Chen, Y.J., Chiang, E.P., Li, A.F., Lee, Y.H., Tsai, T.F., Hsiao, M., Hwang, S.F. and Chen, Y.M. 2007. Glycine N-methyltransferase^{-/-} mice develop chronic hepatitis and glycogen storage disease in the liver. *Hepatology* 46: 1413-1425.
8. Luka, Z., Pakhomova, S., Luka, Y., Newcomer, M.E. and Wagner, C. 2007. Destabilization of human glycine N-methyltransferase by H176N mutation. *Protein Sci.* 16: 1957-1964.

CHROMOSOMAL LOCATION

Genetic locus: GNMT (human) mapping to 6p21.1.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PRODUCT

GNMT (h3): 293T Lysate represents a lysate of human GNMT transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

APPLICATIONS

GNMT (h3): 293T Lysate is suitable as a Western Blotting positive control for human reactive GNMT antibodies. Recommended use: 10-20 µl per lane.

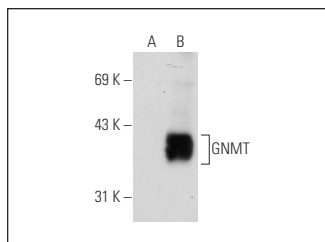
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

GNMT (A-4): sc-166834 is recommended as a positive control antibody for Western Blot analysis of enhanced human GNMT expression in GNMT transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

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.

DATA



GNMT (A-4): sc-166834. Western blot analysis of GNMT expression in non-transfected: sc-117752 (A) and human GNMT transfected: sc-170814 (B) 293T whole cell lysates.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.