SANTA CRUZ BIOTECHNOLOGY, INC.

mSHMT (h3): 293T Lysate: sc-170754

BACKGROUND

Mammalian serine hydroxymethyltransferase (SHMT) is a tetrameric, pyridoxal phosphate (PLP)-dependent enzyme that catalyzes the reversible interconversion of serine and tetrahydrofolate to glycine and methylenetetrahydrofolate in the cytoplasm (cSHMT, SHMT1) and mitochondria (mSHMT, SHMT2). cSHMT preferentially supplies one-carbon units for thymidylate biosynthesis, depletes methylenetetrahydrofolate pools for S-adenosylmethionine (SAM) synthesis by synthesizing serine, sequesters 5-methyltetrahydrofolate, and inhibits SAM synthesis. Sheep liver cytosolic recombinant SHMT (scSHMT), Lys-71, Arg-80 and Asp-89 residues influence intra-subunit ionic interactions essential for catalytic activity; Tyr 72, Asp-227 and His-356 residues in the active site interact with PLP and maintain the tetrameric structure. The cDNA for the mitochondrial enzyme encodes a mature protein of 474 residues.

REFERENCES

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5. Jala, V.R., Appaji Rao, N. and Savithri, H.S. 2004. Identification of amino acid residues, essential for maintaining the tetrameric structure of sheep liver cytosolic serine hydroxy-methyltransferase, by targeted mutagenesis. Biochem. J. 369: 469-476.
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CHROMOSOMAL LOCATION

Genetic locus: SHMT2 (human) mapping to 12q13.3.

PRODUCT

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

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.

APPLICATIONS

mSHMT (h3): 293T Lysate is suitable as a Western Blotting positive control for human reactive mSHMT 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.

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.