

mSHMT (C-20): sc-25064

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) Lys71, Arg80 and Asp89 residues influence intra-subunit ionic interactions essential for catalytic activity; Tyr72, Asp227 and His356 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.

CHROMOSOMAL LOCATION

Genetic locus: SHMT2 (human) mapping to 12q13.3; Shmt2 (mouse) mapping to 10 D3.

SOURCE

mSHMT (C-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of mSHMT of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-515648 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

mSHMT (C-20) is recommended for detection of mitochondrial SHMT of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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).

mSHMT (C-20) is also recommended for detection of mitochondrial SHMT in additional species, including equine and canine.

Suitable for use as control antibody for mSHMT siRNA (h): sc-40942, mSHMT siRNA (m): sc-40943, mSHMT shRNA Plasmid (h): sc-40942-SH, mSHMT shRNA Plasmid (m): sc-40943-SH, mSHMT shRNA (h) Lentiviral Particles: sc-40942-V and mSHMT shRNA (m) Lentiviral Particles: sc-40943-V.

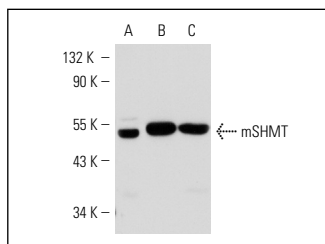
Molecular Weight of mSHMT: 52 kDa.

Positive Controls: A-673 cell lysate: sc-2414, MCF7 whole cell lysate: sc-2206 or SJRH30 cell lysate: sc-2287.

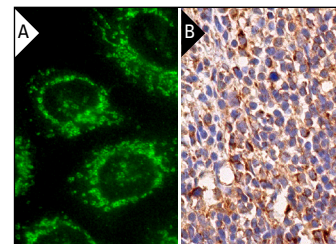
RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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 donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 4) Immunohistochemistry: use ImmunoCruz™: sc-2053 or ABC: sc-2023 goat IgG Staining Systems.

DATA



mSHMT (C-20): sc-25064. Western blot analysis of mSHMT expression in MCF7 (A), SJRH30 (B) and A-673 (C) whole cell lysates.



mSHMT (C-20): sc-25064. Immunofluorescence staining of methanol-fixed HeLa cells showing mitochondrial localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human lymph node tissue showing cytoplasmic staining of cells in germinal and non-germinal centers (B).

SELECT PRODUCT CITATIONS

- Marani, M., et al. 2016. A pyrazolopyran derivative preferentially inhibits the activity of human cytosolic serine hydroxymethyltransferase and induces cell death in lung cancer cells. *Oncotarget* 7: 4570-4583.

STORAGE

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

RESEARCH USE

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

PROTOCOLS

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


 MONOS
Satisfaction
Guaranteed

Try **mSHMT (F-11): sc-390641**, our highly recommended monoclonal alternative to mSHMT (C-20).