

# cSHMT (C-20): sc-25061

## 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. Human cSHMT and mSHMT genes map to 17p11.2 and 12q14, respectively. The cDNA for the mitochondrial enzyme encodes a mature protein of 474 residues.

## CHROMOSOMAL LOCATION

Genetic locus: SHMT1 (human) mapping to 17p11.2; Shmt1 (mouse) mapping to 11 B2.

## SOURCE

cSHMT (C-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of cSHMT 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-25061 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## RESEARCH USE

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

## APPLICATIONS

cSHMT (C-20) is recommended for detection of cSHMT 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

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

Suitable for use as control antibody for cSHMT siRNA (h): sc-40940, cSHMT siRNA (m): sc-40941, cSHMT shRNA Plasmid (h): sc-40940-SH, cSHMT shRNA Plasmid (m): sc-40941-SH, cSHMT shRNA (h) Lentiviral Particles: sc-40940-V and cSHMT shRNA (m) Lentiviral Particles: sc-40941-V.

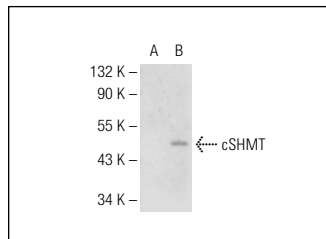
Molecular Weight of cSHMT: 52.4 kDa.

Positive Controls: cSHMT (h): 293T Lysate: sc-115685, mouse liver extract: sc-2256 or HeLa whole cell lysate: sc-2200.

## 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.

## DATA



cSHMT (C-20): sc-25061. Western blot analysis of cSHMT expression in non-transfected: sc-117752 (A) and human cSHMT transfected: sc-115685 (B) 293T whole cell lysates.

## STORAGE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.



Try **cSHMT (A-2): sc-365203** or **cSHMT (F-9): sc-514410**, our highly recommended monoclonal alternatives to cSHMT (C-20).