SANTA CRUZ BIOTECHNOLOGY, INC.

cHMGCS (C-8): sc-271543

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

HMG-CoA synthase exists as both a mitochondrial (mHMGCS) and cytoplasmic (cHMGCS) enzyme that condenses acetyl-CoA with acetoacetyl-CoA to form HMG-CoA. The HMG-CoA produced by cHMGCS is transformed into mevalonate by HMG-CoA reductase, which starts isoprenoid biosynthesis. End products of the isoprenoid pathway include cholesterol, ubiquinone, dolichol, isopentenyl adenosine and farnesyl groups. mHMGCS, together with HMG-CoA Lyase, is responsible for ketone body biosynthesis. mHMGCS is expressed in liver and kidney. Fasting, cAMP and fatty acids increase the level of transcription of mHMGCS, while feeding and Insulin repress it. A regulatory element within the mHMGCS promoter confers transcriptional regulation by PPAR, RXR, COUP-TF and HNF-4.

REFERENCES

1. Ayte, J., et al. 1990. Rat mitochondrial and cytosolic 3-hydroxy-3-methylglutaryl-CoA synthases are encoded by two different genes. Proc. Natl. Acad. Sci. USA 87: 3874-3878.
2. Russ, A.P., et al. 1992. Amplification and direct sequencing of a cDNA encoding human cytosolic 3-hydroxy-3-methylglutaryl-coenzyme A synthase. Biochim. Biophys. Acta 1132: 329-331.
3. Mascaro, C., et al. 1995. Molecular cloning and tissue expression of human mitochondrial 3-hydroxy-3-methylglutaryl-CoA synthase. Arch. Biochem. Biophys. 317: 385-390.
4. Hegardt, F.G., et al. 1998. Transcriptional regulation of mitochondrial HMG-CoA synthase in the control of ketogenesis. Biochimie 80: 803-806.
5. Rodriguez, J.C., et al. 1998. The hepatocyte nuclear factor 4 (HNF-4) represses the mitochondrial HMG-CoA synthase gene. Biochem. Biophys. Res. Commun. 242: 692-696.
6. Hegardt, F.G., et al. 1999. Mitochondrial 3-hydroxy-3-methylglutaryl-CoA synthase: a control enzyme in ketogenesis. Biochem. J. 338: 569-582.
7. Mascaro, C., et al. 2000. Sterol regulatory element binding protein-mediated effect of fluvastatin on cytosolic 3-hydroxy-3-methylglutaryl-coenzyme A synthase transcription. Arch. Biochem. Biophys. 374: 286-292.

CHROMOSOMAL LOCATION

Genetic locus: HMGCS1 (human) mapping to 5p12.

SOURCE

cHMGCS (C-8) is a mouse monoclonal antibody raised against amino acids 381-450 mapping near the C-terminus of cHMGCS 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

cHMGCS (C-8) is recommended for detection of cHMGCS of 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).

Suitable for use as control antibody for cHMGCS siRNA (h): sc-44506, cHMGCS shRNA Plasmid (h): sc-44506-SH and cHMGCS shRNA (h) Lentiviral Particles: sc-44506-V.

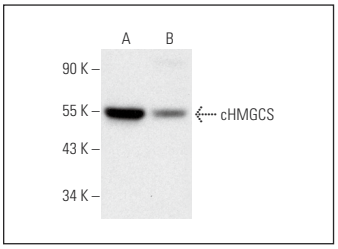
Molecular Weight of cHMGCS: 65 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227 or human liver extract: sc-363766.

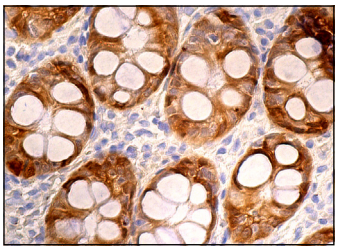
RECOMMENDED SUPPORT REAGENTS

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



cHMGCS (C-8): sc-271543. Western blot analysis of cHMGCS expression in Hep G2 whole cell lysate (**A**) and human liver tissue extract (**B**).



cHMGCS (C-8): sc-271543. Immunoperoxidase staining of formalin fixed, paraffin-embedded human rectum tissue showing cytoplasmic and nuclear staining of glandular cells.

SELECT PRODUCT CITATIONS

1. Aldaalis, A., et al. 2022. The SREBP-dependent regulation of cyclin D1 coordinates cell proliferation and lipid synthesis. Front. Oncol. 12: 942386.

RESEARCH USE

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