

# MCAT (E-20): sc-86725

## BACKGROUND

The biosynthesis of fatty acids can occur in the cytoplasm, via the type I fatty acid synthase complex, or in mitochondria, via the type II malonyl-CoA-dependent system. MCAT (mitochondrial malonyl CoA:ACP acyltransferase), also known as MT, MCT (mitochondrial malonyltransferase), fabD or FASN2C, is a member of the type II malonyltransferase family of proteins. Localizing to mitochondria, MCAT is encoded by a nuclear gene and, via an N-terminal localization signal, it is subsequently imported into mitochondria. MCAT functions in lipid metabolism and may be a component of a mitochondrial fatty acid synthase complex. More specifically, MCAT catalyzes the transfer of a malonyl group from malonyl-CoA to the mitochondrial acyl carrier protein (NDUFAB1), a subunit of respiratory complex 1. This reaction is essential in the initiation of the type II fatty acid biosynthesis system. Two isoforms of MCAT exist due to alternative splicing events.

## REFERENCES

- Zhang, L., Joshi, A.K. and Smith, S. 2003. Cloning, expression, characterization, and interaction of two components of a human mitochondrial fatty acid synthase. Malonyltransferase and acyl carrier protein. *J. Biol. Chem.* 278: 40067-40074.
- Kastaniotis, A.J., Autio, K.J., Sormunen, R.T. and Hiltunen, J.K. 2004. Htd2p/Yhr067p is a yeast 3-hydroxyacyl-ACP dehydratase essential for mitochondrial function and morphology. *Mol. Microbiol.* 53: 1407-1421.
- Maier, T., Jenni, S. and Ban, N. 2006. Architecture of mammalian fatty acid synthase at 4.5 Å resolution. *Science* 311: 1258-1262.
- Zhang, L., Liu, W., Xiao, J., Hu, T., Chen, J., Chen, K., Jiang, H. and Shen, X. 2007. Malonyl-CoA: acyl carrier protein transacylase from *Helicobacter pylori*: Crystal structure and its interaction with acyl carrier protein. *Protein Sci.* 16: 1184-1192.

## CHROMOSOMAL LOCATION

Genetic locus: MCAT (human) mapping to 22q13.2; Mcat (mouse) mapping to 15 E1.

## SOURCE

MCAT (E-20) is an affinity purified rabbit polyclonal antibody raised against a peptide mapping within an internal region of MCAT of human origin.

## PRODUCT

Each vial contains 100 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-86725 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## STORAGE

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

## APPLICATIONS

MCAT (E-20) is recommended for detection of MCAT 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).

MCAT (E-20) is also recommended for detection of MCAT in additional species, including canine, bovine and porcine.

Suitable for use as control antibody for MCAT siRNA (h): sc-75760, MCAT siRNA (m): sc-149316, MCAT shRNA Plasmid (h): sc-75760-SH, MCAT shRNA Plasmid (m): sc-149316-SH, MCAT shRNA (h) Lentiviral Particles: sc-75760-V and MCAT shRNA (m) Lentiviral Particles: sc-149316-V.

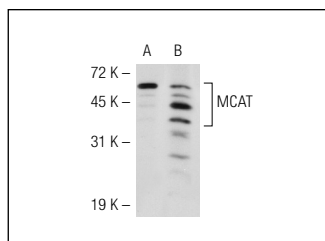
Molecular Weight of MCAT: 43 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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 goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## DATA



MCAT (E-20): sc-86725. Western blot analysis of MCAT expression in 293T (A) and HeLa (B) whole cell lysates.

## RESEARCH USE

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

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Try **MCAT (E-11): sc-390858** or **MCAT (3B5): sc-100477**, our highly recommended monoclonal alternatives to MCAT (E-20).