

# MCAT (3B5): sc-100477

## 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., et al. 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., et al. 2004. Htd2p/Yhr067p is a yeast 3-hydroxyacyl-ACP dehydratase essential for mitochondrial function and morphology. *Mol. Microbiol.* 53: 1407-1421.

## CHROMOSOMAL LOCATION

Genetic locus: MCAT (human) mapping to 22q13.2.

## SOURCE

MCAT (3B5) is a mouse monoclonal antibody raised against recombinant MCAT of human origin.

## PRODUCT

Each vial contains 50 µg IgG<sub>2a</sub> kappa light chain in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

MCAT (3B5) is recommended for detection of MCAT of 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).

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

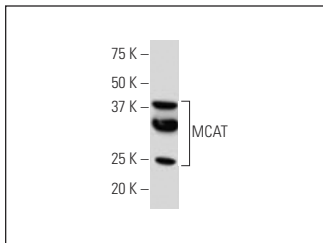
Molecular Weight of MCAT: 43 kDa.

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

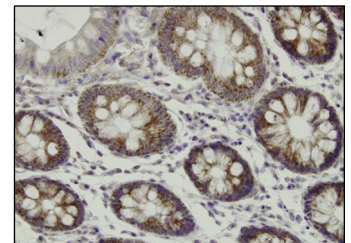
## RECOMMENDED SUPPORT REAGENTS

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



MCAT (3B5): sc-100477. Western blot analysis of MCAT expression in HeLa whole cell lysate.



MCAT (3B5): sc-100477. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human colon tissue showing cytoplasmic localization.

## SELECT PRODUCT CITATIONS

- Yuan, C., et al. 2019. Hydrogen sulfide-mediated endothelial function and the interaction with eNOS and PDE5A activity in human internal mammary arteries. *J. Int. Med. Res.* 47: 3778-3791.
- Yuan, C., et al. 2020. Surgical preparation reduces hydrogen sulfide released from human saphenous veins in coronary artery bypass grafting. *J. Cardiovasc. Transl. Res.* 13: 181-190.

## 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](http://www.scbt.com) for detailed protocols and support products.