SANTA CRUZ BIOTECHNOLOGY, INC.

MCAT (E-11): sc-390858

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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

1. 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.
2. 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.
3. Maier, T., et al. 2006. Architecture of mammalian fatty acid synthase at 4.5 A resolution. Science 311: 1258-1262.

CHROMOSOMAL LOCATION

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

SOURCE

MCAT (E-11) is a mouse monoclonal antibody raised against amino acids 96-241 mapping within an internal region of MCAT 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.

MCAT (E-11) is available conjugated to agarose (sc-390858 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-390858 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-390858 PE), fluorescein (sc-390858 FITC), Alexa Fluor® 488 (sc-390858 AF488), Alexa Fluor® 546 (sc-390858 AF546), Alexa Fluor® 594 (sc-390858 AF594) or Alexa Fluor® 647 (sc-390858 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-390858 AF680) or Alexa Fluor® 790 (sc-390858 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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-11) is recommended for detection of MCAT of mouse, rat and 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) 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 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.

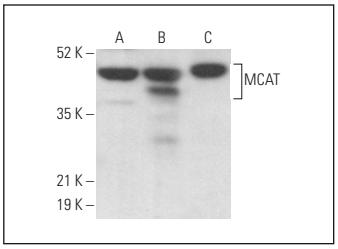
Molecular Weight of MCAT: 43 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, Hep G2 cell lysate: sc-2227 or RT-4 whole cell lysate: sc-364257.

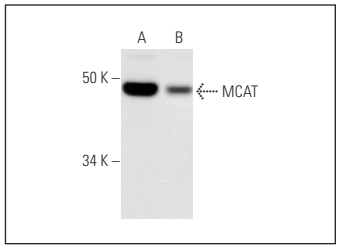
RECOMMENDED SUPPORT REAGENTS

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.

DATA



MCAT (E-11): sc-390858. Western blot analysis of MCAT expression in HeLa (**A**), Hep G2 (**B**) and HEK293 (**C**) whole cell lysates.



MCAT (E-11): sc-390858. Western blot analysis of MCAT expression in HeLa (**A**) and RT-4 (**B**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Parl, A., et al. 2013. The mitochondrial fatty acid synthesis (mtFASII) pathway is capable of mediating nuclear-mitochondrial cross talk through the PPAR system of transcriptional activation. Biochem. Biophys. Res. Commun. 441: 418-424.
2. Nowinski, S.M., et al. 2020. Mitochondrial fatty acid synthesis coordinates oxidative metabolism in mammalian mitochondria. Elife 9: e58041.

RESEARCH USE

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