SANTA CRUZ BIOTECHNOLOGY, INC.

MCAD (G-4): sc-365109

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Acyl-CoA dehydrogenase is a family of enzymes that localize to the mitochondrion and target acyl chain lengths of 4 to 16 by use of the mitochondrial fatty acid β-oxidation pathway. In mammalian tissue, many straight-chain acyl-CoA dehydrogenases possess different substrate specificities. In rare cases, irregularities in medium-chain acyl-CoA dehydrogenase can cause fasting hypoglycemia, hepatic dysfunction and encephalopathy, often resulting in death in infancy. MCAD, also designated acyl-CoA dehydrogenase, medium-chain (ACADM) and MCADH, is a homotetramer. The MCAD gene encodes a 421 amino acid protein with characteristics of mitochondrial protein transit peptides. The protein shows 88% sequence identity with MCAD of porcine origin. Medium-chain acyl-CoA dehydrogenase catalyzes the initial reaction in the β-oxidation of C4 to C12 straight-chain acyl-CoAs.

CHROMOSOMAL LOCATION

Genetic locus: ACADM (human) mapping to 1p31.1; Acadm (mouse) mapping to 3 H3.

SOURCE

MCAD (G-4) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 141-163 within an internal region of MCAD 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.

Blocking peptide available for competition studies, sc-365109 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

RESEARCH USE

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

APPLICATIONS

MCAD (G-4) is recommended for detection of MCAD 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).

MCAD (G-4) is also recommended for detection of MCAD in additional species, including bovine and porcine.

Suitable for use as control antibody for MCAD siRNA (h): sc-60996, MCAD siRNA (m): sc-60997, MCAD shRNA Plasmid (h): sc-60996-SH, MCAD shRNA Plasmid (m): sc-60997-SH, MCAD shRNA (h) Lentiviral Particles: sc-60996-V and MCAD shRNA (m) Lentiviral Particles: sc-60997-V.

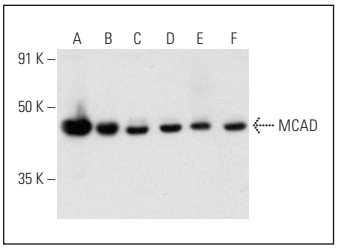
Molecular Weight of MCAD: 45 kDa.

Positive Controls: PC-12 cell lysate: sc-2250, MCF7 whole cell lysate: sc-2206 or NRK whole cell lysate: sc-364197.

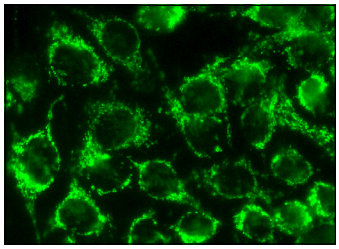
RECOMMENDED SUPPORT REAGENTS

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



MCAD (G-4): sc-365109. Western blot analysis of MCAD expression in ES-2 (**A**), MCF7 (**B**), 3T3-L1 (**C**), NIH/3T3 (**D**), PC-12 (**E**) and NRK (**F**) whole cell lysates.



MCAD (G-4): sc-365109. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Obis, E., et al. 2014. Frataxin deficiency in neonatal rat ventricular myocytes targets mitochondria and lipid metabolism. Free Radic. Biol. Med. 73: 21-33.
2. Xu, W.D., et al. 2015. Up-regulation of fatty acid oxidation in the ligament as a contributing factor of ankylosing spondylitis: a comparative proteomic study. J. Proteomics 113: 57-72.
3. Guilherme, A., et al. 2020. Control of adipocyte thermogenesis and lipogenesis through β_3-adrenergic and thyroid hormone signal integration. Cell Rep. 31: 107598.
4. Li, P., et al. 2021. Gut inflammation exacerbates high-fat diet induced steatosis by suppressing VLDL-TG secretion through HNF4α pathway. Free Radic. Biol. Med. 172: 459-469.
5. Hu, X., et al. 2021. Dihydroartemisinin is potential therapeutics for treating late-stage CRC by targeting the elevated c-Myc level. Cell Death Dis. 12: 1053.
6. Xu, Z., et al. 2022. Canagliflozin ameliorates nonalcoholic fatty liver disease by regulating lipid metabolism and inhibiting inflammation through induction of autophagy. Yonsei Med. J. 63: 619-631.

STORAGE

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