SANTA CRUZ BIOTECHNOLOGY, INC.

MCAD (H-7): sc-365108

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 4-16 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 during 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.

REFERENCES

1. Matsubara, Y., et al. 1986. Molecular cloning of cDNAs encoding rat and human medium-chain acyl and assignment of the gene to human chromosome 1. Proc. Natl. Acad. Sci. USA 83: 6543-6547.
2. Kelly, D.P., et al. 1987. Nucleotide sequence of medium-chain acyl-CoA dehydrogenase mRNA and its expression in enzyme-deficient human tissue. Proc. Natl. Acad. Sci. USA 84: 4068-4072.
3. O'Reilly, L., et al. 2004. The Y42H mutation in medium-chain acyl-CoA dehydrogenase, which is prevalent in babies identified by MS/MS-based newborn screening, is temperature sensitive. Eur. J. Biochem. 271: 4053-4063.
4. Derks, T.G., et al. 2005. The difference between observed and expected prevalence of MCAD deficiency in the Netherlands: a genetic epidemiological study. Eur. J. Hum. Genet. 13: 947-952.
5. Lee, P.J., et al. 2005. L-carnitine and exercise tolerance in medium-chain acyl-coenzyme A dehydrogenase (MCAD) deficiency: a pilot study. J. Inherit. Metab. Dis. 28: 141-152.

CHROMOSOMAL LOCATION

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

SOURCE

MCAD (H-7) 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 IgM 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-365108 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 (H-7) 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).

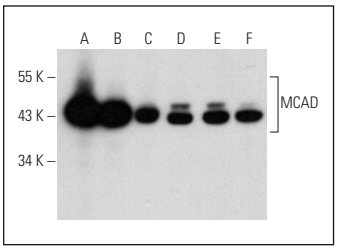
MCAD (H-7) is also recommended for detection of MCAD in additional species, including bovine and porcine.

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.

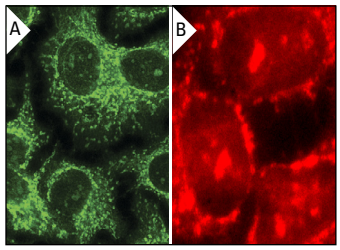
Molecular Weight of MCAD: 45 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227, MCF7 whole cell lysate: sc-2206 or ES-2 cell lysate: sc-24674.

DATA



MCAD (H-7): sc-365108. Western blot analysis of MCAD expression in Hep G2 (**A**), ES-2 (**B**), MCF7 (**C**), 3T3-L1 (**D**), NIH/3T3 (**E**) and NRK (**F**) whole cell lysates.



MCAD (H-7): sc-365108. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (**A**,**B**).

SELECT PRODUCT CITATIONS

1. Mottillo, E.P., et al. 2014. Coupling of lipolysis and *de novo* lipogenesis in brown, beige, and white adipose tissues during chronic β_3-adrenergic receptor activation. J. Lipid Res. 55: 2276-2286.
2. Huang, C.Y., et al. 2022. PERM1 regulates genes involved in fatty acid metabolism in the heart by interacting with PPARα and PGC-1α. Sci. Rep. 12: 14576.

STORAGE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.