SANTA CRUZ BIOTECHNOLOGY, INC.

LETM1 (D-3): sc-271234

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

LETM1 (leucine zipper-EF-hand-containing transmembrane protein 1, mitochondrial) is a 739 amino acid protein that localizes to the mitochondrial membrane and contains one LETM1 domain and two EF-hand calcium-binding domains. Expressed in all fetal and adult tissues, LETM1 has a leucine zipper motif, a transmembrane domain and several phosphorylation sites and, via its EF-hand domains, may function as a calcium-binding protein. Additionally, LETM1 is thought to be involved in maintaining normal mitochondrial function and overall cell viability. Human LETM1 shares 84% similarity with its mouse counterpart, suggesting a conserved role between species. Deletions in the gene encoding LETM1 are associated with Wolf-Hirschhorn syndrome (WHS), a congenital syndrome characterized by a number of abnormalities, including mental retardation, seizures, heart defects, fused teeth, hearing loss, a webbed neck and renal abnormalities.

CHROMOSOMAL LOCATION

Genetic locus: LETM1 (human) mapping to 4p16.3; Letm1 (mouse) mapping to 5 B2.

SOURCE

LETM1 (D-3) is a mouse monoclonal antibody raised against amino acids 440-739 mapping at the C-terminus of LETM1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

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.

APPLICATIONS

LETM1 (D-3) is recommended for detection of LETM1 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), 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 LETM1 siRNA (h): sc-89079, LETM1 siRNA (m): sc-146712, LETM1 shRNA Plasmid (h): sc-89079-SH, LETM1 shRNA Plasmid (m): sc-146712-SH, LETM1 shRNA (h) Lentiviral Particles: sc-89079-V and LETM1 shRNA (m) Lentiviral Particles: sc-146712-V.

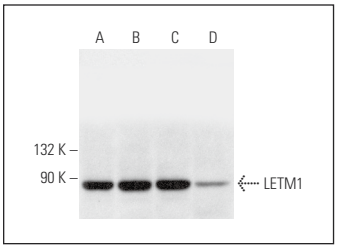
Molecular Weight of LETM1: 85 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227, MOLT-4 cell lysate: sc-2233 or Jurkat whole cell lysate: sc-2204.

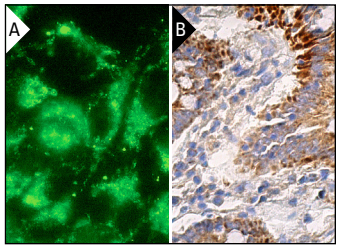
RECOMMENDED SUPPORT REAGENTS

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



LETM1 (D-3): sc-271234. Western blot analysis of LETM1 expression in Jurkat (**A**), MOLT-4 (**B**), Ramos (**C**) and Hep G2 (**D**) whole cell lysates.



LETM1 (D-3): sc-271234. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human colon tissue showing cytoplasmic staining of glandular cells (**B**).

SELECT PRODUCT CITATIONS

1. De Marchi, U., et al. 2014. NCLX protein, but not LETM1, mediates mitochondrial Ca^{2+} extrusion, thereby limiting Ca^{2+}-induced NAD(P)H production and modulating matrix redox state. J. Biol. Chem. 289: 20377-20385.
2. Lee, J., et al. 2016. Coupling of LETM1 up-regulation with oxidative phosphorylation and platelet-derived growth factor receptor signaling via YAP1 transactivation. Oncotarget 7: 66728-66739.
3. Amici, D.R., et al. 2017. Calcium dysregulation, functional calpainopathy, and endoplasmic reticulum stress in sporadic inclusion body myositis. Acta Neuropathol. Commun. 5: 24.
4. Huang, B., et al. 2017. Suppression of LETM1 by siRNA inhibits cell proliferation and invasion of bladder cancer cells. Oncol. Rep. 38: 2935-2940.
5. Xu, J., et al. 2018. Knockdown of LETM1 inhibits proliferation and metastasis of human renal cell carcinoma cells. Oncol. Lett. 16: 6377-6382.
6. Quarato, G., et al. 2022. Ca^{2+}-mediated mitochondrial inner membrane permeabilization induces cell death independently of Bax and Bak. Cell Death Differ. 29: 1318-1334.

RESEARCH USE

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