SANTA CRUZ BIOTECHNOLOGY, INC.

ME1 (99.1): sc-100569

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

ME1 (malic enzyme 1), also known as NADP-ME, MES or HUMNDME, is a 572 amino acid cytoplasmic protein that belongs to the malic enzyme family. Expressed ubiquitously with highest expression in liver and white adipose tissue, ME1 functions as an NADP-dependent enzyme that catalyzes the conversion of S-malate and NADP to pyruvate, carbon dioxide and NADPH (a reducing agent that participates in fatty acid biosynthesis). Through its ability to catalyze the reversible oxidative decarboxylation of malate, ME1 links the citric acid and glycolytic cycles. ME1 exists as a homotetramer that uses divalent metal cations, such as magnesium or manganese, as cofactors. The expression of ME1 is regulated by both thyroid hormone levels and the amount of carbohydrates in the diet, indicating that ME1 may play an important role as a housekeeping protein within the cell.

REFERENCES

1. Tessarolo, D., et al. 1991. Human malic enzymes in heart and muscle: evidence of a selective distribution. Biochem. Med. Metab. Biol. 45: 1-5.
2. Loeber, G., et al. 1994. Characterization of cytosolic malic enzyme in human tumor cells. FEBS Lett. 344: 181-186.

CHROMOSOMAL LOCATION

Genetic locus: ME1 (human) mapping to 6q14.2; Me1 (mouse) mapping to 9 E3.1.

SOURCE

ME1 (99.1) is a mouse monoclonal antibody raised against recombinant ME1 of human origin.

PRODUCT

Each vial contains 100 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

ME1 (99.1) is recommended for detection of ME1 of mouse, rat and 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 ME1 siRNA (h): sc-95470, ME1 siRNA (m): sc-149342, ME1 shRNA Plasmid (h): sc-95470-SH, ME1 shRNA Plasmid (m): sc-149342-SH, ME1 shRNA (h) Lentiviral Particles: sc-95470-V and ME1 shRNA (m) Lentiviral Particles: sc-149342-V.

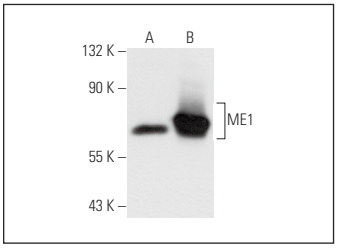
Molecular Weight of ME1: 64 kDa.

Positive Controls: ME1 (h2): 293T Lysate: sc-172177, Hep G2 cell lysate: sc-2227 or HeLa whole cell lysate: sc-2200.

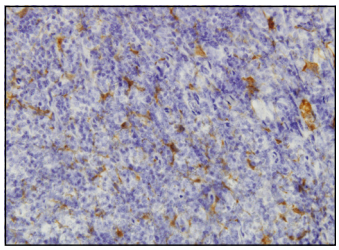
STORAGE

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

DATA



ME1 (99.1): sc-100569. Western blot analysis of ME1 expression in non-transfected: sc-117752 (**A**) and human ME1 transfected: sc-172177 (**B**) 293T whole cell lysates.



ME1 (99.1): sc-100569. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human tonsil tissue showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Jiang, P., et al. 2013. Reciprocal regulation of p53 and malic enzymes modulates metabolism and senescence. Nature 493: 689-693.
2. Shen, H., et al. 2017. MicroRNA-30a attenuates mutant KRAS-driven colorectal tumorigenesis via direct suppression of ME1. Cell Death Differ. 24: 1253-1262.
3. Dey, P., et al. 2017. Genomic deletion of malic enzyme 2 confers collateral lethality in pancreatic cancer. Nature 542: 119-123.
4. Ngo, H.K.C., et al. 2017. Nrf2 mutagenic activation drives hepatocarcinogenesis. Cancer Res. 77: 4797-4808.
5. Zhu, Y., et al. 2020. Dynamic regulation of ME1 phosphorylation and acetylation affects lipid metabolism and colorectal tumorigenesis. Mol. Cell 77: 138-149.e5.
6. Nelson, B.S., et al. 2020. Tissue of origin dictates GOT1 dependence and confers synthetic lethality to radiotherapy. Cancer Metab. 8: 1.
7. Zhu, Y., et al. 2021. USP19 exacerbates lipogenesis and colorectal carcinogenesis by stabilizing ME1. Cell Rep. 37: 110174.
8. Weitzenböck, H.P., et al. 2022. Proteome analysis of NRF2 inhibition in melanoma reveals CD44 up-regulation and increased apoptosis resistance upon vemurafenib treatment. Cancer Med. 11: 956-967.
9. Zhao, M., et al. 2022. Malic enzyme 2 maintains protein stability of mutant p53 through 2-hydroxyglutarate. Nat. Metab. 4: 225-238.
10. Brashears, C.B., et al. 2022. Malic enzyme 1 absence in synovial sarcoma shifts antioxidant system dependence and increases sensitivity to ferroptosis induction with ACXT-3102. Clin. Cancer Res. 28: 3573-3589.

RESEARCH USE

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