SANTA CRUZ BIOTECHNOLOGY, INC.

MCT1 (H-1): sc-365501

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Monocarboxylates, such as lactate and pyruvate, play an integral role in cellular metabolism. Lactic acid is produced in large quantities as a result of glycolysis, which provides the majority of ATP to cells under normal physiological conditions. However, accumulation of lactic acid leads to a decrease in intracellular pH and cessation of glycolysis. In order for glycolysis to continue at a high rate, lactic acid must be transported out of the cell. This transport process is carried out by a family of monocarboxylate transporters (MCTs), which function as proton symports and are stereoselective for L-actate. The MCT family consists of at least 8 members, MCT1-8, which contain between 10-12 transmembrane-helical domains, with the amino- and carboxy-termini located in the cytoplasm. MCT1 is widely expressed and is the major form of MCT in tumor cells and erythrocytes. MCT2 is highly expressed in liver and testis, while MCT3 and MCT4 are predominantly expressed in skeletal muscle.

CHROMOSOMAL LOCATION

Genetic locus: SLC16A1 (human) mapping to 1p13.2.

SOURCE

MCT1 (H-1) is a mouse monoclonal antibody raised against amino acids 191-260 mapping within a cytoplasmic domain of MCT1 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.

MCT1 (H-1) is available conjugated to agarose (sc-365501 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-365501 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365501 PE), fluorescein (sc-365501 FITC), Alexa Fluor® 488 (sc-365501 AF488), Alexa Fluor® 546 (sc-365501 AF546), Alexa Fluor® 594 (sc-365501 AF594) or Alexa Fluor® 647 (sc-365501 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-365501 AF680) or Alexa Fluor® 790 (sc-365501 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

MCT1 (H-1) is recommended for detection of MCT1 of 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 MCT1 siRNA (h): sc-37235, MCT1 shRNA Plasmid (h): sc-37235-SH and MCT1 shRNA (h) Lentiviral Particles: sc-37235-V.

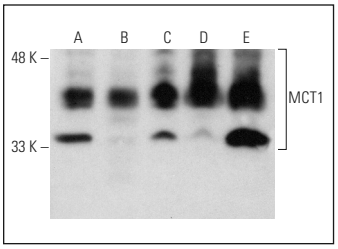
Molecular Weight of MCT1: 40-48 kDa.

Positive Controls: A-673 cell lysate: sc-2414, Hep G2 cell lysate: sc-2227 or BT-20 cell lysate: sc-2223.

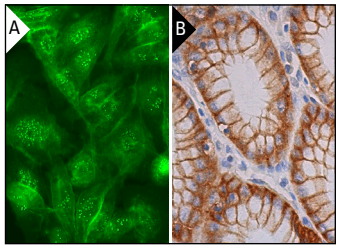
STORAGE

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

DATA



MCT1 (H-1): sc-365501. Direct western blot analysis of MCT1 expression in A-673 (**A**), SJRH30 (**B**), HEL 92.1.7 (**C**), BT-20 (**D**) and Hep G2 (**E**) whole cell lysates.



MCT1 (H-1) Alexa Fluor® 488: sc-365501 AF488. Direct immunofluorescence staining of formalin-fixed SW480 cells showing membrane localization. Blocked with UltraCruz® Blocking Reagent: sc-516214 (**A**). MCT1 (H-1): sc-365501. Immunoperoxidase staining of formalin fixed, paraffin-embedded human lower stomach tissue showing membrane staining of glandular cells (**B**).

SELECT PRODUCT CITATIONS

1. McCleland, M.L., et al. 2012. An integrated genomic screen identifies LDHB as an essential gene for triple-negative breast cancer. Cancer Res. 72: 5812-5823.
2. McCleland, M.L., et al. 2013. Lactate dehydrogenase B is required for the growth of KRAS-dependent lung adenocarcinomas. Clin. Cancer Res. 19: 773-784.
3. Pértega-Gomes, N., et al. 2014. A lactate shuttle system between tumour and stromal cells is associated with poor prognosis in prostate cancer. BMC Cancer 14: 352.
4. Amorim, R., et al. 2015. Monocarboxylate transport inhibition potentiates the cytotoxic effect of 5-fluorouracil in colorectal cancer cells. Cancer Lett. 365: 68-78.
5. Ko, Y.H., et al. 2016. TP53-inducible glycolysis and apoptosis regulator (TIGAR) metabolically reprograms carcinoma and stromal cells in breast cancer. J. Biol. Chem. 291: 26291-26303.
6. Gustafsson, H., et al. 2017. EPR oximetry of cetuximab-treated head-and-neck tumours in a mouse model. Cell Biochem. Biophys. 75: 299-309.
7. Silva, E.C.A., et al. 2018. The clinicopathological significance of monocarboxylate transporters in testicular germ cell tumors. Oncotarget 9: 20386-20398.
8. Zhou, W., et al. 2019. TIGAR promotes neural stem cell differentiation through acetyl-CoA-mediated histone acetylation. Cell Death Dis. 10: 198.
9. Drozdzik, M., et al. 2020. Monocarboxylate transporter 1 (MCT1) in liver pathology. Int. J. Mol. Sci. 21: 1606.

RESEARCH USE

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