

MCT1 (H-70): sc-50324

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-lactate. The MCT family consists of at least eight members, MCT1-8, which contain between 10-12 transmembrane-helical (TM) domains, with the amino and carboxy termini located in the cytoplasm. MCT1 is widely expressed and is the major form of MCTs in tumor cells and erythrocytes. MCT2 is highly expressed in liver and testis, while MCT3 and MCT4 are predominantly expressed in skeletal muscle.

REFERENCES

1. Halestrap, A.P., et al. 1997. Lactate transport in heart in relation to myocardial ischemia. *Am. J. Cardiol.* 80: 17A-25A.
2. Gerhart, D.Z., et al. 1997. Expression of monocarboxylate transporter MCT1 by brain endothelium and glia in adult and suckling rats. *Am. J. Physiol.* 273: E207-E213.
3. Price, N.T., et al. 1998. Cloning and sequencing of four new mammalian monocarboxylate transporter (MCT) homologues confirms the existence of a transporter family with an ancient past. *Biochem. J.* 329: 321-328.
4. Lin, R.Y., et al. 1998. Human monocarboxylate transporter 2 (MCT2) is a high affinity pyruvate transporter. *J. Biol. Chem.* 273: 28959-28965.

CHROMOSOMAL LOCATION

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

SOURCE

MCT1 (H-70) is a rabbit polyclonal antibody raised against amino acids 191-260 mapping within a cytoplasmic domain of MCT1 of human origin.

PRODUCT

Each vial contains 200 µg IgG 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.

RESEARCH USE

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

PROTOCOLS

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

APPLICATIONS

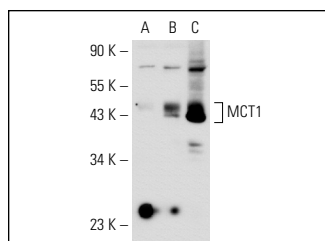
MCT1 (H-70) is recommended for detection of MCT1 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (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 MCT1 siRNA (h): sc-37235, MCT1 shRNA Plasmid (h): sc-37235-SH and MCT1 shRNA (h) Lentiviral Particles: sc-37235-V.

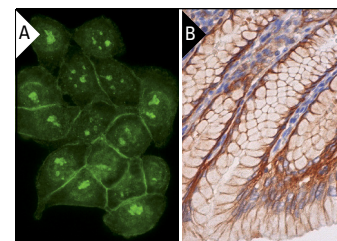
Molecular Weight of MCT1: 40-48 kDa.

Positive Controls: MCT1 (h2): 293T Lysate: sc-172089, HeLa whole cell lysate: sc-2200 or SJRH30 cell lysate: sc-2287.

DATA



MCT1 (H-70): sc-50324. Western blot analysis of MCT1 expression in non-transfected 293T: sc-117752 (A), human MCT1 transfected 293T: sc-172089 (B) and HeLa (C) whole cell lysates.



MCT1 (H-70): sc-50324. Immunofluorescence staining of methanol-fixed HeLa cells showing membrane localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human stomach tissue showing membrane staining of glandular cells (B).

SELECT PRODUCT CITATIONS

1. Chen, H., et al. 2010. Co-expression of CD147/EMMPRIN with monocarboxylate transporters and multiple drug resistance proteins is associated with epithelial ovarian cancer progression. *Clin. Exp. Metastasis* 27: 557-569.
2. Sánchez-Tena, S., et al. 2013. Green tea phenolics inhibit butyrate-induced differentiation of colon cancer cells by interacting with monocarboxylate transporter 1. *Biochim. Biophys. Acta* 1832: 2264-2270.
3. Chapiro, J., et al. 2014. Systemic delivery of microencapsulated 3-bromopyruvate for the therapy of pancreatic cancer. *Clin. Cancer Res.* E-Published.
4. Wojtkowiak, J.W., et al. 2015. Pyruvate sensitizes pancreatic tumors to hypoxia-activated prodrug TH-302. *Cancer Metab.* 3: 2.



Try **MCT1 (H-1): sc-365501**, our highly recommended monoclonal alternative to MCT1 (H-70). Also, for AC, HRP, FITC, PE, Alexa Fluor[®] 488 and Alexa Fluor[®] 647 conjugates, see **MCT1 (H-1): sc-365501**.