

MCT1 (T-19): sc-14917

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 8 members, MCT 1-8, 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 MCT 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. Lin, R.Y., et al. 1998. Human monocarboxylate transporter 2 (MCT2) is a high affinity pyruvate transporter. *J. Biol. Chem.* 273: 28959-28965.
4. 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.

CHROMOSOMAL LOCATION

Genetic locus: SLC16A1 (human) mapping to 1p12; Slc16a1 (mouse) mapping to 3 F2.2.

SOURCE

MCT1 (T-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of MCT1 of mouse origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-14917 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

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 or our catalog for detailed protocols and support products.

APPLICATIONS

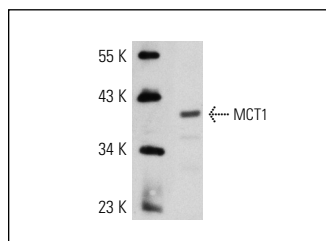
MCT1 (T-19) is recommended for detection of MCT1 of mouse, rat and, to a lesser extent, human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for MCT1 siRNA (m): sc-40115, MCT1 siRNA (h): sc-37235, MCT1 shRNA Plasmid (m): sc-40115-SH, MCT1 shRNA Plasmid (h): sc-37235-SH, MCT1 shRNA (m) Lentiviral Particles: sc-40115-V and MCT1 shRNA (h) Lentiviral Particles: sc-37235-V.

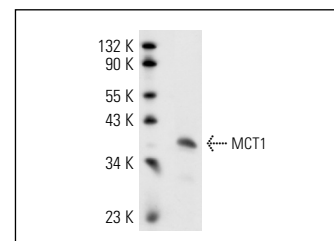
Molecular Weight of MCT10: 40-48 kDa.

Positive Controls: mouse heart extract: sc-2254 or rat skeletal muscle tissue extract: sc-364810.

DATA



MCT1 (T-19): sc-14917. Western blot analysis of MCT1 expression in mouse heart tissue extract.



MCT1 (T-19): sc-14917. Western blot analysis of MCT1 expression in rat skeletal muscle tissue extract.

SELECT PRODUCT CITATIONS

1. Vavaiya, K.V., et al. 2006. Vagal complex monocarboxylate transporter-2 expression during hypoglycemia. *Neuroreport* 17: 1023-1026.
2. Jansen, S., et al. 2006. Glucose affects monocarboxylate co-transporter (MCT) 1 expression during mouse preimplantation development. *Reproduction* 131: 469-479.
3. Scheibe, R.J., et al. 2006. Expression of membrane-bound carbonic anhydrases IV, IX, and XIV in the mouse heart. *J. Histochem. Cytochem.* 54: 1379-1391.
4. Kim, S.S., et al. 2011. Exercise training and selenium or a combined treatment ameliorates aberrant expression of glucose and lactate metabolic proteins in skeletal muscle in a rodent model of diabetes. *Nutr. Res. Pract.* 5: 205-213.
5. Mannowetz, N., et al. 2012. Basigin interacts with both MCT1 and MCT2 in murine spermatozoa. *J. Cell. Physiol.* 227: 2154-2162.

RESEARCH USE

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