

MCT5 (E-16): sc-14932

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 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

- Halestrap, A.P., et al. 1997. Lactate transport in heart in relation to myocardial ischemia. *Am. J. Cardiol.* 80: 17A-25A.
- 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.
- Lin, R.Y., et al. 1998. Human monocarboxylate transporter 2 (MCT2) is a high affinity pyruvate transporter. *J. Biol. Chem.* 273: 28959-28965.
- Price, N.T., et al. 1998. Cloning and sequencing of four new mammalian monocarboxylate transporter (MCT) homologs confirms the existence of a transporter family with an ancient past. *Biochem. J.* 329: 321-328.
- Juel, C., et al. 1999. Lactate transport in skeletal muscle—role and regulation of the monocarboxylate transporter. *J. Physiol.* 517: 633-642.
- Halestrap, A.P., et al. 1999. The proton-linked monocarboxylate transporter (MCT) family: structure, function and regulation. *Biochem. J.* 343: 281-299.

CHROMOSOMAL LOCATION

Genetic locus: SLC16A4 (human) mapping to 1p13.3; Slc16a4 (mouse) mapping to 3 F2.3.

SOURCE

MCT5 (E-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of MCT5 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.

Blocking peptide available for competition studies, sc-14932 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.

APPLICATIONS

MCT5 (E-16) is recommended for detection of MCT5 of human origin and Slc16a4 of mouse and rat 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).

MCT5 (E-16) is also recommended for detection of MCT5 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for MCT5 siRNA (h): sc-45893, SLC16A4 siRNA (m): sc-153492, MCT5 shRNA Plasmid (h): sc-45893-SH, SLC16A4 shRNA Plasmid (m): sc-153492-SH, MCT5 shRNA (h) Lentiviral Particles: sc-45893-V and SLC16A4 shRNA (m) Lentiviral Particles: sc-153492-V.

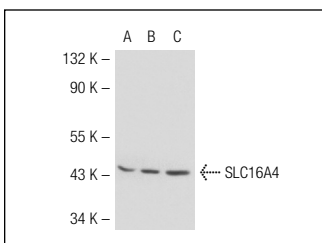
Molecular Weight of MCT5: 54 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200 or SLC16A4 (m): 293T Lysate: sc-123581.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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 donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



MCT5 (E-16): sc-14932. Western blot analysis of SLC16A4 expression in non-transfected 293T: sc-117752 (A), mouse SLC16A4 transfected 293T: sc-123581 (B) and HeLa (C) whole cell lysates.

SELECT PRODUCT CITATIONS

- Izumi, H., et al. 2011. Monocarboxylate transporters 1 and 4 are involved in the invasion activity of human lung cancer cells. *Cancer Sci.* 102: 1007-1013.

RESEARCH USE

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