SANTA CRUZ BIOTECHNOLOGY, INC.

MCT1 (C-20): sc-14916

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-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.

CHROMOSOMAL LOCATION

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

SOURCE

MCT1 (C-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus 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.

Blocking peptide available for competition studies, sc-14916 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

MCT1 (C-20) 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) 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, HeLa whole cell lysate: sc-2200 or HEL 92.1.7 cell lysate: sc-2270.

RESEARCH USE

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

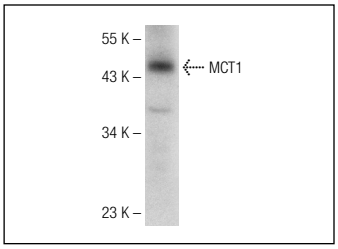
PROTOCOLS

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

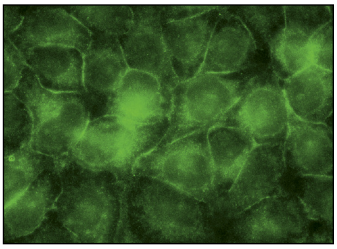
STORAGE

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

DATA



MCT1 (C-20): sc-14916. Western blot analysis of MCT1 expression in HeLa whole cell lysate.



MCT1 (C-20): sc-14916. Immunofluorescence staining of methanol-fixed HeLa cells showing membrane localization.

SELECT PRODUCT CITATIONS

1. Koukourakis, M.I., et al. 2006. Comparison of metabolic pathways between cancer cells and stromal cells in colorectal carcinomas: a metabolic survival role for tumor-associated stroma. Cancer Res. 66: 632-637
2. Rentsch, R.L., et al. 2006. Effects of darbepoetin injections on erythrocyte membrane transport protein expressions in humans. J. Appl. Physiol. 101: 164-168.
3. Fang, J., et al. 2006. The H^+-linked monocarboxylate transporter (MCT1/SLC16A1): a potential therapeutic target for high-risk neuroblastoma. Mol. Pharmacol. 70: 2108-2115.
4. Bickham, D.C., et al. 2006. The effects of short-term sprint training on MCT expression in moderately endurance-trained runners. Eur. J. Appl. Physiol. 96: 636-643.
5. Rentsch, R.L., et al. 2006. Effects of darbepoetin injections on erythrocyte membrane transport protein expressions in humans. Am. J. Physiol. 101: 164-168.
6. Thibault, R., et al. 2007. Down-regulation of the monocarboxylate transporter 1 is involved in butyrate deficiency during intestinal inflammation. Gastroenterology 133: 1916-1927.
7. Akerud, H., et al. 2009. Lactate distribution in culture medium of human myometrial biopsies incubated under different conditions. Am. J. Physiol. Endocrinol. Metab. 297: E1414-E1419.
8. 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.