SANTA CRUZ BIOTECHNOLOGY, INC.

MCT4 (H-90): sc-50329

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, 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.

CHROMOSOMAL LOCATION

Genetic locus: SLC16A3 (human) mapping to 17q25.3; Slc16a3 (mouse) mapping to 11 E2.

SOURCE

MCT4 (H-90) is a rabbit polyclonal antibody raised against amino acids 376-465 mapping within a C-terminal cytoplasmic domain of MCT4 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.

APPLICATIONS

MCT4 (H-90) is recommended for detection of MCT4 of mouse, rat and 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 MCT4 siRNA (h2): sc-45892, MCT4 siRNA (m): sc-40120, MCT4 shRNA Plasmid (h2): sc-45892-SH, MCT4 shRNA Plasmid (m): sc-40120-SH, MCT4 shRNA (h2) Lentiviral Particles: sc-45892-V and MCT4 shRNA (m) Lentiviral Particles: sc-40120-V.

Molecular Weight of MCT4: 43 kDa.

Positive Controls: HCT-116 whole cell lysate: sc-364175 or HeLa whole cell lysate: sc-2200.

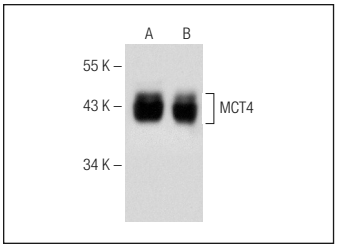
STORAGE

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

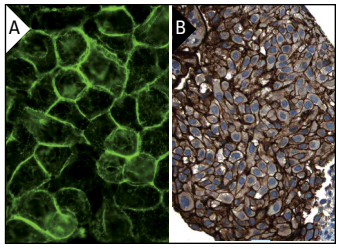
RESEARCH USE

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

DATA



MCT4 (H-90): sc-50329. Western blot analysis of MCT4 expression in HCT-116 (**A**) and HeLa (**B**) whole cell lysates.



MCT4 (H-90): sc-50329. Immunofluorescence staining of methanol-fixed HeLa cells showing membrane localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human placenta tissue showing membrane staining of decidual and thropoblastic cells at high magnification. Kindly provided by The Swedish Human Protein Atlas (HPA) program (**B**).

SELECT PRODUCT CITATIONS

1. Schmidt, S., et al. 2008. Neuronal functions, feeding behavior, and energy balance in Slc2a3$^{+/-}$ mice. Am. J. Physiol. Endocrinol. Metab. 295: E1084-E1094.
2. Queirós, O., et al. 2012. Butyrate activates the monocarboxylate transporter MCT4 expression in breast cancer cells and enhances the antitumor activity of 3-bromopyruvate. J. Bioenerg. Biomembr. 44: 141-153.
3. Vaz, C.V., et al. 2012. Androgen-responsive and nonresponsive prostate cancer cells present a distinct glycolytic metabolism profile. Int. J. Biochem. Cell Biol. 44: 2077-2084.
4. 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.
5. Miranda-Gonçalves, V., et al. 2013. Monocarboxylate transporters (MCTs) in gliomas: expression and exploitation as therapeutic targets. Neuro Oncol. 15: 172-188.
6. 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.
7. Guillaumond, F., et al. 2013. Strengthened glycolysis under hypoxia supports tumor symbiosis and hexosamine biosynthesis in pancreatic adenocarcinoma. Proc. Natl. Acad. Sci. USA 110: 3919-3924.