

## MCT4 (D-1): sc-376140



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 (D-1) is a mouse monoclonal 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<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

MCT4 (D-1) is available conjugated to agarose (sc-376140 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-376140 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376140 PE), fluorescein (sc-376140 FITC), Alexa Fluor® 488 (sc-376140 AF488), Alexa Fluor® 546 (sc-376140 AF546), Alexa Fluor® 594 (sc-376140 AF594) or Alexa Fluor® 647 (sc-376140 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376140 AF680) or Alexa Fluor® 790 (sc-376140 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

## APPLICATIONS

MCT4 (D-1) is recommended for detection of MCT4 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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).

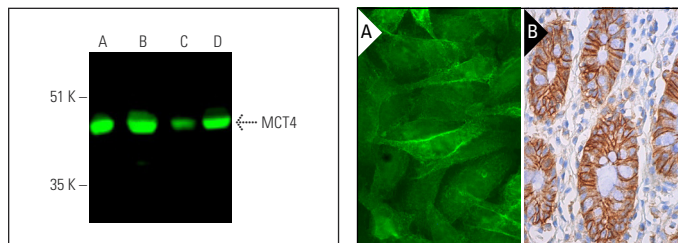
Suitable for use as control antibody for MCT4 siRNA (h2): sc-45892, MCT4 siRNA (m): sc-40120, MCT4 shRNA Plasmid (h2): sc-45892-SH, MCT4 shRNA Plasmid (m): sc-40120-SH, MCT4 shRNA (h2) Lentiviral Particles: sc-45892-V and MCT4 shRNA (m) Lentiviral Particles: sc-40120-V.

Molecular Weight of MCT4: 43 kDa.

## STORAGE

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

## DATA



MCT4 (D-1): sc-376140. Near-infrared western blot analysis of MCT4 expression in HeLa (A), HCT-116 (B), NCI-H460 (C) and PC-3 (D) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 680: sc-516180.

MCT4 (D-1) Alexa Fluor® 488: sc-376140 AF488. Direct immunofluorescence staining of formalin-fixed SW480 cells showing membrane localization. Blocked with UltraCruz® Blocking Reagent: sc-516214 (A). MCT4 (D-1): sc-376140. Immunoperoxidase staining of formalin fixed, paraffin-embedded human rectum tissue showing membrane and cytoplasmic staining of glandular cells (B).

## SELECT PRODUCT CITATIONS

- Zhu, J., et al. 2014. Monocarboxylate transporter 4 facilitates cell proliferation and migration and is associated with poor prognosis in oral squamous cell carcinoma patients. *PLoS ONE* 9: e87904.
- Wojtkowiak, J.W., et al. 2015. Pyruvate sensitizes pancreatic tumors to hypoxia-activated prodrug TH-302. *Cancer Metab.* 3: 2.
- Ye, M., et al. 2017. Combined inhibitions of glycolysis and Akt/autophagy can overcome resistance to EGFR-targeted therapy of lung cancer. *J. Cancer* 8: 3774-3784.
- Persi, E., et al. 2018. Systems analysis of intracellular pH vulnerabilities for cancer therapy. *Nat. Commun.* 9: 2997.
- Benjamin, D., et al. 2018. Dual inhibition of the lactate transporters MCT1 and MCT4 is synthetic lethal with metformin due to NAD<sup>+</sup> depletion in cancer cells. *Cell Rep.* 25: 3047-3058.e4.
- Bornschein, S., et al. 2018. Defining the molecular basis of oncogenic cooperation between TAL1 expression and PTEN deletion in T-ALL using a novel pro-T-cell model system. *Leukemia* 32: 941-951.
- Yu, J., et al. 2019. Exposure to Pb and Cd alters MCT4/CD147 expression and MCT4/CD147-dependent lactate transport in mice Sertoli cells cultured *in vitro*. *Toxicol. In Vitro* 56: 30-40.
- Choi, S.H., et al. 2019. Hypoxia-induced RelA/p65 derepresses SLC16A3 (MCT4) by downregulating ZBTB7A. *Biochim. Biophys. Acta Gene Regul. Mech.* 1862: 771-785.

## RESEARCH USE

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

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