

MCT4 (G-7): sc-376465



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.

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.

CHROMOSOMAL LOCATION

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

SOURCE

MCT4 (G-7) 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 IgG₃ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

MCT4 (G-7) 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.

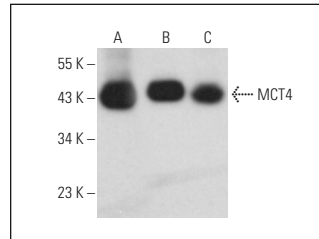
Molecular Weight of MCT4: 43 kDa.

Positive Controls: SJRH30 cell lysate: sc-2287, BC₃H1 cell lysate: sc-2299 or HeLa whole cell lysate: sc-2200.

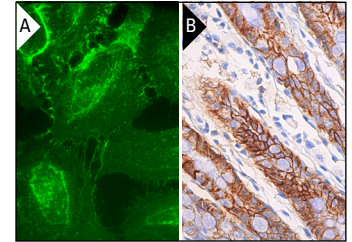
STORAGE

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

DATA



MCT4 (G-7): sc-376465. Western blot analysis of MCT4 expression in HeLa (A), BC₃H1 (B) and SJRH30 (C) whole cell lysates.



MCT4 (G-7): sc-376465. Immunofluorescence staining of methanol-fixed HeLa cells showing membrane and cytoskeletal localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human rectum tissue showing membrane and cytoplasmic staining of glandular cells (B).

SELECT PRODUCT CITATIONS

- Lund, J., et al. 2018. Utilization of lactic acid in human myotubes and interplay with glucose and fatty acid metabolism. *Sci. Rep.* 8: 9814.
- Ferreira, D., et al. 2019. Rational identification of a colorectal cancer targeting peptide through phage display. *Sci. Rep.* 9: 3958.
- Hu, X., et al. 2021. Blocking MCT4 SUMOylation inhibits the growth of breast cancer cells. *Mol. Carcinog.* 60: 702-714.
- Chen, Y., et al. 2021. Combination of the herbs radix rehmanniae and cornus officinalis mitigated testicular damage from diabetes mellitus by enhancing glycolysis via the AGEs/RAGE/HIF-1 α axis. *Front. Pharmacol.* 12: 678300.
- Dong, L., et al. 2022. Proteogenomic characterization identifies clinically relevant subgroups of intrahepatic cholangiocarcinoma. *Cancer Cell* 40: 70-87.e15.
- Lee, S.H., et al. 2022. Glycolytic metabolic remodeling by the truncate of glioma-associated oncogene homolog 1 in triple-negative breast cancer cells. *J. Cancer* 13: 3031-3043.
- Jiang, C., et al. 2022. Novel specific pyruvate kinase M2 inhibitor, compound 3h, induces apoptosis and autophagy through suppressing Akt/mTOR signaling pathway in LNCaP cells. *Cancers* 15: 265.
- Seliger, C., et al. 2023. Heterogeneity of amino acid profiles of proneural and mesenchymal brain-tumor initiating cells. *Int. J. Mol. Sci.* 24: 3199.

RESEARCH USE

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



See **MCT4 (D-1): sc-376140** for MCT4 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.