SANTA CRUZ BIOTECHNOLOGY, INC.

MCT4 (F-10): sc-376101

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 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.

CHROMOSOMAL LOCATION

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

SOURCE

MCT4 (F-10) 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_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

MCT4 (F-10) is available conjugated to agarose (sc-376101 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-376101 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376101 PE), fluorescein (sc-376101 FITC), Alexa Fluor® 488 (sc-376101 AF488), Alexa Fluor® 546 (sc-376101 AF546), Alexa Fluor® 594 (sc-376101 AF594) or Alexa Fluor® 647 (sc-376101 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376101 AF680) or Alexa Fluor® 790 (sc-376101 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

MCT4 (F-10) 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).

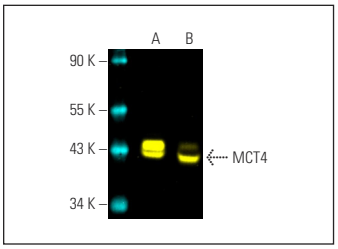
Suitable for use as control antibody for MCT4 siRNA (h2): sc-45892, MCT4 siRNA (m): sc-40120, MCT4 shRNA Plasmid (h2): sc-45892-SH, MCT4 shRNA Plasmid (m): sc-40120-SH, MCT4 shRNA (h2) Lentiviral Particles: sc-45892-V and MCT4 shRNA (m) Lentiviral Particles: sc-40120-V.

Molecular Weight of MCT4: 43 kDa.

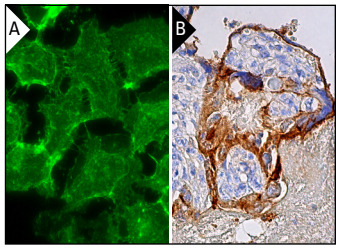
STORAGE

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

DATA



MCT4 (F-10) Alexa Fluor® 488: sc-376101 AF488. Direct fluorescent western blot analysis of MCT4 expression in Neuro-2A (**A**) and HeLa (**B**) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Cruz Marker™ Molecular Weight Standards detected with Cruz Marker™ MW Tag-Alexa Fluor® 647: sc-516791.



MCT4 (F-10): sc-376101. Immunofluorescence staining of methanol-fixed HeLA cells showing membrane localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human placenta tissue showing membrane and cytoplasmic staining of trophoblastic cells (**B**).

SELECT PRODUCT CITATIONS

1. Choi, J.W., et al. 2014. Prognostic significance of lactate/proton symporters MCT1, MCT4, and their chaperone CD147 expressions in urothelial carcinoma of the bladder. Urology 84: 245.e9-15.
2. Kim, Y., et al. 2015. Expression of lactate/H^+ symporters MCT1 and MCT4 and their chaperone CD147 predicts tumor progression in clear cell renal cell carcinoma: immunohistochemical and the cancer genome atlas data analyses. Hum. Pathol. 46: 104-112.
3. Chen, H.L., et al. 2018. Aberrant MCT4 and GLUT1 expression is correlated with early recurrence and poor prognosis of hepatocellular carcinoma after hepatectomy. Cancer Med. 7: 5339-5350.
4. Kubelt, C., et al. 2020. Intratumoral distribution of lactate and the monocarboxylate transporters 1 and 4 in human glioblastoma multiforme and their relationships to tumor progression-associated markers. Int. J. Mol. Sci. 21: 6254.
5. Dell'Anno, I., et al. 2020. Tissue expression of lactate transporters (MCT1 and MCT4) and prognosis of malignant pleural mesothelioma (brief report). J. Transl. Med. 18: 341.
6. Vander Linden, C., et al. 2021. Therapy-induced DNA methylation inactivates MCT1 and renders tumor cells vulnerable to MCT4 inhibition. Cell Rep. 35: 109202.
7. Linares, J.F., et al. 2022. The lactate-NAD^+ axis activates cancer-associated fibroblasts by downregulating p62. Cell Rep. 39: 110792.

RESEARCH USE

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