SANTA CRUZ BIOTECHNOLOGY, INC.

MCT2 (D-5): sc-166925

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: Slc16a7 (mouse) mapping to 10 D3.

SOURCE

MCT2 (D-5) is a mouse monoclonal antibody raised against amino acids 391-480 mapping at the C-terminus of MCT2 of mouse origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

MCT2 (D-5) is available conjugated to agarose (sc-166925 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-166925 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166925 PE), fluorescein (sc-166925 FITC), Alexa Fluor® 488 (sc-166925 AF488), Alexa Fluor® 546 (sc-166925 AF546), Alexa Fluor® 594 (sc-166925 AF594) or Alexa Fluor® 647 (sc-166925 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-166925 AF680) or Alexa Fluor® 790 (sc-166925 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

MCT2 (D-5) is recommended for detection of MCT2 of mouse 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 MCT2 siRNA (m): sc-40116, MCT2 shRNA Plasmid (m): sc-40116-SH and MCT2 shRNA (m) Lentiviral Particles: sc-40116-V.

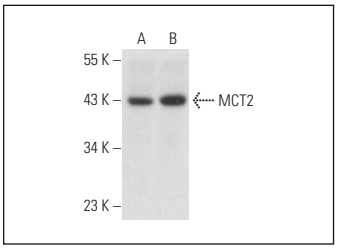
Molecular Weight of MCT2: 40 kDa.

Positive Controls: NIH/3T3 whole cell lysate: sc-2210, LADMAC whole cell lysate: sc-364189 or mouse testis extract: sc-2405.

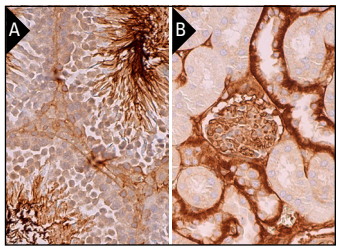
STORAGE

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

DATA



MCT2 (D-5): sc-166925. Western blot analysis of MCT2 expression in LADMAC (**A**) and NIH/3T3 (**B**) whole cell lysates.



MCT2 (D-5): sc-166925. Immunoperoxidase staining of formalin fixed, paraffin-embedded mouse testis tissue showing membrane and cytoplasmic staining of cells in seminiferous ducts and Leydig cells (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded mouse kidney tissue showing membrane and cytoplasmic staining of cells in glomeruli and cytoplasmic staining of cells in tubules (**B**).

SELECT PRODUCT CITATIONS

1. Klier, M., et al. 2011. Transport activity of the high-affinity monocarboxylate transporter MCT2 is enhanced by extracellular carbonic anhydrase IV but not by intracellular carbonic anhydrase II. J. Biol. Chem. 286: 27781-27791.
2. E, L., et al. 2013. Effect of exercise on mouse liver and brain bioenergetic infrastructures. Exp. Physiol. 98: 207-219.
3. Schutkowski, A., et al. 2014. Tissue-specific expression of monocarboxylate transporters during fasting in mice. PLoS ONE 9: e112118.
4. Geng, X., et al. 2015. Reduced cerebral monocarboxylate transporters and lactate levels by ethanol and normobaric oxygen therapy in severe transient and permanent ischemic stroke. Brain Res. 1603: 65-75.
5. Shima, T., et al. 2018. Differential effects of type 2 diabetes on brain glycometabolism in rats: focus on glycogen and monocarboxylate transporter 2. J. Physiol. Sci. 68: 69-75.
6. Afonso, J., et al. 2019. Clinical significance of metabolism-related biomarkers in non-Hodgkin lymphoma-MCT1 as potential target in diffuse large B cell lymphoma. Cell. Oncol. 42: 303-318.
7. Dey, S., et al. 2020. Roles of glycogen synthase kinase 3 α and calcineurin in regulating the ability of sperm to fertilize eggs. FASEB J. 34: 1247-1269.
8. Minami, N., et al. 2021. Lactate reprograms energy and lipid metabolism in glucose-deprived oxidative glioma stem cells. Metabolites 11: 325.
9. Azoulay, I.S., et al. 2022. ASIC1a senses lactate uptake to regulate metabolism in neurons. Redox Biol. 51: 102253.

RESEARCH USE

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