

MCT8 (K-19): sc-47125

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. Defects in the gene encoding for MCT8, SLC16A2, can cause monocarboxylate transporter 8 deficiency (MCT8 deficiency), a defect in cellular hormone transport causing a severe form of X-linked psychomotor retardation and abnormal thyroid levels.

REFERENCES

1. Lafreniere, R.G., et al. 1994. A novel transmembrane transporter encoded by the XPCT gene in Xq13.2. *Hum. Mol. Genet.* 3: 1133-1139.
2. Dumitrescu, A.M., et al. 2004. A novel syndrome combining thyroid and neurological abnormalities is associated with mutations in a monocarboxylate transporter gene. *Am. J. Hum. Genet.* 74: 168-175.
3. Friesema, E., et al. 2004. Association between mutations in a thyroid hormone transporter and severe X-linked psychomotor retardation. *Lancet* 364: 1435-1437.
4. Friesema, E.C., et al. 2005. Thyroid hormone transporters. *Vitam. Horm.* 70: 137-167.
5. Heuer, H., et al. 2005. The monocarboxylate transporter 8 linked to human psychomotor retardation is highly expressed in thyroid hormone-sensitive neuron populations. *Endocrinology* 146: 1701-1706.
6. Chan, S.Y., et al. 2006. Monocarboxylate transporter 8 expression in the human placenta: the effects of severe intrauterine growth restriction. *J. Endocrinol.* 189: 465-471.
7. Dumitrescu, A.M., et al. 2006. Tissue specific thyroid hormone deprivation and excess in MCT8 deficient mice. *Endocrinology* 147: 4034-4035.

CHROMOSOMAL LOCATION

Genetic locus: SLC16A2 (human) mapping to Xq13.2; Slc16a2 (mouse) mapping to X D.

SOURCE

MCT8 (K-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of MCT8 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.

Blocking peptide available for competition studies, sc-47125 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

MCT8 (K-19) is recommended for detection of MCT8 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).

MCT8 (K-19) is also recommended for detection of MCT8 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for MCT8 siRNA (h): sc-61008, MCT8 siRNA (m): sc-61009, MCT8 shRNA Plasmid (h): sc-61008-SH, MCT8 shRNA Plasmid (m): sc-61009-SH, MCT8 shRNA (h) Lentiviral Particles: sc-61008-V and MCT8 shRNA (m) Lentiviral Particles: sc-61009-V.

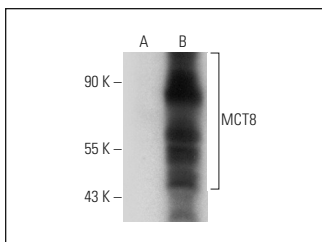
Molecular Weight of MCT8: 63 kDa.

Positive Controls: MCT8 (h2): 293T Lysate: sc-372115.

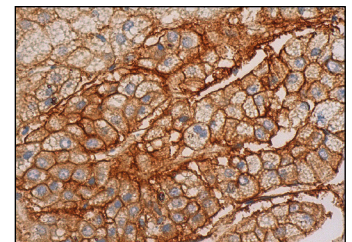
RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 4) Immunohistochemistry: use ImmunoCruz™: sc-2053 or ABC: sc-2023 goat IgG Staining Systems.

DATA



MCT8 (K-19): sc-47125. Western blot analysis of MCT8 expression in non-transfected: sc-117752 (A) and human MCT8 transfected: sc-372115 (B) 293T whole cell lysates.



MCT8 (K-19): sc-47125. Immunoperoxidase staining of formalin fixed, paraffin-embedded human adrenal gland tissue showing membrane and cytoplasmic staining of glandular cells.

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.