

# MCT3 (S-16): sc-241534

## 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.

## REFERENCES

- 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.
- Halestrap, A.P., et al. 1997. Lactate transport in heart in relation to myocardial ischemia. *Am. J. Cardiol.* 80: 17A-25A.
- Lin, R.Y., et al. 1998. Human monocarboxylate transporter 2 (MCT2) is a high affinity pyruvate transporter. *J. Biol. Chem.* 273: 28959-28965.
- Price, N.T., et al. 1998. Cloning and sequencing of four new mammalian monocarboxylate transporter (MCT) homologues confirms the existence of a transporter family with an ancient past. *Biochem. J.* 329: 321-328.
- Halestrap, A.P., et al. 1999. The proton-linked monocarboxylate transporter (MCT) family: structure, function and regulation. *Biochem. J.* 343: 281-299.
- Juel, C., et al. 1999. Lactate transport in skeletal muscle—role and regulation of the monocarboxylate transporter. *J. Physiol.* 517: 633-642.
- Bonen, A. 2000. Lactate transporters (MCT proteins) in heart and skeletal muscles. *Med. Sci. Sports Exerc.* 32: 778-789.
- Bonen, A., et al. 2000. Abundance and subcellular distribution of MCT1 and MCT4 in heart and fast-twitch skeletal muscle. *Am. J. Physiol. Endocrinol. Metab.* 278: E106710-E106777.

## CHROMOSOMAL LOCATION

Genetic locus: Slc16a8 (mouse) mapping to 15 E1.

## SOURCE

MCT3 (S-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping within a cytoplasmic domain of MCT3 of mouse origin.

## STORAGE

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

## 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-241534 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

MCT3 (S-16) is recommended for detection of MCT3 of mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); non cross-reactive with other MCT family members.

Suitable for use as control antibody for MCT3 siRNA (m): sc-40118, MCT3 shRNA Plasmid (m): sc-40118-SH and MCT3 shRNA (m) Lentiviral Particles: sc-40118-V.

Molecular Weight of MCT3: 52 kDa.

## 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) 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.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.