ALPHA DIAGNOSTIC INTERNATIONAL

Life Technologies™ Your Molecular & Cell Technology Partner

Product Specification Sheet

Monocarboxylate Transporter 1 (MCT1) Antibodies

Cat. MCT12-P	Human MCT1 Control peptide # 2	**SIZE**: 100 ug
Cat. MCT12-S	**Rabbit** Anti-Human MCT1 antiserum # 2	**SIZE**: 100 ul
Cat. MCT12-A	**Rabbit** Anti-Human MCT1 IgG # 2 (affinity pure)	**SIZE**: 100 ug

Monocarboxylate such as lactate and pyruvate play an important role in cellular metabolism. Lactic acid is produced as the end product of glycolysis. All tissues become dependent on this pathway during abnormal conditions such as hypoxia and ischaemia. Lactic acid, produced during normal glycolysis, must be transported out of cells to sustain maintain high rate of glycolysis. Failure to export lactic acid leads to accumulation of cellular lactic acid followed by an increase in pH and inhibition of glycolysis. Lactic acid transport is mediated by a group of proton-linked membrane transporters called **monocarboxylic acid transporters (MCTs).** At least 9 MCT-related proteins (MCT1-9) have been identified in mammals that are expressed in a tissue specific manner.

MCT1 (also known as MOT1 or SLC16A1 or MEV; mouse 493 aa, rat 494 aa, human 500 aa; ~ 95 % identity) is a membrane protein containing 12 transmembrane proteins. MCT1 is most closely related to MCT2 (~65% identity, whereas homolog with other MCT2-MCT8 isoforms is less (~35-53%). MCT1 has very wide tissue distribution. **MCT1/MOT1** is ubiquitously expressed but is especially prominent in heart and red muscle. It is upregulated in response to increased work, suggesting an important role in lactic acid oxidation. It is the major isoform in tumor cell and erythrocytes.

Source of Antigen and Antibodies

Antigen	19-aa peptide from (Gene Accession #P53985) **human MCt1 (1)**; **Designation (MCT12-P, control/blocking peptide**) conjugated to KLH
Location	~C-terminus, Cytoplasmic domain
Ab Host/type	Rabbit, Polyclonal unpurified antiserum (#**MCT12**-S) and IgG, purified over antigen-agarose (Cat # **MCT12**-A)
2-Ab	Cat # 20320, goat anti-rabbit IgG-HRP (AP, biotin, FITC conjugates also available).
-ve control	# 20009-1, Rabbit (non-immune) IgG, purified, suitable for ELISA, Western, IHC as –ve control

Form & Storage of Antibodies/Peptide Control

Antiserum (unpurified)
100ul solution lyophilized powder
Supplied in Buffer: 0.05% azide
Reconstitute powder in 100 ul PBS

Affinity pure IgG
100 ug/100ul solution lyophilized powder
Supplied in **Buffer**: PBS+0.1% BSA
Reconstitute powder in PBS at 1mg/ml

Control/blocking peptide
100 ug/100 ul solution lyophilized powder
Supplied in Buffer: PBS pH 7.5,
Reconstitute powder in PBS at 1 mg/ml.

Storage

Short-term: unopened, undiluted liquid vials at -20OC and powder at 4oC or -20oC..

Long-term: at –20C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

Stability: 6-12 months at –20oC or below.
Shipping: 4oC for solutions and room temp for powder

Recommended Usage

Western Blotting 1-5 ug/ml for affinity pure using Chemiluminescence technique.

ELISA (1:10K-1:100K; using 50-100 ng of control peptide/well).

Histochemistry & Immunofluorescence: not tested. We recommend the use of affinity purified antibody at 3-10 ug/ml in neutral buffered formaldehyde fixed tissue.

Specificity & Cross-reactivity

Human MCT12-P sequence is 63% conserved in hamster, and 57% in mouse. No significant sequence homology of MCT12-P was found with other MCTs. Antibody cross-reactivity in various other species has not been studied. Control peptide, because of its low mol. Wt (<3 kDa), is not suitable for Western. It should be used for ELISA or antibody blocking experiments (use 5-10 ug control peptide per 1 ug of aff pure IgG or 1 ul antiserum) to confirm antibody specificity (see detailed protocol at: www.4adi.com\data\abblock.html).

General References: (1) Am. J. Physiology Endocriol. Metabol. 1997) 36, E207-E213; Diabetologia (1999) 42, 870-877; JBC (1999) 274, 284220; Takanaga H (1995) BBRC 217, 370-377; Carpenter L (1996) Biochim. Biophys. Acta 1279, 157; Koehler-Stec EM (1998) AM. J. Physiol. 275, E516; Yoon H (1999) Genomics 60, 366-370

(2) Citations of ADI's Antibodies (see web site for updated list)

Buyse M, 2002, J. Biol. Chem 277, 28182, WB, IF, IP
Brauchi S, 2004, Am J Physiol Cell Physiol, 288, 523-534, IHC

*This product is for in vitro research use only.

Related material available from ADI

Antibodies to MCT1-8; NBC1-3; NHE1-5, AE1-3; NCX, NKCC, AE1-

MCT12-S-A-P 50307A

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