ALPHA DIAGNOSTIC INTERNATIONAL

Product Specification Sheet

Life Technologies™ Your Molecular & Cell Technology Partner

Monocarboxylate Transporter 1 (MCT1) Antibodies

☐ **Cat.** MCT11-A	Chicken Anti-Rat MCT1 IgG # 1(Aff pure)	**SIZE**: 100 ul
☐ **Cat.** MCT11-P	Rat MCT1 Control/blocking peptide # 1	**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. Some tissues, such as white skeletal muscle and, red blood cells, use this pathway to generate most of their ATP under normal physiological conditions. 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. Some tissues, such as brain, heart, and red skeletal muscle, readily oxidize lactic acid, and must import lactic acid into the cells. 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	A 15-aa peptide sequence (Gene Accession #P53987) **(designated MCT11-P; control peptide**) within the **cytoplasmic, C-terminus** of **rat MCT1** (1) was synthesized, coupled to KLH
Ab Host/type	Rabbit, Polyclonal antiserum # **MCT11**-S and IgG, purified over antigen-agarose (Cat # **MCT11**-A). An antibody to MCT11 epitope has also been produced in **Rabbits** (cat # MCT13-S).
2-Ab	Cat # 20320, goat anti-rabbit IgG-HRP (AP, biotin, FITC conjugates also available).
-ve control IgG	Cat # 20009-1, Rabbit (non-immune) Serum IgG, purified, suitable for ELISA, Western, IHC as –ve control

Form & Storage of Antibodies/Peptide Control

Antiserum (unpurified)
☐ 100ul ☐ ☐ solution ☐ lyophilized powder
Supplied in 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.

Recommended Usage

Western Blotting 1-5 ug/ml for affinity pure using Chemiluminescence technique. See published refs 2.

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

Histochemistry & Immunofluorescence: We recommend the use of affinity purified antibody at 3-10 ug/ml in neutral buffered formaldehyde fixed tissue. It works on paraffin embedded tissues. See published refs 2.

Specificity & Cross-reactivity

Rat MCT11-P sequence is 93% conserved in hamster, 85% in mouse, and 40% in human MCT1. No significant sequence homology of MCT11-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 see detailed protocol at the web site).

General References: (1) Am. J. Physiology Endocriol. Metabol. 1997) 36, E207-E213; Diabetologia (1999) 42, 870-877; J. Biol. Chem. (1999) 274, 284220-284220; Takanaga H et al (1995) BBRC 217, 370-377; Carpenter L et al (1996) Biochim. Biophys. Acta 1279, 157-163; Koehler-Stec EM et al (1998) AM. J. Physiol. 275, E516-E524; Yoon H et al (1999) Genomics 60, 366-370; Halestrap AP and Price NT (1999) Biochem J. 343, 281-299 (review)

*This product is for in vitro research use only.

MCT11-S-A-P 71213A

Alpha Diagnostic Intl Inc., 6203 Woodlake Center Dr, San Antonio, TX 78244, USA; **Email**: service@4adi.com

India Contact:
Life Technologies (India) Pvt. Ltd.
306, Aggarwal City Mall, Opposite M2K Pitampura, Delhi – 110034 (INDIA). Ph: +91-11-42208000, 42208111, 42208222, Mobile: +91-9810521400, Fax: +91-11-42208444
Email: customerservice@lifetechindia.com Website: www.lifetechindia.com