ALPHA DIAGNOSTIC INTERNATIONAL

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Product Specification Sheet

# Monocarboxylate Transporter 2 (MCT2) Antibodies

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|---|---|---|
| **Cat.** MCT21-P | Rat MCT2 Control peptide # 1 | **SIZE**: 100 ug |
| **Cat.** MCT21-S | **Rabbit** Anti-Rat MCT2 antiserum # 1 | **SIZE**: 100 ul |
| **Cat.** MCT21-A | **Rabbit** Anti-Rat MCT2 IgG # 1 (aff 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. Some tissues, such as white skeletal muscle and, red blood cells, use this pathway to generate most of their ATP under normal physiological conditions. 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.

**MCT2/MOT2** (mouse 484 aa, rat 489 aa, human 478 aa, chromosome 12q13) is less widely distributed than MCT. It is associated with tissues that demonstrate a high uptake affinity for lactate and pyruvate such as the kidney and liver (for gluconeogenesis) and neurons (for oxidation). It may function in transporting lactate from intestine and erythrocytes. MCT1 is most closely related to MCT1 (~55% identity, whereas homolog with other MCT1-MCT8 isoforms is less (~35-53%). Both N and C-termini are predicted to be cytoplasmic.

## Source of Antigen and Antibodies

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| **Antigen** | 15-aa peptide of rat MCT2 (1) ; (Gene Accession #Q63344) **Designated (MCT21-P or control peptide). conjugated to KLH** |
| **Location** | ~ within the cytoplasmic, C-terminus |
| **Ab Host/type** | Rabbit, polyclonal unpurified antiserum (MCT21-S) and Polyclonal IgG, purified over antigen-agarose (Cat # MCT21-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 Peptide and Antibodies

**Antiserum (unpurified, undiluted)**

100 ul/vial solution — 50 ul/vial lyophilized powder

contains 0.05% sodium azide

**Reconstitute powder** 50 ul or 100 ul PBS

**Affinity pure IgG**

100 ug/100ul solution — 50 ug/50 ul lyophilized powder

**Buffer**: PBS+0.1% BSA+0.05% azide

**Reconstitute powder** in PBS at 1mg/ml

**Control/blocking peptide**

100 ug/100 ul solution — 50 ug/50 ul lyophilized powder

Buffer: PBS pH 7.5, contains 0.05% sodium azide

**Reconstitute powder in PBS at 1 mg/ml.**

**Storage**

**Short-term**: unopened, undiluted liquid vials for less than a week at 4oC.

**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 lyophilized items.

## 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 5-10 ug/ml in paraformaldehyde fixed tissues.

## Specificity & Cross-reactivity

Rat MCT21-P sequence is 93% conserved in mouse, 66% in hamster MCT2. No significant sequence homology exists with either human MCT2 or other MCTs. For human MCT2, we recommend the use of antibody cat # MCT22-S. 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) Jackson VN et al (1997) Biochem. J. 324, 447-453; Dao L et al (1998) J. Biol. Chem. 273, 28959-28965; Koehler-Stec EM et al (1998) Am. J. Physiol. 275, E516-E524; Price NT et al (1998) Biochem. J. 329, 321-328 (review); Halestrap AP and Price NT (1999) Biochem J. 343, 281-299 (review)

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

Brauchi S 2004 Am J Physiol Cell Physiol, Nov 2004
IHC rat testes, paraffin section

*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, NCC, AE1-3, OATs, OCTs, etc



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