

Product Specification Sheet

Monocarboxylate Transporter 4 (MCT4) Antibodies

Cat. MCT45-P	Rat MCT4 Control peptide # 1	SIZE: 100 ug
Cat. MCT45-S	Rabbit Anti-Rat MCT4 antiserum # 1	SIZE: 100 ul
Cat. MCT45-A	Rabbit Anti-Rat MCT4 IgG # 1 (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.

MCT4/MOT4/SLC16A3 (mouse 470-aa, rat 471-aa, human 465-aa; chromosome 17q25) is most closely related to MCT3, is prominently expressed in skeletal muscle and other cells with a high glycolytic rate such as tumor cells and white blood cells, suggesting an important role in lactic acid efflux. According to **new nomenclature**, the old MCT3 has now been reclassified as MCT4. This antibody has previously been listed as MCT31-S. Please consult our web site and Halestrap AP and Price NT (1999) Biochem J. 343, 281-299 (review) for a detailed nomenclature.

Source of Antigen and Antibodies

Antigen	19-aa peptide from rat/mouse/human MCT4 (1); Designation (MCT45-P, control/blocking peptide) conjugated to KLH; Epitope location ~ C-terminal, Cytoplasmic domain
Ab Host/type	Rabbit, Polyclonal unpurified antiserum (#MCT45-S) and IgG, purified over antigen-agarose (Cat # MCT45-A)
2-Ab	Cat # 20320, goat anti-rabbit IgG-HRP (AP, biotin, FITC conjugates also available).
-ve control IgG	# 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 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 5-10 ug/ml in paraformaldehyde fixed tissues.

Specificity & Cross-reactivity

Rat MCT45-P sequence is 100% conserved in mouse, human, and 78% in chicken MCT4. No significant sequence homology exists with other MCTs. We also have another antibody that is made to the CP\$ domain of human MCT4 (Cat # MCT46-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 see detailed protocol at the web site).

General References: (1) Wilson MC et al (1998) JBC 273, 15920-15926; 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 S2004, 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, NCC, AE1-3, OATs, OCTs, etc

MCT45-S-A-P 71214A