

Product Specification Sheet

Monocarboxylate Transporter 2 (MCT2) Antibodies

Cat. MCT23-P	Rat MCT2 Control peptide # 3	SIZE: 100 ug
Cat. MCT23-A	Chicken Anti-Rat MCT2 IgG # 3 (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. 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.

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 MCT2 (~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

Antigen	A 15-aa peptide sequence (designated MCT23-P ; control peptide) within the cytoplasmic, C-terminus of rat MCT2 (1) was synthesized, coupled to KLH
Ab Host/type	Rabbit, Polyclonal antiserum # MCT23-S and IgG, purified over antigen-agarose (Cat # MCT23-A). An antibody to the same epitope has also been produced in rabbits (cat # MCT23-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 0.05% azide, **Reconstitute** powder in 100 ul PBS

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 -200C 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 MCT23-P sequence is 93% conserved in mouse 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 see detailed protocol at the web site).

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)

*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

Western Blot recycling kit (Use the same blot to probe with multiple antibodies NBC1-3)

ReadyBlot brain and Kidney Explorer (study distribution of proteins in pre-made protein

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