

# uMtCK (C-8): sc-374080

## BACKGROUND

Creatine kinases (CK) are a large family of isoenzymes that regulate levels of ATP in subcellular compartments, where they provide ATP at sites of fluctuating energy demand by the transfer of phosphates between creatine and adenine nucleotides. CKs provide the energy of phosphate hydrolysis necessary to drive the normal function of many cellular systems including muscle, electrocytes, retina photoreceptor cells, brain cells, kidney, salt glands, myometrium, placenta, pancreas, thymus, thyroid, intestinal epithelial cells, endothelial cells, cartilage and bone cells, macrophages, blood platelets, tumor and cancer cells. Human cytoplasmic CK-Brain (CK-B, BCK) is a 381 amino acid, brain tissue specific isoform of CK. Human cytoplasmic CK-Muscle (CK-M, MCK) is a muscle tissue specific isoform of CK. Human cytoplasmic CK-Mitochondrial (MtCK, Mi-CK) is a 416 amino acid mitochondrial specific isoform of CK. Cytosolic CKs are important in the energetic regulation of Ca<sup>2+</sup>-pumps and in the maintenance of Ca<sup>2+</sup>-homeostasis.

## REFERENCES

1. Mariman, E.C., et al. 1987. Structure and expression of the human creatine kinase B gene. *Genomics* 1: 126-137.
2. Nigro, J.M., et al. 1987. cDNA cloning and mapping of the human creatine kinase M gene to 19q13. *Am. J. Hum. Genet.* 40: 115-125.
3. Mariman, E.C., et al. 1989. Complete nucleotide sequence of the human creatine kinase B gene. *Nucleic Acids Res.* 17: 6385.
4. Haas, R.C., et al. 1989. Isolation and characterization of the gene and cDNA encoding human mitochondrial creatine kinase. *J. Biol. Chem.* 264: 2890-2897.
5. Wallimann, T., et al. 1994. Creatine kinase in non-muscle tissues and cells. *Mol. Cell. Biochem.* 133-134: 193-220.

## CHROMOSOMAL LOCATION

Genetic locus: CKMT1B/CKMT1A (human) mapping to 15q15.3; Ckmt1 (mouse) mapping to 2 E5.

## SOURCE

uMtCK (C-8) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 51-87 within an internal region of uMtCK of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-374080 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## APPLICATIONS

uMtCK (C-8) is recommended for detection of uMtCK of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

uMtCK (C-8) is also recommended for detection of uMtCK in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for uMtCK siRNA (h): sc-38967, uMtCK siRNA (m): sc-38968, uMtCK shRNA Plasmid (h): sc-38967-SH, uMtCK shRNA Plasmid (m): sc-38968-SH, uMtCK shRNA (h) Lentiviral Particles: sc-38967-V and uMtCK shRNA (m) Lentiviral Particles: sc-38968-V.

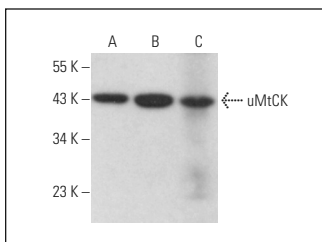
Molecular Weight of uMtCK: 47 kDa.

Positive Controls: mouse cerebellum extract: sc-2403, SK-BR-3 cell lysate: sc-2218 or ZR-75-1 cell lysate: sc-2241.

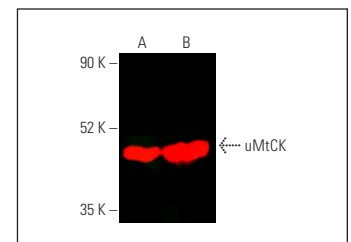
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## DATA



uMtCK (C-8): sc-374080. Western blot analysis of uMtCK expression in ZR-75-1 (A) and SK-BR-3 (B) whole cell lysates and human cerebellum tissue extract (C).



uMtCK (C-8): sc-374080. Near-infrared western blot analysis of uMtCK expression in ZR-75-1 whole cell lysate (A) and mouse cerebellum tissue extract (B). Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 790: sc-516181.

## SELECT PRODUCT CITATIONS

1. Kurmi, K., et al. 2018. Tyrosine phosphorylation of mitochondrial creatine kinase 1 enhances a druggable tumor energy shuttle pathway. *Cell Metab.* 28: 833-847.e8.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.