## SANTA CRUZ BIOTECHNOLOGY, INC.

# 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 CA<sup>2+</sup>-pumps and in the maintenance of Ca<sup>2+</sup>-homeostasis.

## **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  $\mu g\, lgG_1$  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  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

## 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  $\mu$ g per 100-500  $\mu$ g 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-IgG א BP-HRP: sc-516102 or m-IgG א 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-IgG א BP-FITC: sc-516140 or m-IgG א 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-IgGK BP-CFL 790: sc-516181.

#### **SELECT PRODUCT CITATIONS**

- 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.
- Ayyappan, V., et al. 2024. Context-dependent roles for ubiquitous mitochondrial creatine kinase CKMT1 in breast cancer progression. Cell Rep. 43: 114121.

#### **STORAGE**

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

#### **RESEARCH USE**

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

#### **PROTOCOLS**

See our web site at www.scbt.com for detailed protocols and support products.