

# MLTK (A-2): sc-390924

## BACKGROUND

MLTK (mitogen-activated protein kinase kinase kinase MLT, leucine zipper and sterile  $\alpha$  motif-containing kinase, HCCS-4) is an 800 amino acid protein encoded by the human gene ZAK. MLTK belongs to the protein kinase superfamily, STE Ser/Thr protein kinase family, MAP kinase kinase subfamily and contains one protein kinase domain and one SAM (sterile  $\alpha$  motif) domain. MLTK is a cytoplasmic protein found as a homodimer. It will translocate to the nucleus upon ultraviolet B irradiation. It is a stress-activated component of a protein kinase signal transduction cascade and helps regulate the JNK and p38 pathways. MLTK also has a role in the regulation of S and G<sub>2</sub> cell cycle checkpoint by direct phosphorylation of Chk2. Isoform 1 causes cell shrinkage and disruption of Actin stress fibers and may have a role in neoplastic cell transformation and cancer development. Isoform 1 also phosphorylates Histone H3 at Ser 28.

## REFERENCES

- Liu, T.C., et al. 2000. Cloning and expression of ZAK, a mixed lineage kinase-like protein containing a leucine-zipper and a sterile  $\alpha$  motif. *Biochem. Biophys. Res. Commun.* 274: 811-816.
- Gotoh, I., et al. 2001. Identification and characterization of a novel MAP kinase kinase kinase, MLTK. *J. Biol. Chem.* 276: 4276-4286.
- Yang, J.J. 2002. Mixed lineage kinase ZAK utilizing MKK7 and not MKK4 to activate the c-Jun N-terminal kinase and playing a role in the cell arrest. *Biochem. Biophys. Res. Commun.* 297: 105-110.
- Yang, J.J. 2003. A novel zinc finger protein, ZZaPK, interacts with ZAK and stimulates the ZAK-expressing cells re-entering the cell cycle. *Biochem. Biophys. Res. Commun.* 301: 71-77.
- Takahashi, M., et al. 2003. Regulation of a mitogen-activated protein kinase kinase kinase, MLTK by PKN. *J. Biochem.* 133: 181-187.

## CHROMOSOMAL LOCATION

Genetic locus: MAP3K20 (human) mapping to 2q31.1; Map3k20 (mouse) mapping to 2 C3.

## SOURCE

MLTK (A-2) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 211-257 within an internal region of MLTK of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgM 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-390924 P, (100  $\mu$ g 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

MLTK (A-2) is recommended for detection of MLTK 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

MLTK (A-2) is also recommended for detection of MLTK in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for MLTK siRNA (h): sc-62625, MLTK siRNA (m): sc-62626, MLTK shRNA Plasmid (h): sc-62625-SH, MLTK shRNA Plasmid (m): sc-62626-SH, MLTK shRNA (h) Lentiviral Particles: sc-62625-V and MLTK shRNA (m) Lentiviral Particles: sc-62626-V.

Molecular Weight of MLTK: 91 kDa.

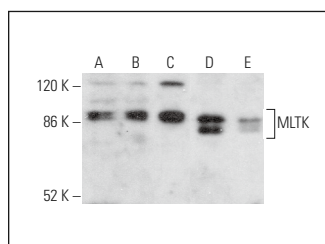
Positive Controls: HeLa whole cell lysate: sc-2200, NIH/3T3 whole cell lysate: sc-2210 or Sol8 cell lysate: sc-2249.

## RECOMMENDED SUPPORT REAGENTS

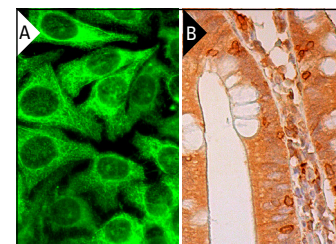
To ensure optimal results, the following support reagents are recommended:

- Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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.
- Immunoprecipitation: use Protein L-Agarose: sc-2336 (0.5 ml agarose/2.0 ml).
- Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.
- Immunohistochemistry: use m-IgG $\kappa$  BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohisto-mount: sc-45086, or Organo/Limonene Mount: sc-45087.

## DATA



MLTK (A-2): sc-390924. Western blot analysis of MLTK expression in HeLa (A), U-87 MG (B), NIH/3T3 (C), Sol8 (D) and A-10 (E) whole cell lysates.



MLTK (A-2): sc-390924. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human small intestine tissue showing cytoplasmic and nuclear staining of glandular cells (B).

## RESEARCH USE

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