

# MLTK (D-18): sc-67682

## 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 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

1. 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.
2. Gotoh, I., et al. 2001. Identification and characterization of a novel MAP kinase kinase kinase, MLTK. *J. Biol. Chem.* 276: 4276-4286.
3. 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.
4. 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.

## CHROMOSOMAL LOCATION

Genetic locus: ZAK (human) mapping to 2q24.2; Zak (mouse) mapping to 2 C3.

## SOURCE

MLTK (D-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of MLTK of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-67682 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## STORAGE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.

## APPLICATIONS

MLTK (D-18) is recommended for detection of MLTK of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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).

MLTK (D-18) is also recommended for detection of MLTK in additional species, including 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.

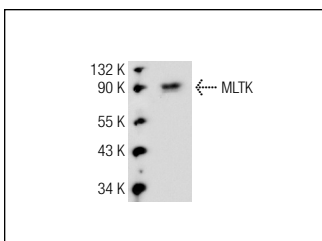
Molecular Weight of MLTK: 91 kDa.

Positive Controls: NIH/3T3 whole cell lysate: sc-2210.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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 donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## DATA



MLTK (D-18): sc-67682. Western blot analysis of MLTK expression in NIH/3T3 whole cell lysate.

## RESEARCH USE

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

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Try **MLTK (A-2): sc-390924**, our highly recommended monoclonal alternative to MLTK (D-18).