

# MULK (F-3): sc-374390



The Power to Question

## BACKGROUND

MULK (multi-substrate lipid kinase), also known as AGK (acylglycerol kinase), is a 422 amino acid protein that localizes to the mitochondrial membrane and is highly expressed in muscle, heart, kidney and brain. Containing one DAGKc domain, MULK acts as a lipid kinase that phosphorylates monoacylglycerol and diacylglycerol to form lysophosphatidic acid (LPA) and phosphatidic acid (PA), respectively. When overexpressed, MULK increases the production and secretion of LPA, thereby transactivating EGFR and ERK signaling pathways, which in turn lead to increased cell growth. Due to its involvement of LPA overproduction, MULK is implicated in the initiation and progression of prostate cancer. MULK utilizes magnesium as a cofactor and exists as two alternatively spliced isoforms. MULK is encoded by a gene mapping to 7q34.

## REFERENCES

1. Waggoner, D.W., et al. 2004. MULK, a eukaryotic multi-substrate lipid kinase. *J. Biol. Chem.* 279: 38228-38235.
2. Spiegel, S., et al. 2005. Critical role of acylglycerol kinase in epidermal growth factor-induced mitogenesis of prostate cancer cells. *Biochem. Soc. Trans.* 33: 1362-1365.
3. Bektas, M., et al. 2005. A novel acylglycerol kinase that produces lysophosphatidic acid modulates cross talk with EGFR in prostate cancer cells. *J. Cell Biol.* 169: 801-811.
4. Epanand, R.M., et al. 2007. Substrate chirality and specificity of diacylglycerol kinases and the multisubstrate lipid kinase. *Biochemistry* 46: 14225-14231.

## CHROMOSOMAL LOCATION

Genetic locus: AGK (human) mapping to 7q34; Agk (mouse) mapping to 6 B1.

## SOURCE

MULK (F-3) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 233-271 within an internal region of MULK 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.

MULK (F-3) is available conjugated to agarose (sc-374390 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-374390 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-374390 PE), fluorescein (sc-374390 FITC), Alexa Fluor® 488 (sc-374390 AF488), Alexa Fluor® 546 (sc-374390 AF546), Alexa Fluor® 594 (sc-374390 AF594) or Alexa Fluor® 647 (sc-374390 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-374390 AF680) or Alexa Fluor® 790 (sc-374390 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-374390 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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## APPLICATIONS

MULK (F-3) is recommended for detection of MULK 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).

MULK (F-3) is also recommended for detection of MULK in additional species, including bovine and porcine.

Suitable for use as control antibody for MULK siRNA (h): sc-89394, MULK siRNA (m): sc-149707, MULK shRNA Plasmid (h): sc-89394-SH, MULK shRNA Plasmid (m): sc-149707-SH, MULK shRNA (h) Lentiviral Particles: sc-89394-V and MULK shRNA (m) Lentiviral Particles: sc-149707-V.

Molecular Weight of MULK: 47 kDa.

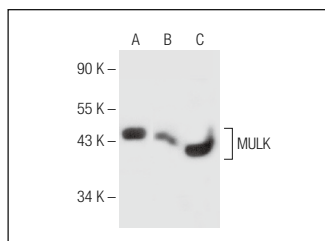
Positive Controls: HL-60 whole cell lysate: sc-2209, MOLT-4 cell lysate: sc-2233 or MULK (h): 293T Lysate: sc-113678.

## RECOMMENDED SUPPORT REAGENTS

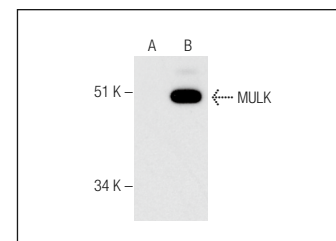
To ensure optimal results, the following support reagents are recommended:

- 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



MULK (F-3): sc-374390. Western blot analysis of MULK expression in MOLT-4 (A), PC-3 (B) and HL-60 (C) whole cell lysates.



MULK (F-3): sc-374390. Western blot analysis of MULK expression in non-transfected: sc-117752 (A) and human MULK transfected: sc-113678 (B) 293T whole cell lysates.

## 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.