SANTA CRUZ BIOTECHNOLOGY, INC.

MLK3 (D-11): sc-166639

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

As a result of the binding of growth factors to their membrane receptors, cytoplasmic proteins containing Src homology 2 (SH2) domains associate with specific phosphotyrosine residues within the activated receptors and function as signaling intermediates. The action of such SH2 domain proteins frequently involves the activation of a second group of signaling intermediates characterized by SH3 domains. These latter proteins function through binding proline-rich sequences in target proteins. A novel human non-receptor protein kinase, designated either MLK3 or PTK1, is 847 amino acids in length and contains an SH3 domain in the absence of an SH2 domain. In addition, MLK3 is characterized by a leucine zipper basic region (a motif commonly associated with transcription factors) and has a long carboxy-terminal tail which exhibits proline-rich motifs similar to known SH3 binding sites. MLK3 is expressed widely and is related to the previously described MLK1 and MLK2 kinases.

CHROMOSOMAL LOCATION

Genetic locus: MAP3K11 (human) mapping to 11q13.1; Map3k11 (mouse) mapping to 19 A.

SOURCE

MLK3 (D-11) is a mouse monoclonal antibody raised against amino acids 548-847 mapping at the C-terminus of MLK3 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

MLK3 (D-11) is available conjugated to agarose (sc-166639 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-166639 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166639 PE), fluorescein (sc-166639 FITC), Alexa Fluor® 488 (sc-166639 AF488), Alexa Fluor® 546 (sc-166639 AF546), Alexa Fluor® 594 (sc-166639 AF594) or Alexa Fluor® 647 (sc-166639 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-166639 AF680) or Alexa Fluor® 790 (sc-166639 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

MLK3 (D-11) is recommended for detection of MLK3 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).

Suitable for use as control antibody for MLK3 siRNA (h): sc-35945, MLK3 siRNA (m): sc-35946, MLK3 shRNA Plasmid (h): sc-35945-SH, MLK3 shRNA Plasmid (m): sc-35946-SH, MLK3 shRNA (h) Lentiviral Particles: sc-35945-V and MLK3 shRNA (m) Lentiviral Particles: sc-35946-V.

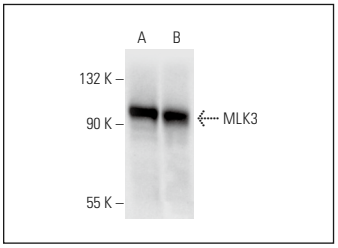
Molecular Weight of MLK3: 95 kDa.

Positive Controls: F9 cell lysate: sc-2245, Jurkat whole cell lysate: sc-2204 or MLK3 (h): 293 Lysate: sc-111047.

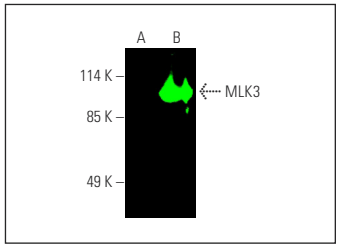
STORAGE

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

DATA



MLK3 (D-11): sc-166639. Western blot analysis of MLK3 expression in Jurkat (**A**) and F9 (**B**) whole cell lysates.



MLK3 (D-11): sc-166639. Near-infrared western blot analysis of MLK3 expression in non-transfected: sc-110760 (**A**) and human MLK3 transfected: sc-111047 (**B**) 293 whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 680: sc-516180.

SELECT PRODUCT CITATIONS

1. Amako, Y., et al. 2013. Hepatitis C virus NS5A inhibits mixed lineage kinase 3 to block apoptosis. J. Biol. Chem. 288: 24753-24763.
2. Knackmuss, U., et al. 2016. MAP3K11 is a tumor suppressor targeted by the oncomiR miR-125b in early B cells. Cell Death Differ. 23: 242-252.
3. Schroyer, A.L., et al. 2017. MLK3 phosphorylation by ERK1/2 is required for oxidative stress-induced invasion of colorectal cancer cells. Oncogene 37: 1031-1040.
4. Blessing, N.A., et al. 2017. Osmotic and heat stress-dependent regulation of MLK4β and MLK3 by the CHIP E3 ligase in ovarian cancer cells. Cell. Signal. 39: 66-73.
5. He, S., et al. 2021. Hyperoside protects cardiomyocytes against hypoxia-induced injury via upregulation of microRNA-138. Mol. Med. Rep. 23: 286.
6. Calamaras, T.D., et al. 2021. MLK3 mediates impact of PKG1α on cardiac function and controls blood pressure through separate mechanisms. JCI Insight 6: e149075.
7. Cedeno-Rosario, L., et al. 2022. Phosphorylation of mixed lineage kinase MLK3 by cyclin-dependent kinases CDK1 and CDK2 controls ovarian cancer cell division. J. Biol. Chem. 298: 102263.
8. Karpińska, K., et al. 2024. Selective degradation of MLK3 by a novel CEP1347-VHL-02 PROTAC compound limits the oncogenic potential of TNBC. J. Med. Chem. 67: 15012-15028.
9. Jiang, Y., et al. 2024. Disrupting PIAS3-mediated SUMOylation of MLK3 ameliorates poststroke neuronal damage and deficits in cognitive and sensorimotor behaviors. Cell. Mol. Life Sci. 81: 119.

RESEARCH USE

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