

MLF1 (G-16): sc-48044

BACKGROUND

Myeloid leukemia factor 1 (MLF1) is a 268 amino acid protein expressed by a gene that is involved in translocations associated with acute myeloid leukemia. MLF1 is a widely expressed negative regulator of cell cycle progression functioning upstream of the tumor suppressor p53. MLF1 induces p53-dependent cell cycle arrest in murine embryonic fibroblasts. MLF1 expression also inversely affects the endogenous level of COP1, a ubiquitin ligase for p53, inhibits Epo-induced cell cycle exit, and inhibits a rise in the cell cycle inhibitor p27. Polo-like kinase 1 (Plk1) phosphorylates MLF1 at its Thr78 site, which induces ubiquitination and degradation of MLF1 before the transition from metaphase to anaphase. Mutations of these phosphorylation sites stabilize MLF1 and inhibit mitotic progression. MLF1 normally functions in multi-potent progenitor cells, and its dysregulation may be somewhat responsible for leukemogenesis.

REFERENCES

1. Yoneda-Kato, N., Fukuhara, S. and Kato, J. 1999. Apoptosis induced by the myelodysplastic syndrome-associated NPM-MLF1 chimeric protein. *Oncogene* 18: 3716-3724.
2. Matsumoto, N., Yoneda-Kato, N., Iguchi, T., Kishimoto, Y., Kyo, T., Sawada, H., Tatsumi, E. and Fukuhara, S. 2000. Elevated MLF1 expression correlates with malignant progression from myelodysplastic syndrome. *Leukemia* 14: 1757-1765.
3. Kazemi-Esfarjani, P. and Benzer, S. 2002. Suppression of polyglutamine toxicity by a *Drosophila* homolog of myeloid leukemia factor 1. *Hum. Mol. Genet.* 11: 2657-2672.
4. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 601402. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
5. Hanissian, S.H., Akbar, U., Teng, B., Janjetovic, Z., Hoffmann, A., Hitzler, J.K., Iscove, N., Hamre, K., Du, X., Tong, Y., Mukatira, S., Robertson, J.H. and Morris, S.W. 2004. cDNA cloning and characterization of a novel gene encoding protein MLF1IP. *Oncogene* 23: 3700-3707.
6. Sun, W., Zhang, K., Zhang, X., Lei, W., Xiao, T., Ma, J., Guo, S., Shao, S., Zhang, H., Liu, Y., Yuan, J., Hu, Z., Ma, Y., Feng, X., Hu, S., Zhou, J., Cheng, S. and Gao, Y. 2004. Identification of differentially expressed genes in human lung squamous cell carcinoma using suppression subtractive hybridization. *Cancer Lett.* 212: 83-93.
7. Winteringham, L.N., Kobelke, S., Williams, J.H., Ingley, E. and Klinken, S.P. 2004. Myeloid Leukemia factor 1 inhibits erythropoietin-induced differentiation, cell cycle exit and p27Kip1 accumulation. *Oncogene* 23: 5105-5109.
8. Yoneda-Kato, N., Tomoda, K., Umehara, M., Arata, Y. and Kato, J.Y. 2005. Myeloid leukemia factor 1 regulates p53 subunit 3. *EMBO J.* 24: 1739-1749.

CHROMOSOMAL LOCATION

Genetic locus: MLF1 (human) mapping to 3q25.32; Mlf1 (mouse) mapping to 3 E1.

SOURCE

MLF1 (G-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of MLF1 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, ready P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

MLF1 (G-16) is recommended for detection of MLF1 of human and, to a lesser extent, mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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); may cross-react with MLF2.

MLF1 (G-16) is also recommended for detection of MLF1 in additional species, including canine, bovine and avian.

Suitable for use as control antibody for MLF1 siRNA (h): sc-61055, MLF1 shRNA Plasmid (h): sc-61055-SH and MLF1 shRNA (h) Lentiviral Particles: sc-61055-V.

Molecular Weight of MLF1: 31 kDa.

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) 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.

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 or our catalog for detailed protocols and support products.