

#2274 Store at -20°C

# MELK Antibody

✓ 100 µl  
(10 Western mini-blots)



**Orders** ■ 877-616-CELL (2355)  
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This product is for *in vitro* research use only and is not intended for use in humans or animals.  
This product is not intended for use as a therapeutic or in diagnostic procedures.

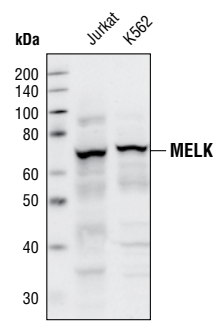
Applications	Species Cross-Reactivity*	Molecular Wt.	Source
W, IP Endogenous	H, M, Dm	74 kDa	Rabbit**

**Background:** MELK (Maternal Embryonic Leucine zipper Kinase, MPK38, KIAA0175) is a member of the Snf1/AMPK related kinase family. It is implicated in stem cell renewal, cell cycle progression and pre-mRNA splicing (1,2,3). MELK is also a marker for self-renewing multipotent neural progenitors, and may function in embryonic and postnatal forebrain development (4). While other members of this kinase family are activated by LKB1 and CAMKII mediated phosphorylation of the T-loop, MELK is not (5,6,7). Regulation of activation appears complex since MELK overexpressed in mammalian cells is inactive (7). Some evidence suggests that activation occurs through autophosphorylation of Thr167 and Ser171, although a number of additional autophosphorylation sites have been suggested (8). Recently, phosphorylations of Thr449, Thr451 and Thr481 have been specifically detected during mitosis, and are thought to occur via MPF and MAPK pathways (9). MELK has broad substrate specificity *in vitro*: substrates include ZPR9 (10), NIPP1 (11) and cdc25B (12), although the significance of MELK mediated phosphorylation of these proteins is unclear.

Finally, recent studies on human tumor samples and cell lines suggest that MELK expression is frequently elevated in cancer relative to normal tissues (13). MELK may provide a growth advantage for neoplastic cells, and may be a potential target for anti-cancer therapies.

**Specificity/Sensitivity:** MELK antibody detects endogenous levels of total MELK protein.

**Source/Purification:** Polyclonal antibodies are produced by immunizing rabbits with a synthetic peptide (KLH-coupled) corresponding to amino acids near the carboxy-terminus of human MELK. Antibodies are purified by protein A and peptide affinity chromatography.



Western blot analysis of extracts of Jurkat and K562 cells, using MELK Antibody.

### Background References:

- (1) Heyer, B.S. et al. (1999) *Dev. Dyn.* 215, 344–351.
- (2) Davezac, N. et al. (2002) *Oncogene* 21, 7630–7641.
- (3) Vulsteke, V. et al. (2004) *J. Biol. Chem.* 279, 8642–8647.
- (4) Nakano, I. et al. (2005) *J. Cell Biol.* 170, 413–427.
- (5) Tassan, J.P. and Le Goff, X. (2004) *Biol. Cell* 96, 193–199.
- (6) Woods, A. et al. (2003) *Curr. Biol.* 13, 2004–2008.
- (7) Lizcano, J.M. et al. (2004) *EMBO J.* 23, 833–843.
- (8) Beullens, M. et al. (2005) *J. Biol. Chem.* 280, 40003–40011.
- (9) Badouel, C. et al. (2006) *Cell Cycle.* 5, 883–889.
- (10) Seong, H.A. et al. (2002) *Biochem. J.* 361, 597–604.
- (11) Vulsteke, V. et al. (2004) *J. Biol. Chem.* 279, 8642–8647.
- (12) Davezac, N. et al. (2002) *Oncogene* 21, 7630–7641.
- (13) Gray, D. et al. (2005) *Cancer Res.* 65, 9751–9761.

Entrez-Gene ID #9833  
Swiss-Prot Acc. #Q14680

**Storage:** Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at -20°C. *Do not aliquot the antibody.*

**\*Species cross-reactivity is determined by Western blot.**

**\*\*Anti-rabbit secondary antibodies must be used to detect this antibody.**

### Recommended Antibody Dilutions:

Western blotting	1:1000
Immunoprecipitation	1:50

**For application specific protocols please see the web page for this product at [www.cellsignal.com](http://www.cellsignal.com).**

### Companion Products:

- Phototope®-HRP Western Blot Detection System, Anti-rabbit IgG, HRP-linked Antibody #7071
- Anti-rabbit IgG, HRP-linked Antibody #7074
- Prestained Protein Marker, Broad Range (Premixed Format) #7720
- Biotinylated Protein Ladder Detection Pack #7727
- 20X LumiGLO® Reagent and 20X Peroxide #7003

**Please visit [www.cellsignal.com](http://www.cellsignal.com) for a complete listing of recommended companion products.**

**IMPORTANT: For Western blots, incubate membrane with diluted antibody in 5% w/v BSA, 1X TBS, 0.1% Tween-20 at 4°C with gentle shaking, overnight.**

**Applications Key:** W—Western IP—Immunoprecipitation IHC—Immunohistochemistry ChIP—Chromatin Immunoprecipitation IF—Immunofluorescence F—Flow cytometry E-P—ELISA-Peptide  
**Species Cross-Reactivity Key:** H—human M—mouse R—rat Hm—hamster Mk—monkey Mi—mink C—chicken Dm—D. melanogaster X—Xenopus Z—zebra fish B—bovine  
 Dg—dog Pg—pig Sc—S. cerevisiae All—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.