

#2274 Store at -20C

MELK Antibody

**Cell Signaling**
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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications: WB, IP	Reactivity: H	Sensitivity: Endogenous	MW (kDa): 74	Source: Rabbit	UniProt ID: #Q14680	Entrez-Gene Id: 9833
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Product Usage Information**Application**Western Blotting
Immunoprecipitation**Dilution**1:1000
1:50**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.

Specificity / Sensitivity

MELK antibody detects endogenous levels of total MELK protein.

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to amino acids near the carboxy-terminus of human MELK. Antibodies are purified by protein A and peptide affinity chromatography.

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-m-RNA splicing (1-3). 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 (5-7). 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 (3) and cdc25B (2), 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 (11). MELK may provide a growth advantage for neoplastic cells, and may be a potential target for anti-cancer therapies.

Background References

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3. Vulsteke, V. et al. (2004) *J. Biol. Chem.* 279, 8642-7.
4. Nakano, I. et al. (2005) *J. Cell Biol.* 170, 413-27.
5. Tassan, J.P. and Le Goff, X. (2004) *Biol. Cell* 96, 193-9.
6. Woods, A. et al. (2003) *Curr. Biol.* 13, 2004-8.
7. Lizcano, J.M. et al. (2004) *EMBO J.* 23, 833-43.
8. Beullens, M. et al. (2005) *J. Biol. Chem.* 280, 40003-11.
9. Badouel, C. et al. (2006) *Cell Cycle* 5, 883-889.
10. Seong, H.A. et al. (2002) *Biochem. J.* 361, 597-604.
11. Gray, D. et al. (2005) *Cancer Res.* 65, 9751-61.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

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

Applications Key**WB:** Western Blotting **IP:** Immunoprecipitation**Cross-Reactivity Key**

H: human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** D. melanogaster
X: Xenopus **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** S. cerevisiae **Ce:** C. elegans **Hr:** horse
GP: Guinea Pig **Rab:** rabbit **All:** all species expected

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