

# MARK2 Antibody

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**For Research Use Only. Not For Use In Diagnostic Procedures.**

Applications	Species Cross-Reactivity*	Molecular Wt.	Source
W Endogenous	H, M, R, (Mk)	78, 82 kDa	Rabbit**

**Background:** Microtubule associated proteins regulate the stability of microtubules and control processes such as cell polarity/differentiation, neurite outgrowth, cell division and organelle trafficking (1). The MARK (MAP/microtubule affinity-regulating kinases) family (MARK1-4) of serine/threonine kinases was identified based on their ability to phosphorylate microtubule-associated proteins (MAPs) including tau, MAP2 and MAP4 (2-6). MARK proteins phosphorylate MAPs within their microtubule binding domains, causing dissociation of MAPs from microtubules and increased microtubule dynamics (2-4). In the case of tau, phosphorylation has been hypothesized to contribute to the formation of neurofibrillary tangles observed in Alzheimer disease. Overexpression of MARK leads to hyperphosphorylation of MAPs, morphological changes and cell death (4). The tumor suppressor kinase LKB1 phosphorylates MARK and the closely related AMP-kinases within their T-loops, leading to increased activity (7).

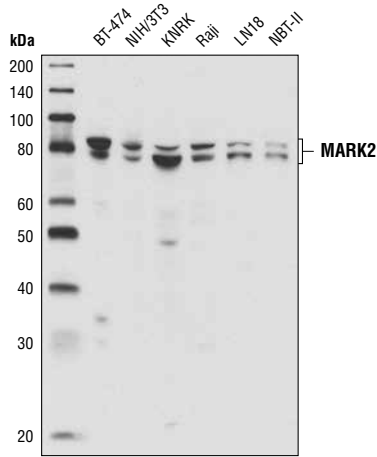
MARK2 (4), also termed as Par-1 (8) and EMK1 (9), contributes to cellular polarity, cell cycle progression, microtubule dynamics, and neurite outgrowth. The MARK2 gene encodes at least two alternatively spliced isoforms that are co-expressed in various cell lines (10). Substrates of MARK2 include microtubule associated protein (MAPs), tau, histone deacetylases (11), and Rab11-FIP2 (12). Knockout studies suggest that MARK2 plays an essential role in immune system function (13), glucose homeostasis (14), and learning and memory (15).

**Specificity/Sensitivity:** MARK2 Antibody detects endogenous levels of total MARK2 protein. No cross reactivity is observed with other MARK family members.

**Source/Purification:** Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Lys430 of human MARK2. Antibodies were purified by protein A and peptide affinity chromatography.

**Background References:**

- Drubin, D.G. and Nelson, W.J. (1996) *Cell* 84, 335-344.
- Illenberger, S. et al. (1996) *J. Biol. Chem.* 271, 10834-10843.
- Drewes, G. et al. (1995) *J. Biol. Chem.* 270, 7679-7688.



Western blot analysis of extracts from various cell lines using MARK2 Antibody.

- Drewes, G. et al. (1997) *Cell* 89, 297-308.
- Kato, T. et al. (2001) *Neoplasia* 3, 4-9.
- Trinczek, B. et al. (2004) *J. Biol. Chem.* 279, 5915-5923.
- Lizcano, J. M. et al. (2004) *EMBO J.* 23, 833-843.
- Guo, S. and Kempfues, K.J. (1995) *Cell* 81, 611-620.
- Inglis, J.D. et al. (1993) *Mamm. Genome* 4, 401-403.
- Espinosa, L. and Navarro, E. (1998) *Cytogenet. Cell Genet.* 81, 278-282.
- Dequiedt, F. et al. (2006) *Mol. Cell. Biol.* 26, 7086-7102.
- Ducharme, N.A. et al. (2006) *Mol. Biol. Cell* 17, 3625-3637.
- Hurov, J.B. et al. (2001) *Mol. Cell. Biol.* 21, 3206-3219.
- Hurov, J.B. et al. (2007) *Proc. Natl. Acad. Sci. USA* 104, 5680-5685.
- Segu, L. et al. (2008) *Neurobiol. Aging* 29, 231-240.

Entrez-Gene ID #2011  
Swiss-Prot Acc. #Q7KZ17

**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

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

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.**