10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

# MARK2 (EMK) Antibody (C-term)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP8003a

## Product Information

| | |
|---|---|
| **Application** | WB, IHC-P, E |
| **Primary Accession** | Q7KZI7 |
| **Other Accession** | O08679, Q05512, Q15524 |
| **Reactivity** | Human, Mouse |
| **Predicted** | Rat |
| **Host** | Rabbit |
| **Clonality** | Polyclonal |
| **Isotype** | Rabbit IgG |
| **Calculated MW** | 87911 |
| **Antigen Region** | 600-630 |

## Additional Information

| | |
|---|---|
| **Gene ID** | 2011 |
| **Other Names** | Serine/threonine-protein kinase MARK2, ELKL motif kinase 1, EMK-1, MAP/microtubule affinity-regulating kinase 2, PAR1 homolog, PAR1 homolog b, Par-1b, Par1b, MARK2 {ECO:0000312\|EMBL:AAH087712}, EMK1 |
| **Target/Specificity** | This MARK2 (EMK) antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 600-630 amino acids from the C-terminal region of human MARK2 (EMK). |
| **Dilution** | WB~~1:1000 IHC-P~~1:100~500 E~~Use at an assay dependent concentration. |
| **Format** | Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is prepared by Saturated Ammonium Sulfate (SAS) precipitation followed by dialysis against PBS. |
| **Storage** | Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles. |
| **Precautions** | MARK2 (EMK) Antibody (C-term) is for research use only and not for use in diagnostic or therapeutic procedures. |

## Protein Information

| | |
|---|---|
| **Name** | MARK2 {ECO:0000312\|EMBL:AAH08771.2} |
| **Synonyms** | EMK1 |

| | |
|---|---|
| **Function** | Serine/threonine-protein kinase (PubMed: 23666762). Involved in cell polarity and microtubule dynamics regulation. Phosphorylates CRTC2/TORC2, DCX, HDAC7, KIF13B, MAP2, MAP4 and RAB11FIP2. Phosphorylates the microtubule-associated protein MAPT/TAU (PubMed:23666762). Plays a key role in cell polarity by phosphorylating the microtubule-associated proteins MAP2, MAP4 and MAPT/TAU at KXGS motifs, causing detachment from microtubules, and their disassembly. Regulates epithelial cell polarity by phosphorylating RAB11FIP2. Involved in the regulation of neuronal migration through its dual activities in regulating cellular polarity and microtubule dynamics, possibly by phosphorylating and regulating DCX. Regulates axogenesis by phosphorylating KIF13B, promoting interaction between KIF13B and 14-3-3 and inhibiting microtubule-dependent accumulation of KIF13B. Also required for neurite outgrowth and establishment of neuronal polarity. Regulates localization and activity of some histone deacetylases by mediating phosphorylation of HDAC7, promoting subsequent interaction between HDAC7 and 14-3-3 and export from the nucleus. Also acts as a positive regulator of the Wnt signaling pathway, probably by mediating phosphorylation of dishevelled proteins (DVL1, DVL2 and/or DVL3). Modulates the developmental decision to build a columnar versus a hepatic epithelial cell apparently by promoting a switch from a direct to a transcytotic mode of apical protein delivery. Essential for the asymmetric development of membrane domains of polarized epithelial cells. |
| **Cellular Location** | Cell membrane; Peripheral membrane protein. Cytoplasm. Lateral cell membrane. Cytoplasm, cytoskeleton. Cell projection, dendrite. Cytoplasm. Note=Phosphorylation at Thr-596 by PRKCZ/aPKC and subsequent interaction with 14-3-3 protein YWHAZ promotes relocation from the cell membrane to the cytoplasm |
| **Tissue Location** | High levels of expression in heart, brain, skeletal muscle and pancreas, lower levels observed in lung, liver and kidney |

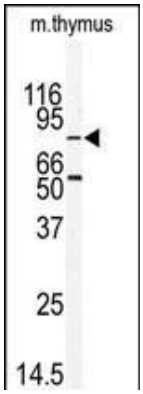
## Background

Protein kinases are enzymes that transfer a phosphate group from a phosphate donor, generally the g phosphate of ATP, onto an acceptor amino acid in a substrate protein. By this basic mechanism, protein kinases mediate most of the signal transduction in eukaryotic cells, regulating cellular metabolism, transcription, cell cycle progression, cytoskeletal rearrangement and cell movement, apoptosis, and differentiation. With more than 500 gene products, the protein kinase family is one of the largest families of proteins in eukaryotes. The family has been classified in 8 major groups based on sequence comparison of their tyrosine (PTK) or serine/threonine (STK) kinase catalytic domains.

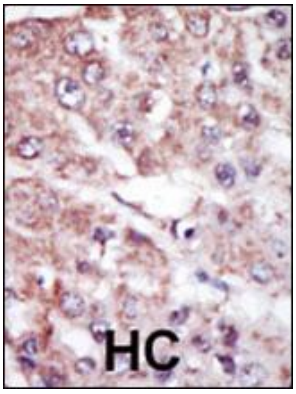
## References


Blume-Jensen P, et al. Nature 2001. 411: 355.
Cantrell D, J. Cell Sci. 2001. 114: 1439.
Jhiang S Oncogene 2000. 19: 5590.
Manning G, et al. Science 2002. 298: 1912.
Moller, D, et al. Am. J. Physiol. 1994. 266: C351-C359.
Robertson, S. et al. Trends Genet. 2000. 16: 368.
Robinson D, et al. Oncogene 2000. 19: 5548.
Van der Ven, P, et al. Hum. Molec. Genet. 1993. 2: 1889.
Vanhaesebroeck, B, et al. Biochem. J. 2000. 346: 561.
Van Weering D, et al. Recent Results Cancer Res. 1998. 154: 271.

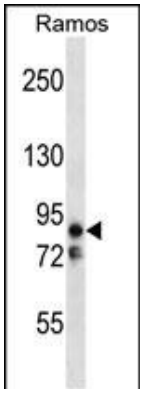

## Images




Western blot analysis of anti-EMK Antibody (C-term)(Cat.#AP8003a) in mouse thymus tissue lysates (35ug/lane). EMK(arrow) was detected using the purified Pab.




Formalin-fixed and paraffin-embedded human cancer tissue reacted with the primary antibody, which was peroxidase-conjugated to the secondary antibody, followed by AEC staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated. BC = breast carcinoma; HC = hepatocarcinoma.




EMK Antibody (V581) (Cat. #AP8003a) western blot analysis in Ramos cell line lysates (35ug/lane).This demonstrates the EMK antibody detected the EMK protein (arrow).

## Citations

- Adaptive responses to alloxan-induced mild oxidative stress ameliorate certain tauopathy phenotypes.