Synaptic Systems

Rudolf-Wissell-Str. 28
37079 Göttingen, Germany
Phone: +49 551-50556-0
Fax: +49 551-50556-384
E-mail: sales@sysy.com
Web: www.sysy.com

MARK 2

Cat.No. 331 003; Polyclonal rabbit antibody, 50 µg specific antibody (lyophilized)

Data Sheet

Reconstitution/ Storage	50 µg specific antibody, lyophilized. Affinity purified with the immunogen. Rabbit serum albumin was added for stabilization. For reconstitution add 50 µl H_2O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C until use.
Applications	**WB**: 1 : 1000 (AP staining) **IP**: not tested yet **ICC**: not tested yet **IHC**: not tested yet **IHC-P/FFPE**: not tested yet
Immunogen	Synthetic peptide corresponding to AA 1 to 15 from mouse MARK2 (UniProt Id: Q05512)
Reactivity	Reacts with: rat (O08679), mouse (Q05512). Other species not tested yet.
Specificity	Specific for MARK 2, epitope is present in all four isoforms.

TO BE USED IN VITRO / FOR RESEARCH ONLY
NOT TOXIC, NOT HAZARDOUS, NOT INFECTIOUS, NOT CONTAGIOUS

The **m**icrotubule-**a**ffinity **r**egulating **k**inase **2** (**MARK 2**), also referred to as Par-1b and EMK 1, was originally discovered by its ability to phosphorylate tau and related microtubule-associated proteins. It is involved in the regulation of many cellular processes like determination of polarity, intracellular signal transduction, transport, and cytoskeletal stability. Four isoforms are known so far.
MARK 2 has also been identified as an upstream regulator of PTEN-induced kinase 1 (PINK 1), a mitochondria-targeted serine/threonine kinase. Disbalanced functions of these proteins are connected to neurodegenerative disorders like Alzheimer's and Parkinson's disease.

Selected General References

Emerging modes of PINK1 signaling: another task for MARK2.
Matenia D, Mandelkow EM
Frontiers in molecular neuroscience (2014) 7: 37.

Elevated MARK2-dependent phosphorylation of Tau in Alzheimer's disease.
Gu GJ, Wu D, Lund H, Sunnemark D, Kvist AJ, Milner R, Eckersley S, Nilsson LN, Agerman K, Landegren U, Kamali-Moghaddam M, et al.
Journal of Alzheimer's disease : JAD (2013) 33(3): 699-713.

Automated screening of microtubule growth dynamics identifies MARK2 as a regulator of leading edge microtubules downstream of Rac1 in migrating cells.
Nishimura Y, Applegate K, Davidson MW, Danuser G, Waterman CM
PloS one (2012) 7(7): e41413.

Microtubule affinity-regulating kinase 2 (MARK2) turns on phosphatase and tensin homolog (PTEN)-induced kinase 1 (PINK1) at Thr-313, a mutation site in Parkinson disease: effects on mitochondrial transport.
Matenia D, Hempp C, Timm T, Eikhof A, Mandelkow EM
The Journal of biological chemistry (2012) 287(11): 8174-86.

Antagonistic effects of doublecortin and MARK2/Par-1 in the developing cerebral cortex.
Sapir T, Shmueli A, Levy T, Timm T, Elbaum M, Mandelkow EM, Reiner O
The Journal of neuroscience : the official journal of the Society for Neuroscience (2008) 28(48): 13008-13.

Accurate balance of the polarity kinase MARK2/Par-1 is required for proper cortical neuronal migration.
Sapir T, Sapoznik S, Levy T, Finkelshtein D, Shmueli A, Timm T, Mandelkow EM, Reiner O
The Journal of neuroscience : the official journal of the Society for Neuroscience (2008) 28(22): 5710-20.

MARK, a novel family of protein kinases that phosphorylate microtubule-associated proteins and trigger microtubule disruption.
Drewes G, Ebneth A, Preuss U, Mandelkow EM, Mandelkow E
Cell (1997) 89(2): 297-308.