SunLong Biotech Co.,LTD
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[Marker Primary Antibody]

Rabbit Anti-phospho-MARK2 (Thr596)/AF647 Conjugated antibody

Catalog Number: SL5742R-AF647

FOR RESEARCH USE ONLY

[DATASHEET]

Host:	Rabbit
Isotype:	IgG
Clonality:	Polyclonal
Target:	phospho-MARK2 (Thr596)/AF647 Conjugated
Immunogen:	KLH conjugated Synthesised phosphopeptide derived from human MARK2 around the phosphorylation site of Thr596
Purification:	affinity purified by Protein A
Concentration:	1mg/ml
Storage:	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. The lyophilized antibody is stable at room temperature for at least one month and for greater than a year when kept at -20°C. When reconstituted in sterile pH 7.4 1M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.
Applications:	IF=1:100-500 not yet tested in other applications. optimal dilutions/concentrations should be determined by the end user.
Reactivity:	Human,Mouse,Rat(predicted:Dog,Pig,Cow,Horse,Sheep,GuineaPig)
Background:	background: MARK2 refers to MAP/microtubule affinity-regulating kinase 2 isoform a [Homo sapiens]. EMK (ELKL Motif Kinase) is a small family of ser/thr protein kinases involved in the control of cell polarity, microtubule. stability and cancer. Several cDNA clones have been isolated that encoded two isoforms of the human ser/thr protein kinase EMK1 called MARK2. These isoforms were characterized by the presence of a 162-bp alternative exon that gave rise to two forms, one containing the exon and the other one lacking it. Both forms were found to be coexpressed in a number of selected cell lines and tissue samples. Human MARK2 was shown to be encoded by a single mRNA ubiquitously expressed. This transcription variant includes the alternative exon in the coding region and therefore codes for a longer protein. Multiple splice variants exist for this protein. **Function:** Serine/threonine-protein kinase involved in cell polarity and microtubule dynamics regulation. Phosphorylates CRTC2/TORC2, DCX,

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	HDAC7, KIF13B, MAP2, MAP4, MAPT/TAU, and RAB11FIP2. 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. **Subunit:** Homodimer. Interacts with PAK7/PAK5; leading to inhibit the protein kinase activity (By similarity). Interacts (when phosphorylated at Thr-596) with YWHAZ. In case of infection, interacts with H.pylori CagA, leading to inhibit kinase activity and junctional and polarity defects. **Subcellular Location:** Cell membrane; Peripheral membrane protein. 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 Specificity:** High levels of expression in heart, brain, skeletal muscle and pancreas, lower levels observed in lung, liver and kidney. **Post-translational modifications:** Autophosphorylated. Phosphorylated at Thr-208 by STK11/LKB1 in complex with STE20-related adapter-alpha (STRADA) pseudo kinase and CAB39. Phosphorylation at Thr-208 by TAOK1 activates the kinase activity, leading to phosphorylation and detachment of MAPT/TAU from microtubules. Phosphorylation at Ser-212 by GSK3-beta (GSK3B) inhibits the kinase activity. Phosphorylation by CaMK1 promotes activity and is required to promote neurite outgrowth. Phosphorylation at Thr-596 by PRKCZ/aPKC in polarized epithelial cells inhibits the kinase activity and promotes binding to 14-3-3 protein YWHAZ, leading to relocation from cell membrane to cytoplasm.

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	Similarity: Belongs to the protein kinase superfamily. CAMK Ser/Thr protein kinase family. SNF1 subfamily. Contains 1 KA1 (kinase-associated) domain. Contains 1 protein kinase domain. Contains 1 UBA domain. **Database links:** **Entrez Gene:** 2011 Human **Entrez Gene:** 13728 Mouse **Entrez Gene:** 60328 Rat Omim: 600526 Human **SwissProt:** Q7KZI7 Human **SwissProt:** Q05512 Mouse **SwissProt:** O08679 Rat **Unigene:** 567261 Human **Unigene:** 258986 Mouse **Unigene:** 42926 Rat Important **Note:** This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.

[VALIDATION IMAGES]

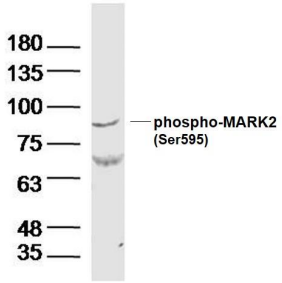


Figure 1. Sample: Siha Cell (Human) Lysate at 30 ug Primary: Anti-phospho-MARK2(Ser595) (SL5742R)at 1/300 dilution Secondary: IRDye800CW Goat Anti-Rabbit IgG at 1/20000 dilution Predicted band size: 82-90kD Observed band size: 90kD

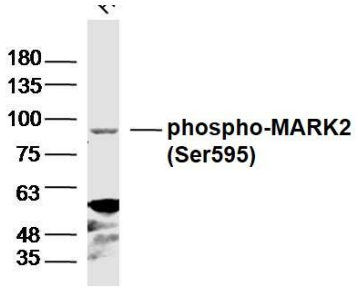


Figure 2. Sample: Heart (Mouse) Lysate at 40 ug Primary: Anti-phospho-MARK2(Ser595) (SL5742R)at 1/300 dilution Secondary: IRDye800CW Goat Anti-Rabbit IgG at 1/20000 dilution Predicted band size: 82-90kD Observed band size: 90kD

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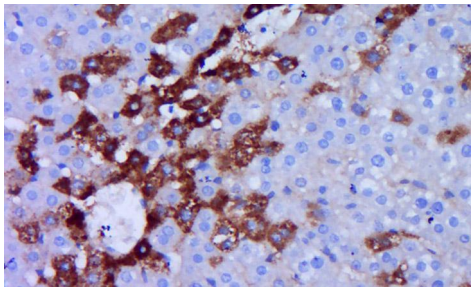


Figure 3. Paraformaldehyde-fixed, paraffin embedded (Rat liver); Antigen retrieval by boiling in sodium citrate buffer (pH6.0) for 15min; Block endogenous peroxidase by 3% hydrogen peroxide for 20 minutes; Blocking buffer (normal goat serum) at 37°C for 30min; Antibody incubation with (p-MARK2(Ser595)) Polyclonal Antibody, Unconjugated (SL5742R) at 1:400 overnight at 4°C, followed by operating according to SP Kit(Rabbit) (sp-0023) instructionsand DAB staining

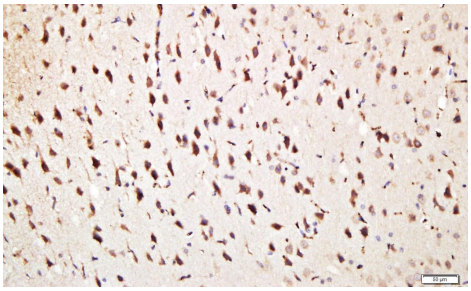


Figure 4. Paraformaldehyde-fixed, paraffin embedded (rat brain); Antigen retrieval by boiling in sodium citrate buffer (pH6.0) for 15min; Block endogenous peroxidase by 3% hydrogen peroxide for 20 minutes; Blocking buffer (normal goat serum) at 37°C for 30min; Antibody incubation with (phospho-MARK2(Ser595)) Polyclonal Antibody, Unconjugated (SL5742R) at 1:400 overnight at 4°C, followed by a conjugated secondary (sp-0023) for 20 minutes and DAB staining

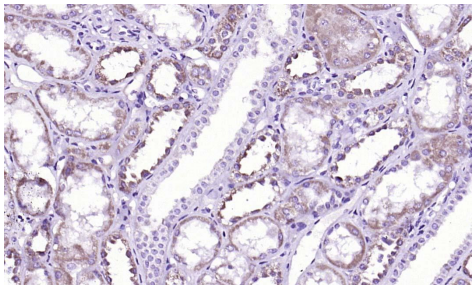


Figure 5. Paraformaldehyde-fixed, paraffin embedded (Human kidney); Antigen retrieval by boiling in sodium citrate buffer (pH6.0) for 15min; Block endogenous peroxidase by 3% hydrogen peroxide for 20 minutes; Blocking buffer (normal goat serum) at 37°C for 30min; Antibody incubation with (phospho-MARK2(Ser595)) Polyclonal Antibody, Unconjugated (SL5742R) at 1:200 overnight at 4°C, followed by operating according to SP Kit(Rabbit) (sp-0023) instructionsand DAB staining Journal PMID IF Application [IF=30.357] Dumont, Nicolas A., et al. "Dystrophin expression in muscle stem cells regulates their polarity and asymmetric division." Nature Medicine (2015). ICF ; Mouse . Product Type Phosphorylated anti Research Area immunology Signal transduction Kinases and Phosphatases Cytoskeleton Immunogen Species Rabbit Clonality Polyclonal React Species Human,Mouse,Rat(predicted:Dog,Pig,Cow,Horse,Sheep,GuineaPig) Applications IF=1:100-500 not yet tested in other applications. optimal dilutions/concentrations should be determined by the end user. Molecular weight 82-90kDa Form Lyophilized or Liquid Concentration 1mg/ml immunogen KLH conjugated Synthesised phosphopeptide derived from human

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