

MARK4 (P-13): sc-131184

BACKGROUND

The phosphorylation and dephosphorylation of proteins on serine and threonine residues is an essential means of regulating a broad range of cellular functions in eukaryotes, including cell division, homeostasis and apoptosis. The serine/threonine (Ser/Thr) protein kinases are a group of proteins that are intimately involved in this process. MARK4 (MAP/microtubule affinity-regulating kinase 4), also known as MARKL1 or KIAA1860, is a 752 amino acid protein that contains one UBA domain, one protein kinase domain and one kinase-associated domain and belongs to the Ser/Thr protein kinase family. Expressed ubiquitously as two alternatively spliced isoforms, one of which is brain-specific, MARK4 uses ATP to catalyze the phosphorylation of target proteins and is thought to be involved in cell growth. MARK4 is up-regulated in hepatocellular carcinoma cells, suggesting a role for MARK4 in tumorigenesis.

REFERENCES

1. Drewes, G., et al. 1997. MARK, a novel family of protein kinases that phosphorylate microtubule-associated proteins and trigger microtubule disruption. *Cell* 89: 297-308.
2. Nagase, T., et al. 2001. Prediction of the coding sequences of unidentified human genes. XX. The complete sequences of 100 new cDNA clones from brain which code for large proteins *in vitro*. *DNA Res.* 8: 85-95.
3. Kato, T., et al. 2001. Isolation of a novel human gene, MARKL1, homologous to MARK3 and its involvement in hepatocellular carcinogenesis. *Neoplasia* 3: 4-9.
4. Beghini, A., et al. 2003. The neural progenitor-restricted isoform of the MARK4 gene in 19q13.2 is upregulated in human gliomas and overexpressed in a subset of glioblastoma cell lines. *Oncogene* 22: 2581-2591.
5. Trinczek, B., et al. 2004. MARK4 is a novel microtubule-associated proteins/microtubule affinity-regulating kinase that binds to the cellular microtubule network and to centrosomes. *J. Biol. Chem.* 279: 5915-5923.

CHROMOSOMAL LOCATION

Genetic locus: MARK4 (human) mapping to 19q13.32; Mark4 (mouse) mapping to 7 A3.

SOURCE

MARK4 (P-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of MARK4 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-131184 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

MARK4 (P-13) is recommended for detection of MARK4 isoforms 1 and 2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); non cross-reactive with MARK1 or MARK2 .

Suitable for use as control antibody for MARK4 siRNA (h): sc-97671, MARK4 siRNA (m): sc-149275, MARK4 shRNA Plasmid (h): sc-97671-SH, MARK4 shRNA Plasmid (m): sc-149275-SH, MARK4 shRNA (h) Lentiviral Particles: sc-97671-V and MARK4 shRNA (m) Lentiviral Particles: sc-149275-V.

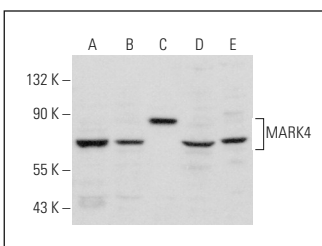
Molecular Weight of MARK4: 83 kDa.

Positive Controls: HeLa nuclear extract: sc-2120, IMR-32 cell lysate: sc-2409 or Jurkat whole cell lysate: sc-2204.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



MARK4 (P-13): sc-131184. Western blot analysis of MARK4 expression in Jurkat (A), Raji (B), IMR-32 (C) and C6 (D) whole cell lysates and HeLa nuclear extract (E).

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.