

p-CaMKI (Thr 177)-R: sc-28438-R

BACKGROUND

The Ca²⁺/calmodulin-dependent protein kinases (CaM kinases) are a structurally related subfamily of serine/threonine kinases that includes CaMKI, CaMKII and CaMKIV. CaMKII is a ubiquitously expressed serine/threonine protein kinase that is activated by Ca²⁺ and calmodulin (CaM) and has been implicated in regulation of the cell cycle and transcription. There are four CaMKII isozymes, designated α , β , γ and δ , which may or may not be co-expressed in the same tissue type. CaMKIV is stimulated by Ca²⁺ and CaM, but phosphorylation by a CaMK is also required for full activation. Stimulation of the T cell receptor CD3 signaling complex with an anti-CD3 monoclonal antibody leads to a 10-40 fold increase in CaMKIV activity. An additional kinase, CaMKK, functions to activate CaMKI through the specific phosphorylation of the regulatory threonine residue at position 177.

REFERENCES

1. Tombes, R.M., et al. 1995. G₁ cell cycle arrest apoptosis are induced in NIH/3T3 cells by KN-93, an inhibitor of CaMKII (the multifunctional Ca²⁺/CaM kinase). *Cell Growth Differ.* 6: 1063-1070.
2. Hama, N., et al. 1995. Calcium/calmodulin-dependent protein kinase II down-regulates both calcineurin and protein kinase c-mediated pathways for cytokine gene transcription in human T cells. *J. Exp. Med.* 181: 1217-1222.
3. Baltas, L.G., et al. 1995. The cardiac sarcoplasmic reticulum phospholamban kinase is a distinct δ -CaM kinase isozyme. *FEBS Lett.* 373: 71-75.
4. Tokumitsu, H., et al. 1995. Characterization of a CaM-kinase cascade: molecular cloning and expression of calcium/calmodulin-dependent protein kinase kinase. *J. Biol. Chem.* 270: 19320-19324.
5. Park, I.K., et al. 1995. Activation of Ca²⁺/calmodulin-dependent protein kinase (CaM-kinase) IV by CaM-kinase kinase in Jurkat T lymphocytes. *J. Biol. Chem.* 270: 30464-30469.
6. Tashima, K., et al. 1996. Overexpression of Ca²⁺/calmodulin-dependent protein kinase II inhibits neurite outgrowth of PC-12 cells. *J. Neurochem.* 66: 57-64.

CHROMOSOMAL LOCATION

Genetic locus: CAMK1 (human) mapping to 3p25.1; Camk1 (mouse) mapping to 6 E3.

SOURCE

p-CaMKI (Thr 177)-R is a rabbit polyclonal antibody raised against a short amino acid sequence containing phosphorylated Thr 177 of CaMKI of human origin.

STORAGE

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

RESEARCH USE

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

PRODUCT

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

Blocking peptide available for competition studies, sc-28438 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

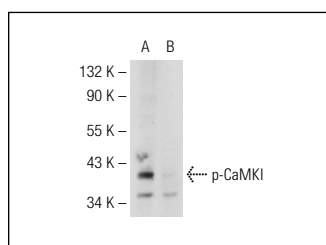
p-CaMKI (Thr 177)-R is recommended for detection of Thr 177 phosphorylated CaMKI of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for CaMKI siRNA (h): sc-38947, CaMKI siRNA (m): sc-38948, CaMKI shRNA Plasmid (h): sc-38947-SH, CaMKI shRNA Plasmid (m): sc-38948-SH, CaMKI shRNA (h) Lentiviral Particles: sc-38947-V and CaMKI shRNA (m) Lentiviral Particles: sc-38948-V.

Molecular Weight of p-CaMKI: 45 kDa.

Positive Controls: HL-60 whole cell lysate: sc-2209, mouse brain extract: sc-2253 or rat brain extract: sc-2392.

DATA



p-CaMKI (Thr 177)-R: sc-28438-R. Western blot analysis of CaMKI phosphorylation in untreated (A) and λ protein phosphatase treated (B) HeLa whole cell lysates.

SELECT PRODUCT CITATIONS

1. Si, J., et al. 2008. Activated Ca²⁺/calmodulin-dependent protein kinase II is a critical regulator of myeloid leukemia cell proliferation. *Cancer Res.* 68: 3733-3742.
2. Tinsley, C.J., et al. 2011. A role for the CAMKK pathway in visual object recognition memory. *Hippocampus*. E-Published.
3. Egawa, T., et al. 2011. Caffeine activates preferentially α 1-isoform of 5'AMP-activated protein kinase in rat skeletal muscle. *Acta Physiol.* 201: 227-238.

PROTOCOLS

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