

## CaMKK $\alpha$ (6): sc-136280

### BACKGROUND

The Ca<sup>2+</sup>/calmodulin-dependent protein kinases (CaM kinases) comprise a structurally related subfamily of serine/threonine kinases which include CaMKI, CaMKII and CaMKIV. CaMKII is a ubiquitously expressed serine/threonine protein kinase that is activated by Ca<sup>2+</sup> and calmodulin (CaM) and has been implicated in both the regulation of the cell cycle and transcription. There are four CaMKII isozymes, designated  $\alpha$ ,  $\beta$ ,  $\gamma$  and  $\delta$ , which may or may not be coexpressed in the same tissue type. CaMKIV is stimulated by Ca<sup>2+</sup> and CaM, but also requires phosphorylation by a CaMK 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. G<sub>1</sub> cell cycle arrest apoptosis are induced in NIH/3T3 cells by KN-93, an inhibitor of CaMKII (the multifunctional Ca<sup>2+</sup>/CaM kinase). *Cell Growth Differ.* 6: 1063-1070.
2. Baltas, L.G., et al. 1995. The cardiac sarcoplasmic reticulum phospholamban kinase is a distinct  $\delta$ -CaM kinase isozyme. *FEBS Lett.* 373: 71-75.
3. Hama, N., et al. 1995. Calcium/calmodulin-dependent protein kinase II downregulates both calcineurin and protein kinase c-mediated pathways for cytokine gene transcription in human T cells. *J. Exp. Med.* 181: 1217-1222.
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. and Soderling, T.R. 1995. Activation of Ca<sup>2+</sup>/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 Ca<sup>2+</sup>/calmodulin-dependent protein kinase II inhibits neurite outgrowth of PC-12 cells. *J. Neurochem.* 66: 57-64.

### CHROMOSOMAL LOCATION

Genetic locus: CAMKK1 (human) mapping to 17p13.2; Camk1 (mouse) mapping to 11 B4.

### SOURCE

CaMKK $\alpha$  (6) is a mouse monoclonal antibody raised against amino acids 341-504 of CaMKK $\alpha$  of rat origin.

### PRODUCT

Each vial contains 50  $\mu$ g IgG<sub>2a</sub> in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

### STORAGE

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

### APPLICATIONS

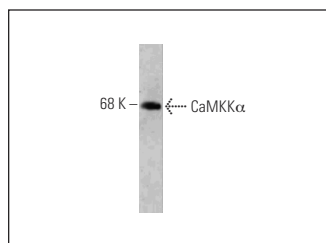
CaMKK $\alpha$  (6) is recommended for detection of CaMKK $\alpha$  of mouse, rat, human and canine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for CaMKK $\alpha$  siRNA (h): sc-29904, CaMKK $\alpha$  siRNA (m): sc-29905, CaMKK $\alpha$  shRNA Plasmid (h): sc-29904-SH, CaMKK $\alpha$  shRNA Plasmid (m): sc-29905-SH, CaMKK $\alpha$  shRNA (h) Lentiviral Particles: sc-29904-V and CaMKK $\alpha$  shRNA (m) Lentiviral Particles: sc-29905-V.

Molecular Weight of CaMKK $\alpha$ : 63 kDa.

Positive Controls: rat brain extract: sc-2392, Jurkat whole cell lysate: sc-2204 or PC-12 cell lysate: sc-2250.

### DATA



CaMKK $\alpha$  (6): sc-136280. Western blot analysis of CaMKK $\alpha$  expression in rat brain tissue extract.

### SELECT PRODUCT CITATIONS

1. Bakula, D., et al. 2017. WIPI3 and WIPI4  $\beta$ -propellers are scaffolds for LKB1-AMPK-TSC signalling circuits in the control of autophagy. *Nat. Commun.* 8: 15637.

### RESEARCH USE

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

### PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.