SANTA CRUZ BIOTECHNOLOGY, INC.

CaMKKα (6): sc-136280

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The Ca^{2+}/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^{2+} and calmodulin (CaM) and has been implicated in both the regulation of the cell cycle and transcription. There are four CaMKII isozymes, designated α, β, γ and δ, which may or may not be coexpressed in the same tissue type. CaMKIV is stimulated by Ca^{2+} 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_1 cell cycle arrest apoptosis are induced in NIH/3T3 cells by KN-93, an inhibitor of CaMKII (the multifunctional Ca^{2+}/CaM kinase). Cell Growth Differ. 6: 1063-1070.
2. Baltas, L.G., et al. 1995. The cardiac sarcoplasmic reticulum phospholamban kinase is a distinct δ-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: molec-ular 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^{2+}/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^{2+}/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; Camkk1 (mouse) mapping to 11 B4.

SOURCE

CaMKKα (6) is a mouse monoclonal antibody raised against amino acids 341-504 of CaMKKα of rat origin.

PRODUCT

Each vial contains 50 µg IgG_{2a} 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

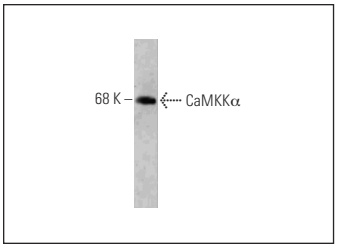
CaMKKα (6) is recommended for detection of CaMKKα of mouse, rat, human and canine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution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

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

Molecular Weight of CaMKKα: 63 kDa.

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

DATA



CaMKKα (6): sc-136280. Western blot analysis of CaMKKα expression in rat brain tissue extract.

SELECT PRODUCT CITATIONS

1. Bakula, D., et al. 2017. WIPI3 and WIPI4 β-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 for detailed protocols and support products.