SANTA CRUZ BIOTECHNOLOGY, INC.

CaMKIIα (L-15): sc-5391

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 an ubiquitously expressed serine/threonine protein kinase that is activated by Ca^{2+} 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 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.

CHROMOSOMAL LOCATION

Genetic locus: CAMK2A (human) mapping to 5q32; Camk2a (mouse) mapping to 18 E1.

SOURCE

CaMKIIα (L-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of CaMKII of mouse 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-5391 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

RESEARCH USE

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

APPLICATIONS

CaMKIIα (L-15) is recommended for detection of CaMKIIα 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

CaMKIIα (L-15) is also recommended for detection of CaMKIIα in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for CaMKIIα siRNA (h): sc-29900, CaMKIIα siRNA (m): sc-29901, CaMKIIα siRNA (r): sc-156070, CaMKIIα shRNA Plasmid (h): sc-29900-SH, CaMKIIα shRNA Plasmid (m): sc-29901-SH, CaMKIIα shRNA Plasmid (r): sc-156070-SH, CaMKIIα shRNA (h) Lentiviral Particles: sc-29900-V, CaMKIIα shRNA (m) Lentiviral Particles: sc-29901-V and CaMKIIα shRNA (r) Lentiviral Particles: sc-156070-V.

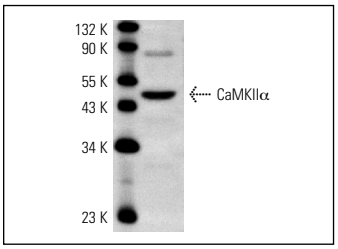
Molecular Weight of CaMKIIα: 50 kDa.

Positive Controls: Mouse brain extract: sc-2253 or rat brain extract: sc-2392.

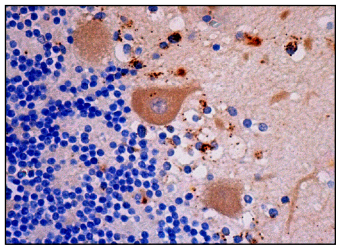
RECOMMENDED SECONDARY REAGENTS

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. 4) Immunohistochemistry: use ImmunoCruz™: sc-2053 or ABC: sc-2023 goat IgG Staining Systems.

DATA



CaMKIIα (L-15): sc-5391. Western blot analysis of CaMKIIα expression in mouse brain extract.



CaMKIIα (L-15): sc-5391. Immunoperoxidase staining of formalin fixed, paraffin-embedded human cerebellum tissue showing cytoplasmic staining of purkinje cells and cells in molecular layer.

SELECT PRODUCT CITATIONS

1. Menco, B.P. 2005. The fine-structural distribution of G-protein receptor kinase 3, β-arrestin-2, Ca^{2+}/calmodulin-dependent protein kinase II and phosphodiesterase PDE1C2, and a Cl^--cotransporter in rodent olfactory epithelia. J. Neurocytol. 34: 11-36.
2. Kato, I., et al. 2008. A novel model of Insulin-dependent diabetes with renal and retinal lesions by transgenic expression of CaMKIIα (Thr286Asp) in pancreatic β-cells. Diabetes Metab. Res. Rev. 24: 486-497.
3. Tsaadon, L., et al. 2008. Myristoylated alanine-rich C kinase substrate, but not Ca^{2+}/calmodulin-dependent protein kinase II, is the mediator in cortical granules exocytosis. Reproduction 135: 613-624.
4. Mouton-Liger, F., et al. 2011. PCP4 (PEP19) overexpression induces premature neuronal differentiation associated with Ca^{2+}/calmodulin-dependent kinase II-δ activation in mouse models of Down syndrome. J. Comp. Neurol. 519: 2779-2802.

STORAGE

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

PROTOCOLS

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