SANTA CRUZ BIOTECHNOLOGY, INC.

CaMKIIα (6G9): sc-32288

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 (6G9) is a mouse monoclonal antibody raised against partially purified CaM kinase II of rat origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

CaMKIIα (6G9) is available conjugated to agarose (sc-32288 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-32288 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-32288 PE), fluorescein (sc-32288 FITC), Alexa Fluor® 488 (sc-32288 AF488), Alexa Fluor® 546 (sc-32288 AF546), Alexa Fluor® 594 (sc-32288 AF594) or Alexa Fluor® 647 (sc-32288 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-32288 AF680) or Alexa Fluor® 790 (sc-32288 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

CaMKIIα (6G9) 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) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500); non cross-reactive with 60 kDa β subunit in either phosphorylation site.

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.

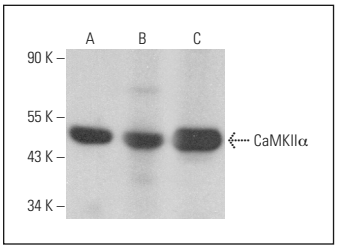
Molecular Weight of CaMKIIα: 50 kDa.

Positive Controls: human brain extract: sc-364375.

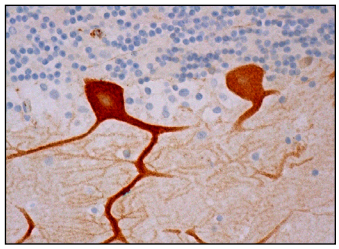
STORAGE

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

DATA



CaMKIIα (6G9): sc-32288. Western blot analysis of CaMKIIα expression in human brain (**A**), mouse cerebellum (**B**) and human cerebral cortex (**C**) tissue extracts.



CaMKIIα (6G9): sc-32288. Immunoperoxidase staining of formalin fixed, paraffin-embedded human cerebellum tissue showing cytoplasmic and membrane staining of Purkinje cells and neuropil staining of granular layer.

SELECT PRODUCT CITATIONS

1. Higo, N., et al. 2009. Increased expression of the growth-associated protein 43 gene in the sensorimotor cortex of the macaque monkey after lesioning the lateral corticospinal tract. J. Comp. Neurol. 516: 493-506.
2. Zhao, J., et al. 2010. Small RNAs control sodium channel expression, nociceptor excitability, and pain thresholds. J. Neurosci. 30: 10860-10871.
3. Luo, J.H., et al. 2012. Arsenite exposure altered the expression of NMDA receptor and postsynaptic signaling proteins in rat hippocampus. Toxicol. Lett. 211: 39-44.
4. Hao, J.R., et al. 2015. L-stepholidine rescues memory deficit and synaptic plasticity in models of Alzheimer's disease via activating dopamine D1 receptor/PKA signaling pathway. Cell Death Dis. 6: e1965.
5. Murata, Y., et al. 2015. Increased expression of the growth-associated protein-43 gene after primary motor cortex lesion in macaque monkeys. Neurosci. Res. 98: 64-69.
6. Fuenzalida, M., et al. 2016. Wnt signaling pathway improves central inhibitory synaptic transmission in a mouse model of Duchenne muscular dystrophy. Neurobiol. Dis. 86: 109-120.
7. McNally, A.G., et al. 2016. Characterization of a novel chromatin sorting tool reveals importance of histone variant H3.3 in contextual fear memory and motor learning. Front. Mol. Neurosci. 9: 11.
8. De Rossi, P., et al. 2020. Neuronal BIN1 regulates presynaptic neurotransmitter release and memory consolidation. Cell Rep. 30: 3520-3535.e7.
9. DeGregorio-Rocasolano, N., et al. 2020. Comparative proteomics unveils LRRFIP1 as a new player in the DAPK1 interactome of neurons exposed to oxygen and glucose deprivation. Antioxidants 9: 1202.

RESEARCH USE

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