SANTA CRUZ BIOTECHNOLOGY, INC.

CaMKIIa (6G9): sc-32288



BACKGROUND

The Ca²⁺/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 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 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

 ${\sf CaMKII\alpha}$ (6G9) is a mouse monoclonal antibody raised against partially purified CaM kinase II of rat origin.

PRODUCT

Each vial contains 200 μg IgG1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

CaMKIIa (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

CaMKII α (6G9) is recommended for detection of CaMKII α 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 CaMKII α siRNA (h): sc-29900, CaMKII α siRNA (m): sc-29901, CaMKII α siRNA (r): sc-156070, CaMKII α shRNA Plasmid (h): sc-29900-SH, CaMKII α shRNA Plasmid (m): sc-29901-SH, CaMKII α shRNA Plasmid (r): sc-156070-SH, CaMKII α shRNA (h) Lentiviral Particles: sc-29900-V, CaMKII α shRNA (m) Lentiviral Particles: sc-29901-V and CaMKII α shRNA (r) Lentiviral Particles: sc-156070-V.

Molecular Weight of CaMKIIa: 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





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

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

SELECT PRODUCT CITATIONS

- 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.
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- 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.
- 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.
- 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.
- 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.
- 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.
- De Rossi, P., et al. 2020. Neuronal BIN1 regulates presynaptic neurotransmitter release and memory consolidation. Cell Rep. 30: 3520-3535.e7.
- 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.

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