**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, CaM KK, functions to activate CaMKII through the specific phosphorylation of the regulatory threonine residue at position 177.

**REFERENCES**


**SOURCE**

CaMKII (G-1) is a mouse monoclonal antibody raised against amino acids 303-478 of CaMKIIα of mouse origin.

**PRODUCT**

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

CaMKII (G-1) is available conjugated to agarose (sc-5306 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-5306 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; and to either rhodamine (sc-5306 PE), fluorescein (sc-5306 FITC), Alexa Fluor® 488 (sc-5306 AF488) or Alexa Fluor® 647 (sc-5306 AF647), 200 µg/ml, for IF, IHC(P) and FCM.

**RESEARCH USE**

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

**APPLICATIONS**

CaMKII (G-1) is recommended for detection of CaMKIIα, CaMKIIβ, CaMKIIγ and CaMKIIδ subunits 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)], immunoaffluorescence (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).

Molecular Weight of CaMKII: 50 kDa.

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

**STORAGE**

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

**DATA**

CaMKII (G-1): sc-5306. Western blot analysis of CaMKII isoform expression in mouse brain tissue extract.

CaMKII (G-1): sc-5306. Immunoperoxidase detection of CaMKII in formalin fixed, paraffin-embedded human cerebellum tissue showing cytoplasmatic and nuclear staining of neuronal cells and neuropil staining.

**SELECT PRODUCT CITATIONS**


**PROTOCOLS**

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

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