

Product Information



CaMKII (phospho-Thr²⁸⁶/Thr²⁸⁷) Monoclonal Antibody (Clone 22B1)

Item No. 10011438

Contents:	This vial contains protein G-purified mouse IgG at a concentration of 1 mg/ml in PBS, pH. 7.4, containing 50% glycerol and 0.09% sodium azide.
Synonym:	Calcium/Calmodulin-dependent Protein Kinase II
Antigen:	Synthetic peptide
Host:	Mouse, clone 22B1
Isotype:	IgG ₁
Cross Reactivity:	(+) Rat CaMKII. Detects phosphorylated CaMKII from rat tissues. Monoclonal antibody 22B1 (anti-phospho-CaMKII) is specific for α and β subunits of CaMKII only when they are phosphorylated at Thr ^{286/287} (in β). ¹
Stability:	≥ 1 year at -20°C
Applications:	ELISA, immunofluorescence, immunoprecipitation, and western blots (WB). The recommended starting concentration for WB is 1 μ g/ml, which was shown to be sufficient for detection of 0.2 μ g CaMKII by colorimetric immunoblot. Optimal working dilutions for other applications should be determined empirically.

CaMKII is an important member of the calcium/calmodulin-activated protein kinase family, functioning in neural synaptic stimulation and T-cell receptor signaling.^{1,2} CaMKII is expressed in many different tissues but is specifically found in the neurons of the forebrain and its mRNA is found within the dendrites and the soma of the neuron. The CaMKII that is found in the neurons consists of two subunits of 52 (termed α genes) and 60 kDa (β genes). CaMKII has catalytic and regulatory domains, as well as an ATP-binding domain, and a consensus phosphorylation site.³⁻⁷ The binding of Ca²⁺/calmodulin to its regulatory domain releases its auto inhibitory effect and activates the kinase.⁸ This kinase activation results in autophosphorylation at threonine 286 (Thr²⁸⁶).⁸

The threonine phosphorylation state of CaMKII can be regulated through protein phosphatase 1 (PP1)/protein kinase A (PKA). Whereas PP1 dephosphorylates phospho-CaMKII at Thr²⁸⁶, PKA prevents this dephosphorylation.⁹ Autophosphorylation also enables CaMKII to attain an enhanced affinity for NMDA receptors in postsynaptic densities.¹⁰⁻¹²

References

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