Product Information

CaMKII Monoclonal Antibody (Clone 6G9)

Catalog No. 10011437

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: Rat recombinant CaMKII
Host: Mouse, clone 6G9
Isotype: IgG_1
Cross Reactivity: (+) murine, rat, and bovine CaMKII. Detects ~50-60 kDa protein, corresponding to the apparent molecular mass of CaMKII α-subunit on SDS-PAGE immunoblots. Both the phosphorylated and non-phosphorylated forms are recognized.
Stability: ≥1 year at -20°C
Applications: Immunofluorescence, immunoprecipitation, western blot (WB), immunohistochemistry, and EIA. The recommended starting concentration for WB is 0.1 µg/ml; 0.1 µg/ml of CaMKII antibody was needed for detection of CaMKII in 20 µg of rat brain tissue. 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 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 consist 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 Ca^{2+}/calmodulin to its regulatory domain releases its auto inhibitory effect and activates the kinase.[8] This kinase activation results in autophosphorylation at threonine 286 (Thr^{286}).[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 Thr^{286}, 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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Related Product

CaMKII (phospho-Thr^{286}/Thr^{287}) Monoclonal Antibody (Clone 22B1) - Cat. No. 10011438

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