

**CaMKII (Alpha-Specific) Antibody**  
**CaMKII Antibody, Clone 6G9**  
**Catalog # ASM10037****Specification**

---

**CaMKII (Alpha-Specific) Antibody - Product Information**

Application	WB, IHC, ICC, IP, E, RIA
Primary Accession	<a href="#">P11798</a>
Other Accession	<a href="#">NP_033922.1</a>
Host	Mouse
Isotype	IgG1
Reactivity	Human, Mouse, Rat, Bovine
Clonality	Monoclonal
Format	ATTO 488

**Description**

Mouse Anti-Rat CaMKII (Alpha-Specific) Monoclonal IgG1

**Target/Specificity**

Detects ~50-60kDa. Recognizes both phosphorylated and non-phosphorylated forms.

**Other Names**

CamK2 Antibody, CamK2A Antibody, CamK2B Antibody, CamK2D Antibody, CamK2G Antibody, CAMKA Antibody

**Immunogen**

Partially purified rat CaMKII

**Purification**

Protein G Purified

Storage **-20°C**

**Storage Buffer**

PBS pH7.4, 50% glycerol, 0.09% sodium azide

Shipping Temperature

**Blue Ice or 4°C**

**Certificate of Analysis**

0.1 µg/ml was sufficient for detection of CamKII in 20 µg rat brain tissue extract by colorimetric immunoblot analysis using Goat Anti-Mouse IgG:AP as the secondary.

**Cellular Localization**

Cytoplasm | Mitochondrion | Nucleus | Cell Junction | Synapse | Presynaptic Cell Membrane

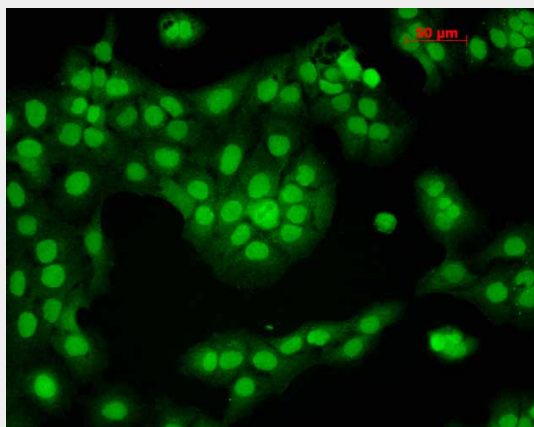
**CaMKII (Alpha-Specific) Antibody - Protocols**

Provided below are standard protocols that you may find useful for product applications.

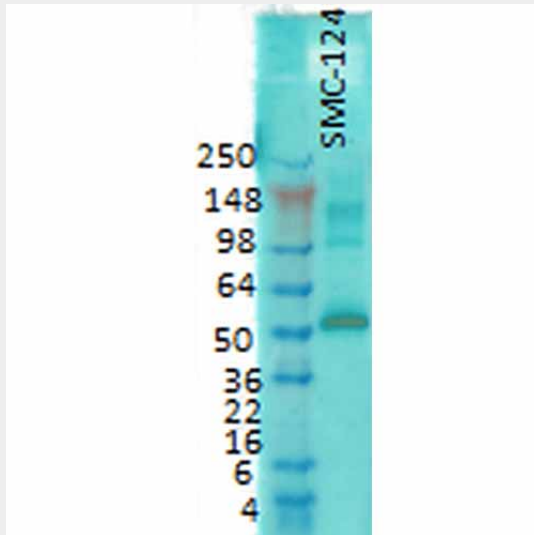
- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)

- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

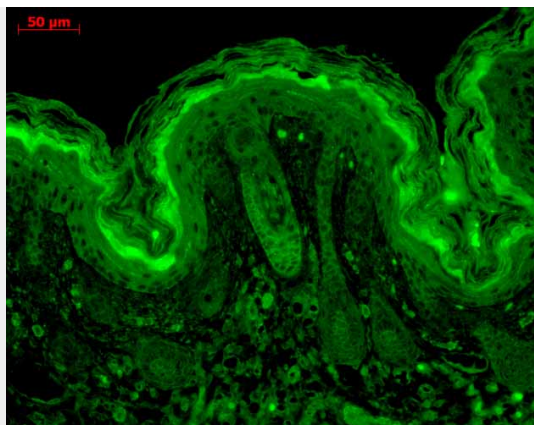
### CaMKII (Alpha-Specific) Antibody - Images



Immunocytochemistry/Immunofluorescence analysis using Mouse Anti-CaMKII Monoclonal Antibody, Clone 6G9 (ASM10037). Tissue: HaCaT cells. Species: Human. Fixation: Cold 100% methanol for 10 minutes at -20°C. Primary Antibody: Mouse Anti-CaMKII Monoclonal Antibody (ASM10037) at 1:100 for 1 hour at RT. Secondary Antibody: FITC Goat Anti-Mouse (green) at 1:50 for 1 hour at RT. Localization: Nuclear Staining.



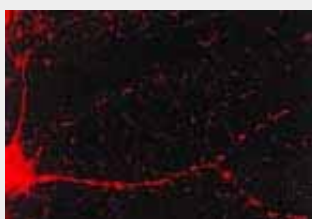
Western Blot analysis of Rat brain membrane lysate showing detection of CaMKII protein using Mouse Anti-CaMKII Monoclonal Antibody, Clone 6G9 (ASM10037). Primary Antibody: Mouse Anti-CaMKII Monoclonal Antibody (ASM10037) at 1:1000.



Immunohistochemistry analysis using Mouse Anti-CaMKII Monoclonal Antibody, Clone 6G9 (ASM10037). Tissue: backskin. Species: Mouse. Fixation: Bouin's Fixative and paraffin-embedded. Primary Antibody: Mouse Anti-CaMKII Monoclonal Antibody (ASM10037) at 1:100 for 1 hour at RT. Secondary Antibody: FITC Goat Anti-Mouse (green) at 1:50 for 1 hour at RT. Localization: Hair follicles, epidermis.



Immunohistochemistry analysis using Mouse Anti-CaMKII Monoclonal Antibody, Clone 6G9 (ASM10037). Tissue: colon carcinoma. Species: Human. Fixation: Formalin. Primary Antibody: Mouse Anti-CaMKII Monoclonal Antibody (ASM10037) at 1:10000 for 12 hours at 4°C. Secondary Antibody: Biotin Goat Anti-Mouse at 1:2000 for 1 hour at RT. Counterstain: Mayer Hematoxylin (purple/blue) nuclear stain at 200 μl for 2 minutes at RT. Magnification: 40x.



Immunocytochemistry/Immunofluorescence analysis using Mouse Anti-CaMKII Monoclonal Antibody, Clone 6G9 (ASM10037). Tissue: dissociated hippocampal neurons. Species: Mouse. Fixation: Cold 4% paraformaldehyde/0.2% glutaraldehyde in 0.1M sodium phosphate buffer. Primary Antibody: Mouse Anti-CaMKII Monoclonal Antibody (ASM10037) at 1:1000 for 12 hours at 4°C. Secondary Antibody: FITC Goat Anti-Mouse IgG (green) at 1:50 for 30 minutes at RT. Magnification: 10X. Courtesy of: Mary Kennedy, Caltech.

### **CaMKII (Alpha-Specific) Antibody - Background**

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 consist of two subunits of 52 (termed alpha genes) and 60 kDa (beta genes). CaMKII has catalytic and regulatory domains, as well as an ATP-binding domain, and a consensus phosphorylation site (3-7). The binding of  $\text{Ca}^{2+}$ /calmodulin to its regulatory domain releases its auto inhibitory effect and activates the kinase (8). This kinase activation results in autophosphorylation at threonine 286 (8). The threonine phosphorylation state of CaMKII can be regulated through PP1/PKA. Whereas PP1 (protein phosphatase 1) dephosphorylates phospho-CaMKII at Thr286, PKA (protein kinase A) prevents this dephosphorylation (9). Autophosphorylation also enables CaMKII to attain an enhanced affinity for NMDA receptors in postsynaptic densities (10-12).

### **CaMKII (Alpha-Specific) Antibody - References**

1. Hughes K. et al. (2001) J. Biol. Chem. 276: 36008-36013.
2. Barria A. et al. (1997) Science 276: 2042-2045.
3. Bennet M.K. and Kennedy M.B. (1987) Proc. Natl. Acad. Sci. U.S.A. 84: 1794-1798.
4. Broke L., Srinivasan M. and Schulman H. (1995) J. Neurosci. 15: 6797-6808.
5. Nghiem P., Saati S. M., Martens C. L., Gardner P. and Schulman H. (1993) J. Biol. Chem. 268: 5471-5479.
6. Edman C.F. and Schulman H. (1994) Biochem. Biophys. Acta 1221: 90-102.
7. Tombes R.M. and Krystal G.W., (1997) Biochem. Biophys. Acta 1355: 281-292.
8. Means A.R. (2000) Mol. Endocrinol. 14: 4-12.
9. Makhinson M. et al. (1999) J. Neurosci. 19: 2500-2510.
10. Strack S. and Colbran R.J. (1998) J. Biol. Chem. 273: 20689-20692.
11. Leonard S.A., Lim I.A., Hemsworth D.E., Horne M.C. and Hell J.W. (1999) Proc. Natl. Acad. Sci. U.S.A. 96: 3239-3244.
12. Shen K. and Meyer Y. (1999) Science 284: 162-167.