

Anti-phospho CaMKII (286)

Catalog# SMC-125C/D

Size: 25/100µg

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This product is for *in vitro* research use only and is not intended for use in humans or animals

StressMarq

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Product	Mouse anti-CaMKII, 22B1 monoclonal antibody
Clone	22B1
Immunogen	Synthetic peptide
Host and Subclass	Mouse IgG ₁
Applications	ELISA, IF, IP, WB (13), IHC
Specificity	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). (13)
Species cross-reactivity	Rat, Human
Format	Mouse immunoglobulin in PBS pH 7.4, 0.09% sodium azide, in 50% glycerol. Protein G purified.
Concentration and working dilution	1.0mg/mL; 1µ/ml of SMC-125 was sufficient for detection of 0.2µg CaMKII by colorimetric immunoblot
Storage and stability	-20°C; 1 year+; shipped on cold packs or ambient

Scientific Background

CaMKII is an important member of 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 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 (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).

Selected 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.
13. Shifman J. M., Choi M. H., Mihalas S, Mayo S. L., Kennedy M. B. 2006 *Proc. Natl. Acad. Sci. U.S.A.* 103: 13968-13973

Certificate of Analysis

1µ/ml of SMC-125 was sufficient for detection of 0.2µg CaMKII by colorimetric immunoblot analysis using Goat anti-mouse IgG:HRP as the secondary antibody.

Material Safety Data Sheet

Anti-CamKII, 22B1 (Monoclonal Antibody) SMC-125

This product is for *in vitro* research use only and is not intended for use in humans or animals

The below information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. StressMarq shall not be held liable for any damage resulting from handling or from contact with the above product. See the Technical Specification, Packing Slip, Invoice, and Product Catalogue for additional terms and conditions of sale.

Hazardous Ingredients

The physical, chemical and toxicological properties of these components have not been fully investigated. It is recommended that all laboratory personnel follow standard laboratory safety procedures when handling this product. Safety procedures should include wearing OSHA approved safety glasses, gloves and protective clothing. Direct physical contact with this product should be avoided.

<u>Known Hazardous Components</u>	<u>CAS Number</u>	<u>Percent</u>
Sodium Azide	26628-22-8	0.09

Physical Data

This product consists of mouse immunoglobulin in PBS containing 0.09% azide in 50% glycerol shipped on gel packs. The physical properties of this product have not been investigated thoroughly.

Fire and Explosion Hazard and Reactivity Data

NOT APPLICABLE

Toxicological Properties

May be harmful by inhalation, ingestion, or skin absorption. The toxicological properties of this product have not been investigated thoroughly. Exercise due caution.

Preventative Measures

Wear chemical safety goggles and compatible chemical-resistant gloves. Avoid inhalation, contact with eyes, skin or clothing.

Spill and Leak Procedures

Observe all federal, state and local environmental regulations.

- Wear protective equipment.
- Absorb on sand or vermiculite and place in closed containers for disposal.
- Dispose or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

First Aid Measures

- If swallowed, wash out mouth with water, provided person is conscious. Call a physician.
- In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. If a rash or other irritation develops, call a physician.
- If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.
- In case of eye contact, flush with copious amounts of water for at least 15 minutes while separating the eyelids with fingers. Call a physician.

Authorized: StressMarq Biosciences Inc.

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