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ProductInformation

ANTI- CAM KINASE KINASE a (CAMKKa)
Developed in Rabbit
Affinity isolated Antibody

Product Number **C7099**

Product Description

Anti-CaM Kinase Kinase α (CaMKKα) is developed in rabbit using a synthetic peptide (GEGGKSPELPGVQ-EDEAAS) corresponding to the C-terminal region of rat CaMKKα (amino acids 487-505) conjugated to KLH as immunogen. This sequence has no homology to rat CaMKKβ and human CaMKK α and CaMKKβ isoforms. Anti-CaMKKα is affinity-purified using the immunogenic peptide immobilized on agarose.

Anti-CaM Kinase Kinase α (CaMKKα) recognizes rat CaMKKα (~66 kD). Applications include the detection and localization of CaMKKα (~66 kD) by immunoblot-ting and immunohistochemistry. Staining of CaMKKα in immunoblotting is specifically inhibited with CaMKKα immunizing peptide (CaMKKα, rat, amino acids 487-505).

Ca^{2+}/Calmodulin dependent protein kinases (CaM Kinase I, II and IV) are considered to play a central role in many cellular functions in response to Ca^{2+} signaling, including synthesis and secretion of neurotransmitters, axonal transport, long term potentiation (LTP), receptor function, modification of the cytoskeleton and regulation of gene expression.[1,2] Ca^{2+}/Calmodulin dependent protein Kinase Kinase (CaMKK) [3,4] consists of two distinct Ser/Thr protein kinases, CaMKKα and CaMKKβ (66-68kD), [5-9] which phosphorylate and activate CaMKI and CaMKIV as part of a unique Ca^{2+}/CaM-regulated kinase cascade.[2,4,8,9] Activation occurs through selective phosphorylation of an equivalently positioned Thr in the activation T-loop of CaMKI and CaMKIV, Thr^{177} and Thr^{196}/Thr^{200}, respectively. CaMKKα and CamKKβ isoforms share considerable sequence homology with each other (65% identity and 80% similarity). CaMKKα and CamKKβ are both abundantly expressed in the brain, and are thought to be upstream regulators of neuronal Ca^{2+}/CaM-dependent processes. CaMKKβ is also expressed at lower levels, in other tissues, (e.g. thymus, testis and spleen), whereas CaMKKα appears to be more restricted to the brain.

CaMKKα and CaMKKβ show differential regional and subcellular localizations in different tissues (e.g. in the rat brain).[6,7,10] The distribution of CaMKKα has been shown to correlate with that of CaMKI, and the distribution of CaMKKβ correlates with CaMKIV. It has been suggested that CaMKKα and CaMKKβ may have an important role in the regulation of CaMKI and CaMKIV activities, respectively. Activation of the PKB pathway by CaMKK appears to be important in protection of neurons from programmed cell death during development.[11]

Reagents

Anti-CaM Kinase Kinase α (CaMKKα) is supplied as affinity isolated antibody in 0.01 M phosphate buffered saline, pH 7.4, containing 1% BSA and 15 mM sodium azide (see MSDS)* as a preservative.

Protein concentration is approximately 1 mg/ml by absorbance at 280 nm.

Precautions and Disclaimer

* Due to the sodium azide content a material safety sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazardous and safe handling practices.

Storage/Stability

For continuous use, store at 2-8°C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. Storage in "frost-free" freezers is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

Product Profile
A minimum working dilution of 1:5,000 is determined by immunoblotting using a rat brain extract.
A minimum working dilution of 1:500 is determined by immunohistochemistry using formalin-fixed, paraffin-embedded sections of rat brain.

Note: In order to obtain best results and assay sensitivity in different techniques and preparations we recommend determining optimal working dilutions by titration test.

References

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