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ProductInformation

ANTI-PROTEIN KINASE C β1 (PKC β1)
Delipidized, Whole Antiserum

Product Number **P 3078**

Product Description

Anti-Protein Kinase C β_1 (PKC β_1) is developed in rabbit using a synthetic peptide (Cys-Ala-Gly-Phe-Ser-Tyr-Thr-Asn-Pro-Glu-Phe-Val-Ile-Asn-Val) conjugated to maleimide-activated KLH as the immunogen. The peptide corresponds to the C-terminal variable (V5) region (amino acids 658-671) of PKC β_1. The antiserum has been treated to remove lipoproteins.

Anti-Protein Kinase C β_1 recognizes PKC β_1 (80 kDa polypeptide) from rat brain extract in immunoblotting. An additional band at 30 kDa may be observed. The antibody does not react with PKC peptides corresponding to C-terminal sequences from PKC-γ (684-697) and PKC-β_2 (660-673) conjugated to BSA.

Protein Kinase C (PKC, 76-93 kDa) is a family of serine/threonine (Ser/Thr) specific protein kinases, which are key enzymes considered to play a crucial role in signal transduction leading to cellular regulation, cell growth and differentiation, oncogenesis, and modulation of neurotransmission.[1] PKC is a phospholipid dependent enzyme activated by the lipid 1,2-diacylglycerol (DAG), an intracellular second messenger produced as a result from hydrolysis of inositol phospholipids, in response to a variety of hormones, growth factors and neurotransmitters.[1-3] PKC is also the major cellular receptor for the tumor-promoting phorbol esters. PKC action is thought to be mediated through the phosphorylation of several cellular substrates.[4-6] Proteolysis of PKC *in vivo* is thought to be mediated by calpains I and II. Calpains cleave PKC in the V3 hinge region to produce two distinct fragments, one comprising the N-terminal regulatory domain (30 kDa) and a fragment containing the C-terminal kinase domain (50 kDa) that is catalytically active.[7,8] Molecular cloning has established that the PKC family of isoenzymes consists of at least 9 subtypes that can be subdivided into two major classes based on their primary domain structure and activation requirements: conventional (cPKC) isoforms (α, β_1, β_2 and γ) and novel (nPKC) isoforms (δ, ε, ζ, η(L), and θ). The cPKC isoforms have four conserved regions (C1 to C4) separated by five variable regions (V1 to V5) and require Ca^{2+}, DAG and phosphatidylserine (PtdSer) for activity. The nPKC isoforms lack the C2 region, presumably involved in Ca^{2+} binding, and thus do not require Ca^{2+} for activity but require either DAG or PtdSer. PKC β_1 and PKC β_2 isoforms are encoded by the same gene but diverge at the C-terminal (V5) regions as a result of differential mRNA splicing. The PKC β_1/β_2 isoenzymes are expressed in the brain, lung, liver, spleen, thymus, skeletal muscles, and skin, but not in kidney or rat and mouse fibroblasts.[3,9,10] PKC β_2 is reported to be expressed in a wider variety of tissues and cell lines and in higher levels than PKC β_1.[1,3,11] Antibodies that react specifically with PKC isoenzymes are useful for the study of specific differential tissue expression and intracellular and subcellular localization of these isoenzymes.

Reagents

Rabbit Anti-Protein Kinase C β_1 is supplied as a liquid containing 15 mM sodium azide as preservative.

Precautions and Disclaimer

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

Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage, solution may be frozen in working aliquots. Repeated freezing and thawing is not recommended. If slight turbidity occurs upon prolonged storage, clarify by centrifugation before use.

Product Profile

1. A working dilution of at least 1:6,000 was determined by direct dot blot immunoassay using PKC β_1 peptide conjugated to BSA (0.25 - 0.5 µg/dot).
2. A working dilution of at least 1:70,000 was determined by indirect immunoblotting using rat brain extract.

In order to obtain best results, it is recommended that each individual user determine their optimum working dilution by titration assay.

References

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