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ProductInformation

ANTI-PROTEIN KINASE C ζ
Developed in Rabbit
Delipidized, Whole, Antiserum

Product Number **P 0713**

Product Description

Anti-Protein Kinase C ζ (PKC ζ) is developed in rabbit using a synthetic peptide (Lys-Gly-Phe-Leu-Tyr-Ile-Asn-Pro-Leu-Leu-Leu-Ser-Ala-Glu-Glu-Ser-Val), corresponding to the C-terminal variable (V5) region (amino acids 577-592 with N-terminal added Lys) of PKC ζ (mouse, rat), coupled to KLH as the immunogen. The antiserum has been treated to remove lipoproteins.

Anti-PKC ζ reacts in immunoblotting with PKC ζ (78-80 kDa proteins appearing as doublet) in NIH 3T3 mouse fibroblasts lysate. In rat brain extract the antiserum reacts with PKC ζ (78 kDa). Degradation product of 50 kDa may be observed in rat brain extracts. Staining of the PKC ζ 78 kDa and 50 kDa bands is specifically inhibited with PKC ζ peptide (577-592).

Protein Kinase C (PKC, 76-93 kDa), is a family of serine/threonine protein kinases, key enzymes that 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 of 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 derivatives. PKC action is mediated by binding to specific receptors for activated C- kinase (RACKs) and through the phosphorylation of several cellular substrates.[4-6] Proteolysis of PKC *in vivo* is 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) which is catalytically active.[7,8] Molecular cloning has established that PKC consists of several different isoenzymes which can be subdivided in three major classes based on their primary structure and activation requirements: conventional (cPKC) isoforms (α, β_1, β_2 and γ), novel (nPKC) isoforms (δ, ε, η and θ), and atypical (aPKC) isoforms (ζ, λ and ι).[2,3]

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 involved in Ca^{2+} binding. These isoforms have kinase activities regulated by DAG or PtdSer but are Ca^{2+}-independent. The aPKC isoforms, which have only one zinc finger-like domain, are unique in that their activity is independent of Ca^{2+}, DAG and phorbol esters. The PKC ζ isoform is activated by cis- unsaturated fatty acids. The PKC ζ isoform is expressed in a wide variety of cells and tissues.[2,3,9] It appears to be located in the cytosol and is translocated to the cellular membrane depending on the cell type.[3,10] Antibodies that react specifically with PKC isoenzymes may be used to study the specific activation requirements, differential tissue expression, intracellular localization, of these isoenzymes. Antibodies to PKC may also be used to study the expression of PKC in normal and neoplastic tissue.

Reagents

Rabbit Anti-Protein Kinase C ζ is supplied as a liquid containing 0.1% sodium azide as preservative.

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.

Product Profile

Anti-PKC ζ may be used for the detection of PKC ζ isoenzyme in immunoblotting using cell culture extracts and rat brain extracts.

1. A working dilution of 1:20,000 was determined by indirect immunoblotting using rat brain extract.
2. A working dilution of 1:20,000 was determined by indirect immunoblotting using NIH 3T3 lysate.

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

References

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