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Product Information

Protein Kinase C α , Active

Human, recombinant, expressed in *E. coli*

Product Number **P 7123**

Storage Temperature: -70 °C

Synonyms: PKC α ; PKD3

Product Description

PKC α , also known as PKD3, is a member of the protein kinase C (PKC) family of serine/threonine kinases that play critical roles in the regulation of cellular differentiation and proliferation in many cell types.

PKC α has two putative diacylglycerol binding C1 domains, suggesting that it may participate in a novel diacylglycerol-mediated signaling pathway. It shows 77.3% similarity to human PKC μ and 77.4% similarity to mouse PKD (the mouse homolog of PKC μ).¹ PKC α translocates to the plasma membrane in response to treatment with phorbol 12-myristate 13-acetate (PMA), which activates this kinase. Furthermore, PKC α is an important physiologic target of the B-cell receptor (BCR) and exhibits activation upon BCR engagement.² PKC α is present both in the nucleus and cytoplasm. This distribution of PKD3 results from its continuous shuttling between both compartments by a mechanism that requires a nuclear import receptor and a competent CRM1-nuclear export pathway. Cell stimulation with the GPCR agonist neurotensin induced a rapid and reversible plasma membrane translocation of PKD3 that is PKC-dependent. The nuclear accumulation of PKD3 can be dramatically enhanced in response to its activation.³

The product is active recombinant, full-length human Protein Kinase C α containing an N-terminal GST tag. It is supplied at a concentration of approximately 100 μ g/mL in 50 mM Tris-HCl, pH 7.5, 150 mM NaCl, 0.25 mM DTT, 0.1 mM EGTA and 30% glycerol.

Purity: \geq 75% (SDS-PAGE)

Molecular weight: ~142 kDa

Specific Activity: \geq 10 units/mg protein (Bradford). Please refer to the Certificate of Analysis for the lot-specific activity.

Unit Definition: One unit will incorporate one nanomole of phosphate into the CREBtide peptide substrate per minute at 30 °C at pH 7.2 using a final concentration of 50 μ M [³²P] ATP.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation instructions

For maximum product recovery, after thawing, centrifuge the vial before removing the cap

Storage/Stability

Stable for at least 12 months when stored as undiluted stock at -70 °C. After initial thawing, store in smaller, working aliquots at -70 °C. Use the working aliquots immediately upon thawing. Avoid repeated freeze-thaw cycles to prevent denaturing of the protein. Do not store in a frost-free freezer.

References

1. Hayashi A. et al., PKC α , a new member of the protein kinase C family, composes a fourth subfamily with PKC μ , *Biochim. Biophys. Acta.* **1450**, 99-106 (1999).
2. Matthews S. A, et al., Regulation of protein kinase C α by the B-cell antigen receptor., *J. Biol. Chem.* **278**, 9086-9091 (2003).
3. Rey O. et al., Protein kinase C α /protein kinase D3 nuclear localization, catalytic activation, and intracellular redistribution in response to G protein-coupled receptor agonists., *J. Biol. Chem.* **278**, 23773-23785 (2003).

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