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ProductInformation

Protein Kinase C ι (PKC ι), Active
Human, recombinant, expressed in *E. coli*

Product Number **P 6873**
Storage Temperature: -70 °C

Synonym: Protein Kinase C λ/ι

Product Description

PKC ι is a member of the protein kinase C family of serine-threonine kinases. The amino acid sequence of PKC ι showed greatest homology to PKC ξ, with 72% identity overall and 84% in the catalytic domain.[1] In contrast, the homology of PKC ι to the other isoforms is less pronounced. PKC ι transcript is present predominantly in lung and brain, but is also expressed at lower levels in many tissues including pancreatic islets. PKC ι is stimulated by TNF-α and is required for the activation of NF-κB by this cytokine.[2] Cell transfections with a PKC ι dominant negative mutant abolished TNF-α-induced NF-κB-dependent transcription. PKC ι can modify the vulnerability of neural cells to apoptosis induced by amyloid β-peptide (ABP), a cytotoxic peptide linked to neuronal degeneration in Alzheimer's disease (AD).[2] Overexpression of PKC ι increased the resistance of PC12 cells to apoptosis induced by ABP. Associated with the increased resistance to apoptosis are improved mitochondrial function and reduced activity of caspases. In addition, ABP-induced increases in oxidative stress, and intracellular calcium levels were attenuated in cells overexpressing PKC ι.[3] Hashimoto generated mice lacking PKC λ in pancreatic β cells and observed impaired glucose tolerance and hypoinsulinemia. Islets from the null mice showed an increased basal rate of insulin release but impaired insulin secretion in response to high concentrations of glucose, although neither the β cell mass nor the islet insulin content of the null mice differed from that of controls. He observed that PKC λ plays a prominent role in regulation of glucose-induced insulin secretion by modulating the expression of genes important for β-cell function.[4]

The product is active recombinant, full-length human Protein Kinase C ι containing an N-terminal GST tag. It is supplied at a concentration of approximately 100 µg/mL in 50 mM Tris-HCl, pH 7.5, 150 mM NaCl, 0.25 mM DTT, 0.1 mM EGTA, 0.1 mM EDTA, 0.1 mM PMSF and 25% glycerol..

Purity: ≥ 85% (SDS-PAGE)

Molecular weight: ~98 kDa

Specific Activity: ≥ 50 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 µM [^{32}P] 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. Selbie L. A., et al., Molecular cloning and characterization of PKC ι, an atypical isoform of protein kinase C derived from insulin secreting cells., J. Biol. Chem., **268,** 24296-24302 (1993).
2. Bonizzi G, et al., Role of the protein kinase C λ/ι isoform in nuclear factor-κB activation by interleukin-1β or tumor necrosis factor-α: cell type specificities., Biochem. Pharmacol., **57,** 713-720 (1999).

3. Xie J., et al., Protein kinase C ι protects neural cells against apoptosis induced by amyloid β-peptide. Brain Res., Mol. Brain Res. **82**, 107-113 (2000).

4. Hashimoto, N., et al., PKC-λ regulates glucose-induced insulin secretion through modulation of gene expression in pancreatic β cells., J. Clin. Invest., **115**, 138-145 (2005).

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