

Product Information

Protein Kinase A Catalytic Subunit β , active, human recombinant, expressed in Sf9 cells

Catalog Number **P6998**

Storage Temperature -70°C

EC 2.7.1.37

Synonyms: PKA Catalytic Subunit β , PKA-C β , cAMP-dependent protein kinase

Product Description

PKA (Protein Kinase A) is an essential enzyme in the signaling pathway of the second messenger cAMP. Through phosphorylation of target proteins, PKA controls many biochemical events in the cell including regulation of metabolism, ion transport, and gene transcription. The PKA holoenzyme is composed of two regulatory (RI and RII) and three catalytic subunits (C α , C β , and C γ).

The catalytic subunit β is a member of the Ser/Thr protein kinase family. PKA-C β is activated by cAMP and found in the cytoplasm (inactive holoenzyme and monomeric catalytic subunit) and translocates into the nucleus (monomeric catalytic subunit). A number of inactive tetrameric holoenzymes are produced by the combination of homo or heterodimers of the different regulatory subunits associated with the two catalytic subunits. cAMP causes the dissociation of the inactive holoenzyme into a dimer of regulatory subunits bound to four cAMP and two free monomeric catalytic subunits. PKA-C β is a p75 neurotrophin receptor (NTR)-interacting protein, which phosphorylates p75 (NTR) at serine³⁰⁴.¹ cAMP-dependent protein kinase (PKA) effectively inhibits the progression of retinal neurogenesis in zebrafish. Almost all retinal cells continue to proliferate when PKA is activated, suggesting that PKA inhibits the cell-cycle exit of retinoblasts.²

Molecular mass: ~65 kDa

The product is active recombinant, full-length human PKA, Catalytic Subunit β containing an N-terminal GST tag. It is supplied in a solution of 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: $\geq 80\%$ (SDS-PAGE)

Specific Activity: ≥ 10 nmol/min/mg

Unit Definition: One unit will incorporate one nanomole of phosphate into the Crebtide (KRREILSRPSYR) substrate per minute at 30°C at pH 7.2 using a final concentration of $50\text{ }\mu\text{M}$ [^{32}P] ATP.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the 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

Store the product at -70°C . It remains active 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. Simard, J., et al., Assignment of the gene encoding the catalytic subunit C β of cAMP-dependent protein kinase to the p36 band on chromosome 1. Hum. Genet., **88**, 653-657 (1992).
2. Masai, I., et al., The hedgehog-PKA pathway regulates two distinct steps of the differentiation of retinal ganglion cells: the cell-cycle exit of retinoblasts and their neuronal maturation. Development, **132**, 1539-53 (2005). Epub Feb 23, 2005.

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