Protein Kinase C\(\mu\) (PKC\(\mu\)), Active

Human, recombinant, expressed in *E. coli*

Product Number P 7748

Storage Temperature: -70 °C

**Product Description**

Protein kinase C\(\mu\) (PKC\(\mu\)) is a novel member of the PKC family that differs from the other isoenzymes in structural and enzymatic properties. It is characterized by the presence of a pleckstrin homology (PH) domain and an N-terminal hydrophobic region and has substrate specificity distinct from other PKC isoforms. PKC\(\mu\) is a ubiquitous PKC isotype with the highest expression in the thymus, lung and peripheral blood mononuclear cells.\(^1\)

PKC\(\mu\) forms a complex in vivo with a phosphatidylinositol 4-kinase and a phosphatidylinositol-4-phosphate 5-kinase. A region of PKC\(\mu\) between the N-terminal transmembrane domain and the PH domain is shown to be involved in association with lipid kinases.\(^2\) PKC\(\mu\) associates with the B cell receptor (BCR) complex and its activity is up-regulated after cross-linking the BCR and CD19 on B cells.\(^3\) PKC\(\mu\) co-precipitates with Syk and PLC-\(\gamma1/2\). *In vitro* phosphorylation of fusion proteins showed that both Syk and PLC-\(\gamma1\) are potential substrates of PKC\(\mu\) *in vivo*. In addition, specific interaction of PKC\(\mu\) and 14-3-3\(\tau\) can be shown in Jurkat T cells.\(^4\) 14-3-3\(\tau\) is not a substrate of PKC\(\mu\) and strongly down-regulates PKC\(\mu\) kinase activity *in vitro*. Moreover, overexpression of 14-3-3\(\tau\) significantly reduced phorbol ester-induced activation of PKC\(\mu\) kinase activity in intact cells indicating that 14-3-3\(\tau\) is a negative regulator of PKC\(\mu\) in T cells. In response to various stimuli, PKC\(\mu\) activates the mitogen-activated protein kinase (p42/ERK1 MAPK cascade) but does not affect the related c-jun N-terminal kinase nor p38 MAPK.\(^5\)

The product is active recombinant, full-length human PKC\(\mu\) 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 and 30% glycerol.

**Purity:** ≥ 85% (SDS-PAGE)

**Molecular weight:** ~131 kDa

**Specific Activity:** ≥ 100 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 CREBtide substrate (KRREILSRRP-SYR) per minute at 30 °C at pH 7.2 using a final concentration of 50 µM \[^{32}\text{P}\]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**


