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Product Information

Protein Kinase G Iβ
human, recombinant
expressed in *Sf*9 cells

Catalog Number **P3738**
Storage Temperature –20 °C

EC 2.7.1.37
Synonyms: cKG Iβ, cyclic-Guanosine Monophosphate-dependent Protein Kinase 1β

Product Description

There are two major signal transduction pathways, one based on NO production and the other based on small peptide hormones. The latter stimulates trans-membrane receptor guanylyl cyclases, elevates cGMP, and activates cGMP-regulated channels, phospho-diesterases, and kinases.[1] Protein kinase G Iβ (cKG Iβ) is a soluble isoform of cGMP-dependent protein kinase I.

In general, protein kinases can control the growth, viability, and development of cells in response to extracellular signals such as hormones and growth factors. Vertebrate cKGs consist of the soluble isoforms Iα and Iβ, found predominantly in the cytosolic fractions of smooth muscle, lung, and cerebellum, and a membrane-bound type II. Iα and Iβ differ only in the 100 N-terminal amino acids; both are homodimers of 76 kDa subunits.[2] cKG-I is important for vascular relaxation;[3] whereas, cKG-II is an activator of chloride transport.[4] Rp-8-pCPT-cGMPS is a competitive inhibitor of purified recombinant cGK II, cGK Iα, and cGK Iβ.[1]

This product is the recombinant, human placental Iβ isoform of Protein Kinase G isolated from baculovirus-infected *Sf*9 cells. It is supplied as a solution in 20 mM Tris buffer, pH 7.4, 1 mM EDTA, 1 mM 2-mercaptoethanol, 100 mM NaCl, 10 units/ml aprotinin, and 50% glycerol.

Purity: ≥95% (SDS-PAGE)

Specific activity: ≥1.5 units/mg protein

Unit Definition: One unit will phosphorylate 1 μmole of VASPtide (RRKVSKQE) substrate per minute at pH 7.4.

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.

Storage/Stability

The product ships on wet ice and storage in aliquots at –20 °C is recommended. It remains active for at least 6 months when stored as recommended. Avoid freeze-thaw cycles.

References

1. Pohler, K., et al., Expression, purification, and characterization of the cGMP-dependent protein kinases Iβand II using the baculovirus system. FEBS Lett., **374,** 419 (1995).
2. Gamm, D.M., et al., The type II isoform of cGMP dependent protein kinase is dimeric and possesses regulatory and catalytic properties distinct from the type I isoforms. J. Biol. Chem., **270,** 27380-27388 (1995).
3. Lin., C.S., et al., Age-related decrease of protein kinase G activation in vascular smooth muscle cells. Biochem. Biophys. Res. Commun., **287,** 244-248 (2001).
4. French, P.J., et al., Isotype-specific activation of cystic fibrosis transmembrane conductance regulator-chloride channels by cGMP-dependent protein kinase II. J. Biol. Chem., **270,** 26626-26631 (1995).

CS,JDS,FEB,JWM,MAM 04/09-1