

## PGCB control peptide

**Alternate names:** PGC-B, Particulate Guanylyl Cyclase B

**Catalog No.:** AP10263CP-N

**Quantity:** 0.1 mg

**Background:** Cyclic GMP (cGMP), a key messenger in several signal transduction pathways, the intracellular levels of cGMP are maintained by the activity of opposing enzymes: synthesizing guanylyl cyclases (GC) and hydrolyzing phosphodiesterases (PDEs). The synthesizing enzymes (GCs) are found in two forms: cytosolic (soluble) and membrane-bound (particulate), while they share similar structural characteristics, they differ in their mechanisms of physiological regulations. Most importantly, soluble GC (sGC) contains a heme group and binds NO that activates the enzyme, while particulate GC (PGCs) are stimulated by natriuretic peptides. Particulate forms of guanylyl cyclases have been shown to function as natriuretic peptide receptors. In response to G-protein coupled receptor stimulation, the cGMP can be produced from GTP by either soluble guanylate cyclase (sGC), or by PGC. The sGC are heterodimers (a & b polypeptide chains), that are stimulated by nitric oxide and carbon monoxide or by particulate membrane-bound guanylyl cyclases which are activated by a complex mechanism by natriuretic peptides. PGCs have 7 different isoforms, PGC-A through PGC-G and are expressed in most tissues in isoform specific manner (See Table 1). There is significant structural homology among various PGCs, there is a large N-terminal extracellular domain (ECD), a single TMD and a large intracellular domain with protein kinase activity (KLD), a C-terminal catalytic domain (CD) and in between is a dimerization domain (DD). Guanylyl cyclase B (PGC-B) is a receptor for B type brain natriuretic peptide (BNP) and is 78% identical to PGCA in the ECD but only 43% in the CD. The binding of a ligand to the extra-cellular domain of PGC-B triggers signal that control central and peripheral cardiovascular homeostasis. Both PGC-A and PGC-B are phosphorylated at Serine residues in the KLD (2). Non-ionic detergents stimulated particulate guanylate cyclase activity in cerebral cortex of rat 8- to 12-fold while stimulation of soluble enzyme was 1.3- to 2.5-fold (2).

**Format:** **State:** Liquid synthetic peptide

**Description:** Antigenic blocking peptide for AP10263PU-N

**Storage:** Store (in aliquots) at -20 °C. Avoid repeated freezing and thawing.  
Shelf life: one year from despatch.

**General Readings:**

1. Potter LR, Hunter T. J Biol Chem. 1998 Jun 19;273(25):15533-9.
2. Deguch T., Amano E., Nakeane M. J. Neurochem. 27, 1027-1034, 1976.
3. Rehemudula D, Nakayama T, Soma M, Takahashi Y, Uwabo J, Sato M, et al. Structure of the type B human natriuretic peptide receptor gene and association of a novel microsatellite polymorphism with essential hypertension. Circ Res. 1999 Mar 19;84(5):605-10. PubMed PMID: 10082481.