

## PGCC control peptide

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

**Catalog No.:** AP10264CP-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, sGC contains a heme group and binds NO that activates the enzyme, while particulate GC is stimulated by natriuretic peptides. Plasma membrane forms of guanylyl cyclase 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 cytoplasmic, soluble guanylate cyclase (sGC) are heterodimers (α & β 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. Particulate GC (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). The particulate GC-D, also known as olfactory guanylate cyclase, is specifically expressed in a subpopulation of olfactory sensory neurons. The expression of GC-D RNA is restricted to a small, randomly dispersed population of neurons that is within a single topographic zone in the olfactory neuroepithelium and resembles the pattern of the more diverse seven-transmembrane-domain odorant receptors (1). Particulate GC-D resembles two other GC expressed in retina (P-GC-E and F), but diverges considerably from other GCs. These observations suggest that GC-D may function directly in odor recognition or in modulating the sensitivity of a subpopulation of sensory neurons to specific odors.

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

**Description:** Antigenic blocking peptide AP10264PU-N

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

**General Readings:**

1. Wedel B. J and Garbers D. L., *Trend Endocrinol. Met.* 9, 213-219; 1998
2. Hidaka Y, Matsumoto Y, Shimonishi Y. *FEBS Lett* 2002 526; 58-62
3. Deguch T., Amano E., Nakeane M. J. *Neurochem.* 27, 1027-1034, 1976.
4. Teunissen C et. al., *Brain Res.* 891, 206-212; 2001.