

**cGKI (cGKI beta) Antibody (C-term) Blocking peptide**  
**Synthetic peptide**  
**Catalog # BP8000a****Specification**

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**cGKI (cGKI beta) Antibody (C-term) Blocking peptide - Product Information**

Primary Accession [O13976](#)  
Other Accession [P14619](#)

**cGKI (cGKI beta) Antibody (C-term) Blocking peptide - Additional Information**

**Gene ID** 5592

**Other Names**

cGMP-dependent protein kinase 1, cGK 1, cGK1, cGMP-dependent protein kinase I, cGKI, PRKG1, PRKG1B, PRKGR1A, PRKGR1B

**Target/Specificity**

The synthetic peptide sequence used to generate the antibody [AP8000a](/product/products/AP8000a) was selected from the C-term region of human cGKI beta . A 10 to 100 fold molar excess to antibody is recommended. Precise conditions should be optimized for a particular assay.

**Format**

Peptides are lyophilized in a solid powder format. Peptides can be reconstituted in solution using the appropriate buffer as needed.

**Storage**

Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C.

**Precautions**

This product is for research use only. Not for use in diagnostic or therapeutic procedures.

**cGKI (cGKI beta) Antibody (C-term) Blocking peptide - Protein Information**

**Name** PRKG1

**Synonyms** PRKG1B, PRKGR1A, PRKGR1B

**Function**

Serine/threonine protein kinase that acts as a key mediator of the nitric oxide (NO)/cGMP signaling pathway. GMP binding activates PRKG1, which phosphorylates serines and threonines on many cellular proteins. Numerous protein targets for PRKG1 phosphorylation are implicated in modulating cellular calcium, but the contribution of each of these targets may vary substantially among cell types. Proteins that are phosphorylated by PRKG1 regulate platelet activation and adhesion, smooth muscle contraction, cardiac function, gene expression, feedback of the NO-signaling pathway, and other processes involved in several aspects of the CNS like axon guidance, hippocampal and cerebellar learning, circadian rhythm and nociception. Smooth muscle

relaxation is mediated through lowering of intracellular free calcium, by desensitization of contractile proteins to calcium, and by decrease in the contractile state of smooth muscle or in platelet activation. Regulates intracellular calcium levels via several pathways: phosphorylates IRAG1 and inhibits IP3-induced  $\text{Ca}^{2+}$  release from intracellular stores, phosphorylation of KCNMA1 (BKCa) channels decreases intracellular  $\text{Ca}^{2+}$  levels, which leads to increased opening of this channel. PRKG1 phosphorylates the canonical transient receptor potential channel (TRPC) family which inactivates the associated inward calcium current. Another mode of action of NO/cGMP/PKG1 signaling involves PKGI-mediated inactivation of the Ras homolog gene family member A (RhoA). Phosphorylation of RHOA by PRKG1 blocks the action of this protein in myriad processes: regulation of RHOA translocation; decreasing contraction; controlling vesicle trafficking, reduction of myosin light chain phosphorylation resulting in vasorelaxation. Activation of PRKG1 by NO signaling alters also gene expression in a number of tissues. In smooth muscle cells, increased cGMP and PRKG1 activity influence expression of smooth muscle-specific contractile proteins, levels of proteins in the NO/cGMP signaling pathway, down-regulation of the matrix proteins osteopontin and thrombospondin-1 to limit smooth muscle cell migration and phenotype. Regulates vasodilator-stimulated phosphoprotein (VASP) functions in platelets and smooth muscle.

**Cellular Location**

Cytoplasm. Note=Colocalized with TRPC7 in the plasma membrane.

**Tissue Location**

Primarily expressed in lung and placenta.

**cGKI (cGKI beta) Antibody (C-term) Blocking peptide - Protocols**

Provided below are standard protocols that you may find useful for product applications.

- [Blocking Peptides](#)

**cGKI (cGKI beta) Antibody (C-term) Blocking peptide - Images****cGKI (cGKI beta) Antibody (C-term) Blocking peptide - Background**

Protein kinases are enzymes that transfer a phosphate group from a phosphate donor, generally the  $\gamma$  phosphate of ATP, onto an acceptor amino acid in a substrate protein. By this basic mechanism, protein kinases mediate most of the signal transduction in eukaryotic cells, regulating cellular metabolism, transcription, cell cycle progression, cytoskeletal rearrangement and cell movement, apoptosis, and differentiation. With more than 500 gene products, the protein kinase family is one of the largest families of proteins in eukaryotes. The family has been classified in 8 major groups based on sequence comparison of their tyrosine (PTK) or serine/threonine (STK) kinase catalytic domains.

**cGKI (cGKI beta) Antibody (C-term) Blocking peptide - References**

Orstavik, S., et al., Genomics 42(2):311-318 (1997).Tamura, N., et al., Hypertension 27 (3 Pt 2), 552-557 (1996).