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cGKI Rabbit pAb

Catalog # AP99652

Product Information

Application	WB
Primary Accession	Q13976
Other Accession	Q13976
Reactivity	Human, Mouse
Predicted	Rat, Pig, Rabbit, Chicken, Dog, Horse
Host	Rabbit
Clonality	Polyclonal
Calculated MW	76364
Physical State	Liquid
Immunogen	KLH conjugated synthetic peptide derived from human Prkg1/cGKI
Epitope Specificity	551-650/671
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
SIMILARITY	Belongs to the protein kinase superfamily. AGC Ser/Thr protein kinase family. cGMP subfamily. Contains 1 AGC-kinase C-terminal domain. Contains 2 cyclic nucleotide-binding domains.Contains 1 protein kinase domain.
SUBUNIT	Isoform alpha: parallel homodimer or heterodimer and also heterotetramer. Interacts directly with PPP1R12A.
Post-translational modifications	Autophosphorylation increases kinase activity. 65 kDa monomer is produced by proteolytic cleavage.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	Protein kinases are enzymes that transfer a phosphate group from a phosphate donor, generally the g 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. PKG plays an important stimulatory role in platelet activation.

Additional Information

Gene ID	5592
Other Names	AAT8; PKG; PKG1; PRKG1B; PRKGR1B; cGK; cGK 1; cGK1; cGKI; cGKI-BETA; cGKI-alpha; KGP1_HUMAN; PRKG1; cGMP-dependent protein kinase I (cGKI); 2.7.11.12; PRKGR1A; protein kinase cGMP-dependent 1; protein kinase, cGMP-dependent, type I

Dilution	WB=1:500-2000,ICC/IF=1:50-200
Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.

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 Ca(2+) release from intracellular stores, phosphorylation of KCNMA1 (BKCa) channels decreases intracellular 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/PKGI 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 also alters 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.

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