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PKG Antibody
Rabbit Polyclonal Antibody
Catalog # ABV10331

Specification

PKG Antibody - Product Information

Application	**WB**
Primary Accession	Q13976
Other Accession	ABQ59040
Reactivity	**Human, Mouse, Rat, Bovine**
Host	**Rabbit**
Clonality	**Polyclonal**
Isotype	**Rabbit IgG**
Calculated MW	**76364**

PKG Antibody - Additional Information

Gene ID 5592

Application & Usage	**The antibody can be used for Western blotting (0.5-4 µg/ml). However, the optimal conditions should be determined individually. The antibody recognizes 75 and 85 kDa PKG, corresponding to the molecular mass of two PKG isoforms.**

Other Names
cGKI alpha CGKI cGKI beta cGMP dependent protein kinase 1alpha isozyme cGMP dependent protein kinase 1beta isozyme KGPB PRKG1 PR

Target/Specificity
PKG

Antibody Form
Liquid

Appearance
Colorless liquid

Formulation
100 µg (0.5 mg/ml) affinity purified rabbit polyclonal antibody in phosphate-buffered saline (PBS) containing 30% glycerol, 0.5% BSA, and 0.01% thimerosal.

Handling
The antibody solution should be gently mixed before use.

Reconstitution & Storage
-20 °C

Background Descriptions

Precautions
PKG Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

PKG Antibody - 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 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.

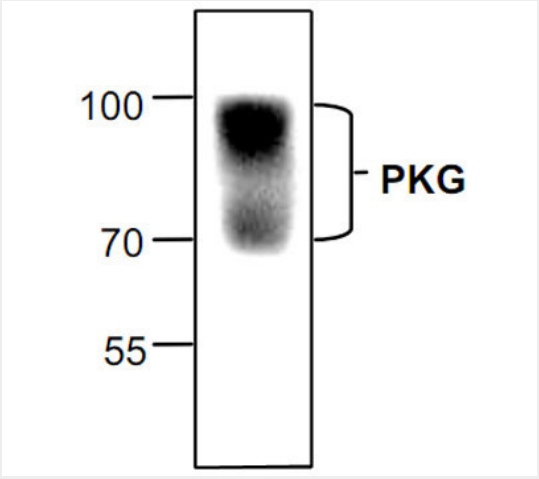
PKG Antibody - Protocols

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

- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

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PKG Antibody - Images



Western blot analysis of PKG expression in 3T3 cell lysate.

PKG Antibody - Background

PKGs are cyclic GMP-dependent protein kinases (also designed cGKs) that are classified into two types, PKGI and PKGII. Studies have shown that cGKs and cyclic AMP-dependent kinases (cAKs) are highly homologous protein kinase families with similar substrate specificities. Phosphorylation of cellular proteins by both families of kinases leads to alterations in calcium mobilization, protein phosphatase activity, ion channel function, gene transcription, smooth muscle contractility and platelet aggregation. However, recent studies using mice deficient in PKGs have shown that cGMP kinases regulate very specifically distinct pathways which are separate from those used by cyclic AMP kinases.