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PRKAG3 Antibody (Center)
Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP7050C

Specification

PRKAG3 Antibody (Center) - Product Information

Application	**WB, IHC-P,E**
Primary Accession	Q9UGI9
Reactivity	**Human, Mouse**
Host	**Rabbit**
Clonality	**Polyclonal**
Isotype	**Rabbit IgG**
Antigen Region	**148-178**

PRKAG3 Antibody (Center) - Additional Information

Gene ID 53632

Other Names
5'-AMP-activated protein kinase subunit gamma-3, AMPK gamma3, AMPK subunit gamma-3, PRKAG3, AMPKG3

Target/Specificity
This PRKAG3 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 148-178 amino acids from the Central region of human PRKAG3.

Dilution
WB~~1:1000
IHC-P~~1:50~100

Format
Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is prepared by Saturated Ammonium Sulfate (SAS) precipitation followed by dialysis against PBS.

Storage
Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.

Precautions
PRKAG3 Antibody (Center) is for research use only and not for use in diagnostic or therapeutic procedures.

PRKAG3 Antibody (Center) - Protein Information

Name PRKAG3

Synonyms AMPKG3

Function AMP/ATP-binding subunit of AMP-activated protein kinase (AMPK), an energy sensor protein kinase that plays a key role in regulating cellular energy metabolism (PubMed:14722619, PubMed:24563466, PubMed:17878938). In response to reduction of intracellular ATP levels, AMPK activates energy-producing pathways and inhibits energy-consuming processes: inhibits protein, carbohydrate and lipid biosynthesis, as well as cell growth and proliferation. AMPK acts via direct phosphorylation of metabolic enzymes, and by longer-term effects via phosphorylation of transcription regulators. AMPK also acts as a regulator of cellular polarity by remodeling the actin cytoskeleton; probably by indirectly activating myosin. The AMPK gamma3 subunit is a non-catalytic subunit with a regulatory role in muscle energy metabolism (PubMed:17878938). It mediates binding to AMP, ADP and ATP, leading to AMPK activation or inhibition: AMP-binding results in allosteric activation of alpha catalytic subunit (PRKAA1 or PRKAA2) both by inducing phosphorylation and preventing dephosphorylation of catalytic subunits. ADP also stimulates phosphorylation, without stimulating already phosphorylated catalytic subunit. ATP promotes dephosphorylation of catalytic subunit, rendering the AMPK enzyme inactive.

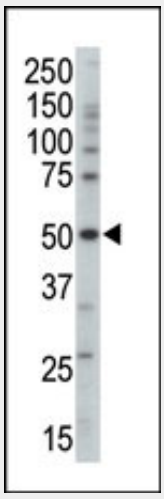
Tissue Location
Skeletal muscle, with weak expression in heart and pancreas

PRKAG3 Antibody (Center) - Protocols

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

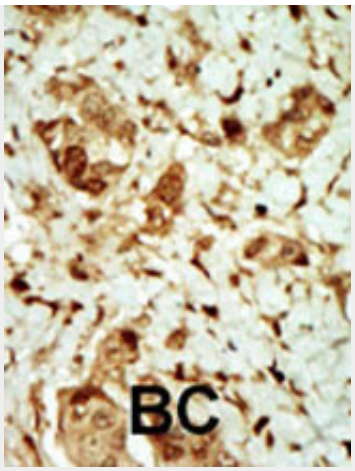
- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

PRKAG3 Antibody (Center) - Images



Western blot analysis of anti-PRKAG3 Pab (Cat. #AP7050c) in mouse brain tissue lysate. PRKAG3 (arrow) was detected using purified Pab. Secondary HRP-anti-rabbit was used for signal visualization with chemiluminescence.

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Formalin-fixed and paraffin-embedded human cancer tissue reacted with the primary antibody, which was peroxidase-conjugated to the secondary antibody, followed by DAB staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated. BC = breast carcinoma; HC = hepatocarcinoma.

PRKAG3 Antibody (Center) - Background

PRKAG3 is a regulatory subunit of the AMP-activated protein kinase (AMPK). AMPK is a heterotrimer consisting of an alpha catalytic subunit, and non-catalytic beta and gamma subunits. AMPK is an important energy-sensing enzyme that monitors cellular energy status. In response to cellular metabolic stresses, AMPK is activated, and thus phosphorylates and inactivates acetyl-CoA carboxylase (ACC) and beta-hydroxy beta-methylglutaryl-CoA reductase (HMGCR), key enzymes involved in regulating de novo biosynthesis of fatty acid and cholesterol. This subunit is one of the gamma regulatory subunits of AMPK. It is dominantly expressed in skeletal muscle. Studies of the pig
counterpart suggest that this subunit may play a key role in the regulation of energy metabolism in skeletal muscle.

PRKAG3 Antibody (Center) - References

Milan, D., et al., Science 288(5469):1248-1251 (2000).
Cheung, P.C., et al., Biochem. J. 346 Pt 3, 659-669 (2000).

PRKAG3 Antibody (Center) - Citations

- Expression of 5'-AMP-activated protein kinase with starvation in murine thymocytes.
- Hypoxia induces expression and activation of AMPK in rat dental pulp cells.