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GRK5 Antibody (C-term)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP7007a

Product Information

Application	WB, IHC-P, E
Primary Accession	P34947
Other Accession	P43249
Reactivity	Human, Rat, Mouse
Predicted	Bovine
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB0903
Calculated MW	67787
Antigen Region	559-590

Additional Information

Gene ID	2869
Other Names	G protein-coupled receptor kinase 5, G protein-coupled receptor kinase GRK5, GRK5, GPRK5
Target/Specificity	This GRK5 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 559-590 amino acids from the C-terminal region of human GRK5.
Dilution	WB~~1:2000 IHC-P~~1:100~500 E~~Use at an assay dependent concentration.
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	GRK5 Antibody (C-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	GRK5
Synonyms	GPRK5

Function	Serine/threonine kinase that phosphorylates preferentially the activated forms of a variety of G-protein-coupled receptors (GPCRs). Such receptor phosphorylation initiates beta-arrestin-mediated receptor desensitization, internalization, and signaling events leading to their down-regulation. Phosphorylates a variety of GPCRs, including adrenergic receptors, muscarinic acetylcholine receptors (more specifically Gi-coupled M2/M4 subtypes), dopamine receptors and opioid receptors. In addition to GPCRs, also phosphorylates various substrates: Hsc70-interacting protein/ST13, TP53/p53, HDAC5, and arrestin-1/ARRB1. Phosphorylation of ARRB1 by GRK5 inhibits G-protein independent MAPK1/MAPK3 signaling downstream of 5HT4-receptors. Phosphorylation of HDAC5, a repressor of myocyte enhancer factor 2 (MEF2) leading to nuclear export of HDAC5 and allowing MEF2-mediated transcription. Phosphorylation of TP53/p53, a crucial tumor suppressor, inhibits TP53/p53-mediated apoptosis. Phosphorylation of ST13 regulates internalization of the chemokine receptor. Phosphorylates rhodopsin (RHO) (in vitro) and a non G-protein-coupled receptor, LRP6 during Wnt signaling (in vitro).
Cellular Location	Cytoplasm. Nucleus. Cell membrane; Peripheral membrane protein. Note=Predominantly localized at the plasma membrane; targeted to the cell surface through the interaction with phospholipids. Nucleus localization is regulated in a GPCR and Ca(2+)/calmodulin-dependent fashion
Tissue Location	Highest levels in heart, placenta, lung > skeletal muscle > brain, liver, pancreas > kidney.

Background

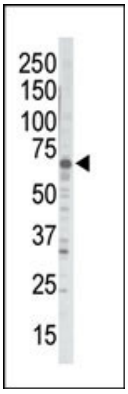
Protein kinases are enzymes that transfer a phosphate group from a phosphate donor, generally the g phosphate of ATP, onto an acceptor amino acid in a substrate protein. By this basic mechanism, protein kinases mediate most of the signal transduction in eukaryotic cells, regulating cellular metabolism, 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. The AGC kinase group consists of 63 kinases including the cyclic nucleotide-regulated protein kinase (PKA & PKG) family, the diacylglycerol-activated/phospholipid-dependent protein kinase C (PKC) family, the related to PKA and PKC (RAC/Akt) protein kinase family, the kinases that phosphorylate G protein-coupled receptors family (ARK), and the kinases that phosphorylate ribosomal protein S6 family (RSK).

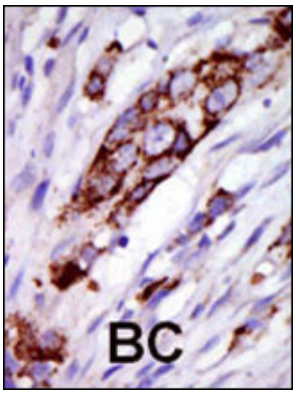
References

Pronin, A.N., et al., J. Biol. Chem. 275(34):26515-26522 (2000).
Pronin, A.N., et al., J. Biol. Chem. 273(47):31510-31518 (1998).
Nagayama, Y., et al., J. Biol. Chem. 271(17):10143-10148 (1996).
Kunapuli, P., et al., J. Biol. Chem. 269(2):1099-1105 (1994).
Kunapuli, P., et al., Proc. Natl. Acad. Sci. U.S.A. 90(12):5588-5592 (1993).

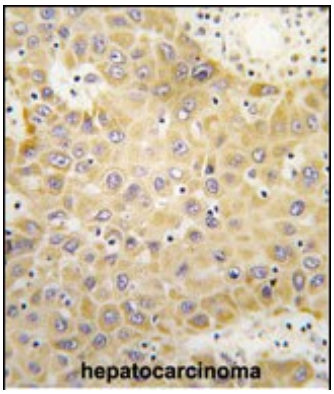
Images

Western blot analysis of anti-GRK5 Pab (Cat. #AP7007a) in mouse brain tissue lysate. GRK5 (arrow) was detected using purified Pab. Secondary HRP-anti-rabbit was used for signal visualization with chemiluminescence.





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.



Formalin-fixed and paraffin-embedded human hepatocarcinoma tissue reacted with GRK5 Antibody (C-term) (Cat.#AP7007a), 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.