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[Primary Antibody]

Rabbit Anti-PKC alpha antibody

Catalog Number: SL23715R

FOR RESEARCH USE ONLY

[DATASHEET]

Host:	Rabbit
Isotype:	IgG
Clonality:	Polyclonal
Target:	PKC alpha
Immunogen:	KLH conjugated synthetic peptide derived from human PKC alpha: 301-400/672
Purification:	affinity purified by Protein A
Concentration:	1mg/ml
Storage:	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol. Shipped at 4℃. Store at -20 °C for one year. Avoid repeated freeze/thaw cycles.
Applications:	IHC-P=1:100-500 IHC-F=1:100-500 IF=1:100-500 （Paraffin sections need antigen repair） not yet tested in other applications. optimal dilutions/concentrations should be determined by the end user.
Reactivity:	Mouse(predicted:Human,Rat,Rabbit)
Predicted MW.:	77kDa
Subcellular Location:	The nucleus cytoplasmic The cell membrane
Background:	Protein Kinase c alpha (PKC alpha) is an 77 kDa member of the conventional group (cPKCs: sensitive to calcium, diacylglycerol, phosphatidylserine and phorbol esters) of the PKC family of serine/ threonine kinases that are involved in a wide range of physiological processes including mitogenesis, cell survival and transcriptional regulation. PKC alpha is an ubiquitously expressed PKC isozyme that has been implicated in the regulation of a broad range of cellular functions including proliferation, differentiation, development, migration, cell cell adhesion, cell extracellular matrix adhesion, and solute transport. The activation loop threonine (threonine 497 in PKC alpha) of conventional PKCs is phosphorylated by phosphoinositide dependent kinase 1 (PDK1). This phosphorylation is necessary for the autophosphorylation of threonine

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	638 in the carboxy terminus of PKC alpha, a step that is critical for regulating the rate of PKC alpha dephosphorylation and inactivation. **Function:** Calcium-activated, phospholipid- and diacylglycerol (DAG)-dependent serine/threonine-protein kinase that is involved in positive and negative regulation of cell proliferation, apoptosis, differentiation, migration and adhesion, tumorigenesis, cardiac hypertrophy, angiogenesis, platelet function and inflammation, by directly phosphorylating targets such as RAF1, BCL2, CSPG4, TNNT2/CTNT, or activating signaling cascade involving MAPK1/3 (ERK1/2) and RAP1GAP. Involved in cell proliferation and cell growth arrest by positive and negative regulation of the cell cycle. Can promote cell growth by phosphorylating and activating RAF1, which mediates the activation of the MAPK/ERK signaling cascade, and/or by up-regulating CDKN1A, which facilitates active cyclin-dependent kinase (CDK) complex formation in glioma cells. In intestinal cells stimulated by the phorbol ester PMA, can trigger a cell cycle arrest program which is associated with the accumulation of the hyper-phosphorylated growth-suppressive form of RB1 and induction of the CDK inhibitors CDKN1A and CDKN1B. Exhibits anti-apoptotic function in glioma cells and protects them from apoptosis by suppressing the p53/TP53-mediated activation of IGFBP3, and in leukemia cells mediates anti-apoptotic action by phosphorylating BCL2. During macrophage differentiation induced by macrophage colony-stimulating factor (CSF1), is translocated to the nucleus and is associated with macrophage development. After wounding, translocates from focal contacts to lamellipodia and participates in the modulation of desmosomal adhesion. Plays a role in cell motility by phosphorylating CSPG4, which induces association of CSPG4 with extensive lamellipodia at the cell periphery and polarization of the cell accompanied by increases in cell motility. Is highly expressed in a number of cancer cells where it can act as a tumor promoter and is implicated in malignant phenotypes of several tumors such as gliomas and breast cancers. Negatively regulates myocardial contractility and positively regulates angiogenesis, platelet aggregation and thrombus formation in arteries. Mediates hypertrophic growth of neonatal cardiomyocytes, in part through a MAPK1/3 (ERK1/2)-dependent signaling pathway, and upon PMA treatment, is required to induce cardiomyocyte hypertrophy up to heart failure and death, by increasing protein synthesis, protein-DNA ratio and cell surface area. Regulates cardiomyocyte function by phosphorylating cardiac troponin T (TNNT2/CTNT), which induces significant reduction in actomyosin ATPase activity, myofilament calcium sensitivity and myocardial contractility. In angiogenesis, is required for full endothelial cell migration, adhesion to

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	vitronectin (VTN), and vascular endothelial growth factor A (VEGFA)-dependent regulation of kinase activation and vascular tube formation. Involved in the stabilization of VEGFA mRNA at post-transcriptional level and mediates VEGFA-induced cell proliferation. In the regulation of calcium-induced platelet aggregation, mediates signals from the CD36/GP4 receptor for granule release, and activates the integrin heterodimer ITGA2B-ITGB3 through the RAP1GAP pathway for adhesion. During response to lipopolysaccharides (LPS), may regulate selective LPS-induced macrophage functions involved in host defense and inflammation. But in some inflammatory responses, may negatively regulate NF-kappa-B-induced genes, through IL1A-dependent induction of NF-kappa-B inhibitor alpha (NFKBIA/IKBA). Upon stimulation with 12-O-tetradecanoylphorbol-13-acetate (TPA), phosphorylates EIF4G1, which modulates EIF4G1 binding to MKNK1 and may be involved in the regulation of EIF4E phosphorylation. Phosphorylates KIT, leading to inhibition of KIT activity. **Subunit:** Recruited in a circadian manner into a nuclear complex which also includes BMAL1 and GNB2L1/RACK1 (By similarity). Interacts with ADAP1/CENTA1, CSPG4 and PRKCABP. Binds to SDPR in the presence of phosphatidylserine. Interacts with PICK1 (via PDZ domain). Interacts with TRIM41. **Subcellular Location:** Cytoplasm. Cell membrane; Peripheral membrane protein. Nucleus. **Similarity:** Belongs to the protein kinase superfamily. AGC Ser/Thr protein kinase family. PKC subfamily. Contains 1 AGC-kinase C-terminal domain. Contains 1 C2 domain. Contains 2 phorbol-ester/DAG-type zinc fingers. Contains 1 protein kinase domain. **Database links:** **Entrez Gene:** 5578 Human **Entrez Gene:** 18750 Mouse **Entrez Gene:** 24680 Rat Omim: 176960 Human **SwissProt:** P17252 Human **SwissProt:** P20444 Mouse **SwissProt:** P05696 Rat **Unigene:** 531704 Human **Unigene:** 708867 Human **Unigene:** 222178 Mouse **Unigene:** 207908 Rat

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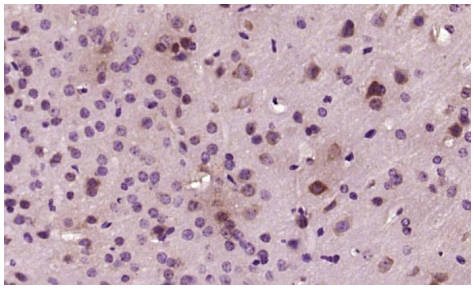
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[VALIDATION IMAGES]



Paraformaldehyde-fixed, paraffin embedded (mouse brain tissue); Antigen retrieval by boiling in sodium citrate buffer (pH6.0) for 15min; Block endogenous peroxidase by 3% hydrogen peroxide for 20 minutes; Blocking buffer (normal goat serum) at 37°C for 30min; Antibody incubation with (PKC alpha) Polyclonal Antibody, Unconjugated (SL23715R) at 1:400 overnight at 4°C, followed by operating according to SP Kit(Rabbit) (sp-0023) instructionsand DAB staining.

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