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AKAP5 Antibody (Center)

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP19171c

Product Information

Application	WB, E
Primary Accession	P24588
Other Accession	NP_004848.3
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB39500
Calculated MW	47088
Antigen Region	115-143

Additional Information

Gene ID	9495
Other Names	A-kinase anchor protein 5, AKAP-5, A-kinase anchor protein 79 kDa, AKAP 79, H21, cAMP-dependent protein kinase regulatory subunit II high affinity-binding protein, AKAP5, AKAP79
Target/Specificity	This AKAP5 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 115-143 amino acids from the Central region of human AKAP5.
Dilution	WB~~1:1000 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification.
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	AKAP5 Antibody (Center) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	AKAP5
Synonyms	AKAP79

Function	Multivalent scaffold protein that anchors the cAMP-dependent protein kinase/PKA to cytoskeletal and/or organelle-associated proteins, targeting the signal carried by cAMP to specific intracellular effectors (PubMed:1512224). Association with the beta2- adrenergic receptor (beta2-AR) not only regulates beta2-AR signaling pathway, but also the activation by PKA by switching off the beta2-AR signaling cascade. Plays a role in long term synaptic potentiation by regulating protein trafficking from the dendritic recycling endosomes to the plasma membrane and controlling both structural and functional plasticity at excitatory synapses (PubMed:25589740). In hippocampal pyramidal neurons, recruits KCNK2/TREK-1 channel at postsynaptic dense bodies microdomains and converts it to a leak channel no longer sensitive to stimulation by arachidonic acid, acidic pH or mechanical stress, nor inhibited by Gq-coupled receptors but still under the negative control of Gs-coupled receptors (By similarity). Associates with ORAI1 pore-forming subunit of CRAC channels in Ca(2+) signaling microdomains where it recruits NFATC2/NFAT1 and couples store-operated Ca(2+) influx to calmodulin and calcineurin signaling and activation of NFAT-dependent transcriptional responses (PubMed:33941685).
Cellular Location	Postsynaptic recycling endosome membrane; Lipid- anchor. Cell projection, dendrite {ECO:0000250|UniProtKB:D3YVF0}. Postsynaptic cell membrane {ECO:0000250|UniProtKB:D3YVF0}; Lipid-anchor. Note=Associates with lipid rafts.
Tissue Location	Predominantly in the cerebral cortex and the postsynaptic densities of the forebrain, and to a lesser extent in adrenal medulla, lung and anterior pituitary

Background

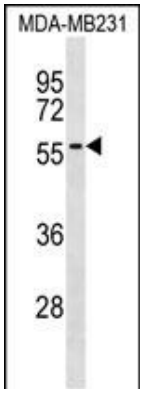
The A-kinase anchor proteins (AKAPs) are a group of structurally diverse proteins, which have the common function of binding to the regulatory subunit of protein kinase A (PKA) and confining the holoenzyme to discrete locations within the cell. This gene encodes a member of the AKAP family. The encoded protein binds to the RII-beta regulatory subunit of PKA, and also to protein kinase C and the phosphatase calcineurin. It is predominantly expressed in cerebral cortex and may anchor the PKA protein at postsynaptic densities (PSD) and be involved in the regulation of postsynaptic events. It is also expressed in T lymphocytes and may function to inhibit interleukin-2 transcription by disrupting calcineurin-dependent dephosphorylation of NFAT.

References

Willoughby, D., et al. J. Biol. Chem. 285(26):20328-20342(2010)
Chen, M.H., et al. Cell. Signal. 21(1):136-142(2009)
Tavalin, S.J. J. Biol. Chem. 283(17):11445-11452(2008)
Correia, S.S., et al. Nat. Neurosci. 11(4):457-466(2008)
Chai, S., et al. J. Biol. Chem. 282(31):22668-22677(2007)

Images

AKAP5 Antibody (Center) (Cat. #AP19171c) western blot analysis in MDA-MB231 cell line lysates (35ug/lane).This demonstrates the AKAP5 antibody detected the AKAP5 protein (arrow).



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