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RAPGEF2 Rabbit pAb

Catalog # AP98449

Product Information

Application	WB, IHC-P, IHC-F, IF, E
Primary Accession	Q9Y4G8
Other Accession	Q9Y4G8
Predicted	Rat, Pig, Human, Mouse, Rabbit, Chicken, Dog, Sheep
Host	Rabbit
Clonality	Polyclonal
Calculated MW	167417
Physical State	Liquid
Immunogen	KLH conjugated synthetic peptide derived from human RAPGEF2
Epitope Specificity	501-600/1499
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
SIMILARITY	Contains 1 cyclic nucleotide-binding domain. Contains 1 N-terminal Ras-GEF domain. Contains 1 PDZ (DHR) domain. Contains 1 Ras-associating domain. Contains 1 Ras-GEF domain.
SUBUNIT	Interacts with MAGI2.
Post-translational modifications	Phosphorylation by PLK2 promotes its activity (By similarity). Phosphorylated upon DNA damage, probably by ATM or ATR.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	SummaryMembers of the RAS (see HRAS; MIM 190020) subfamily of GTPases function in signal transduction as GTP/GDP-regulated switches that cycle between inactive GDP- and active GTP-bound states. Guanine nucleotide exchange factors (GEFs), such as RAPGEF2, serve as RAS activators by promoting acquisition of GTP to maintain the active GTP-bound state and are the key link between cell surface receptors and RAS activation (Rebhun et al., 2000 [PubMed 10934204]).[supplied by OMIM, Mar 2008]

Additional Information

Gene ID	9693
Other Names	CNrasGEF; NRAPGEP; PDZ-GEF1; PDZGEF1; RA-GEF; RA-GEF-1; RAGEF; Rap-GEP; nRap GEP; RPGF2_HUMAN; RAPGEF2; Cyclic nucleotide ras GEF (CNrasGEF); Neural RAP guanine nucleotide exchange protein (nRap GEP); PDZ domain-containing guanine nucleotide exchange factor 1 (PDZ-GEF1); Ras/Rap1-associating GEF-1; KIAA0313; Rap guanine nucleotide exchange factor 2; PDZ domain containing guanine nucleotide exchange factor (GEF) 1; Rap guanine nucleotide exchange factor (GEF) 2; Rap GEP
Dilution	WB=1:500-2000,IHC-P=1:100-500,IHC-F=1:100-500,ICC/IF=1:100-500,IF=1:100-500,ELISA=1:5000-10000

Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.

Protein Information

Name	RAPGEF2
Synonyms	KIAA0313, NRAPGEP, PDZGEF1
Function	Functions as a guanine nucleotide exchange factor (GEF), which activates Rap and Ras family of small GTPases by exchanging bound GDP for free GTP in a cAMP-dependent manner. Serves as a link between cell surface receptors and Rap/Ras GTPases in intracellular signaling cascades. Also acts as an effector for Rap1 by direct association with Rap1-GTP thereby leading to the amplification of Rap1-mediated signaling. Shows weak activity on HRAS. It is controversial whether RAPGEF2 binds cAMP and cGMP (PubMed:23800469, PubMed:10801446) or not (PubMed:10548487, PubMed:10608844, PubMed:11359771). Its binding to ligand-activated beta-1 adrenergic receptor ADRB1 leads to the Ras activation through the G(s)-alpha signaling pathway. Involved in the cAMP-induced Ras and Erk1/2 signaling pathway that leads to sustained inhibition of long term melanogenesis by reducing dendrite extension and melanin synthesis. Also provides inhibitory signals for cell proliferation of melanoma cells and promotes their apoptosis in a cAMP-independent nanner. Regulates cAMP-induced neuritogenesis by mediating the Rap1/B-Raf/ERK signaling through a pathway that is independent on both PKA and RAPGEF3/RAPGEF4. Involved in neuron migration and in the formation of the major forebrain fiber connections forming the corpus callosum, the anterior commissure and the hippocampal commissure during brain development. Involved in neuronal growth factor (NGF)-induced sustained activation of Rap1 at late endosomes and in brain-derived neurotrophic factor (BDNF)-induced axon outgrowth of hippocampal neurons. Plays a role in the regulation of embryonic blood vessel formation and in the establishment of basal junction integrity and endothelial barrier function. May be involved in the regulation of the vascular endothelial growth factor receptor KDR and cadherin CDH5 expression at allantois endothelial cell-cell junctions.
Cellular Location	Cytoplasm. Cytoplasm, perinuclear region. Cell membrane. Late endosome. Cell junction. Note=Associated with the synaptic plasma membrane. Colocalizes with ADRB1 at the plasma membrane. Synaptosome. Enriched in synaptic plasma membrane and neuronal cell body. Colocalized with CTNNB1 at cell-cell contacts (By similarity). Localized diffusely in the cytoplasm before neuronal growth factor (NGF) stimulation. Recruited to late endosomes after NGF stimulation. Colocalized with the high affinity nerve growth factor receptor NTRK1 at late endosomes. Translocated to the perinuclear region in a RAP1A-dependent manner. Translocated to the cell membrane
Tissue Location	Expressed in primary neuronal and endocrine cells (at protein level). Highest expression levels in brain. Lower expression levels in heart, kidney, lung, placenta and blood leukocytes.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.