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RACGAP1 Antibody (N-term)

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP11461a

Product Information

Application	WB, IHC-P, IF, FC, E
Primary Accession	Q9H0H5
Other Accession	NP_001119575.1, NP_037409.2
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB19807
Calculated MW	71027
Antigen Region	23-50

Additional Information

Gene ID	29127
Other Names	Rac GTPase-activating protein 1, Male germ cell RacGap, MgcRacGAP, Protein CYK4 homolog, CYK4, HsCYK-4, RACGAP1 (HGNC:9804)
Target/Specificity	This RACGAP1 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 23-50 amino acids from the N-terminal region of human RACGAP1.
Dilution	WB~~1:1000 IHC-P~~1:100~500 IF~~1:10~50 FC~~1:10~50 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	RACGAP1 Antibody (N-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	RACGAP1 (HGNC:9804)
Function	Component of the centralspindlin complex that serves as a microtubule-dependent and Rho-mediated signaling required for the myosin

	contractile ring formation during the cell cycle cytokinesis. Required for proper attachment of the midbody to the cell membrane during cytokinesis. Sequentially binds to ECT2 and RAB11FIP3 which regulates cleavage furrow ingression and abscission during cytokinesis (PubMed:18511905). Plays key roles in controlling cell growth and differentiation of hematopoietic cells through mechanisms other than regulating Rac GTPase activity (PubMed:10979956). Has a critical role in erythropoiesis (PubMed:34818416). Also involved in the regulation of growth-related processes in adipocytes and myoblasts. May be involved in regulating spermatogenesis and in the RACGAP1 pathway in neuronal proliferation. Shows strong GAP (GTPase activation) activity towards CDC42 and RAC1 and less towards RHOA. Essential for the early stages of embryogenesis. May play a role in regulating cortical activity through RHOA during cytokinesis. May participate in the regulation of sulfate transport in male germ cells.
Cellular Location	Nucleus. Cytoplasm. Cytoplasm, cytoskeleton, spindle Cytoplasmic vesicle, secretory vesicle, acrosome. Cleavage furrow Midbody, Midbody ring. Cell membrane; Peripheral membrane protein; Cytoplasmic side. Note=Colocalizes with RND2 in Golgi-derived proacrosomal vesicles and the acrosome (By similarity). During interphase, localized to the nucleus and cytoplasm along with microtubules, in anaphase, is redistributed to the central spindle and, in telophase and cytokinesis, to the midbody ring, also called Flemming body. Colocalizes with RHOA at the myosin contractile ring during cytokinesis. Colocalizes with ECT2 to the mitotic spindles during anaphase/metaphase, the cleavage furrow during telophase and at the midbody at the end of cytokinesis. Colocalizes with Cdc42 to spindle microtubules from prometaphase to telophase.
Tissue Location	Highly expressed in testis, thymus and placenta. Expressed at lower levels in spleen and peripheral blood lymphocytes In testis, expression is restricted to germ cells with the highest levels of expression found in spermatocytes. Expression is regulated in a cell cycle-dependent manner and peaks during G2/M phase

Background

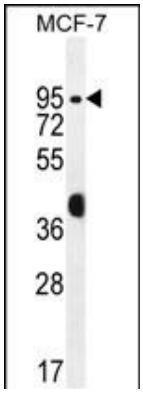
Rho GTPases control a variety of cellular processes. There are 3 subtypes of Rho GTPases in the Ras superfamily of small G proteins: RHO (see MIM 165370), RAC (see RAC1; MIM 602048), and CDC42 (MIM 116952). GTPase-activating proteins (GAPs) bind activated forms of Rho GTPases and stimulate GTP hydrolysis. Through this catalytic function, Rho GAPs negatively regulate Rho-mediated signals. GAPs may also serve as effector molecules and play a role in signaling downstream of Rho and other Ras-like GTPases.

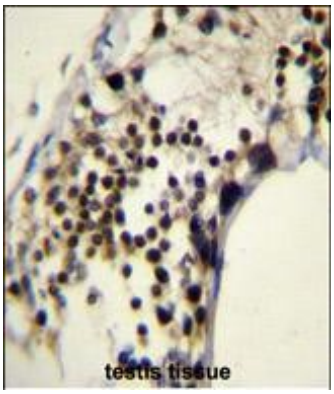
References

Bailey, S.D., et al. Diabetes Care 33(10):2250-2253(2010)
Talmud, P.J., et al. Am. J. Hum. Genet. 85(5):628-642(2009)
Seguin, L., et al. Mol. Cell. Biol. 29(2):570-581(2009)
Simon, G.C., et al. EMBO J. 27(13):1791-1803(2008)
Toure, A., et al. FEBS Lett. 582(8):1182-1188(2008)

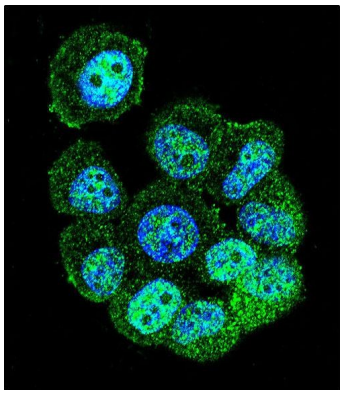
Images

RACGAP1 Antibody (N-term) (Cat. #AP11461a) western blot analysis in MCF-7 cell line lysates (35ug/lane).This demonstrates the RACGAP1 antibody detected the RACGAP1 protein (arrow).

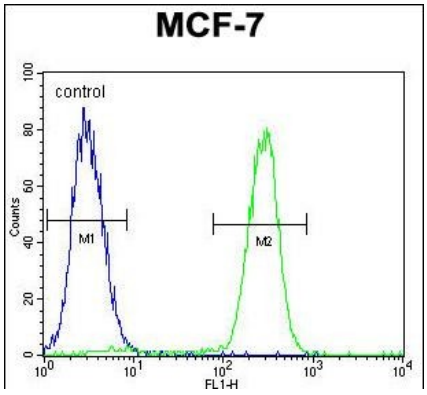




RACGAP1 Antibody (N-term) (Cat. #AP11461a)immunohistochemistry analysis in formalin fixed and paraffin embedded human testis tissue followed by peroxidase conjugation of the secondary antibody and DAB staining.This data demonstrates the use of RACGAP1 Antibody (N-term) for immunohistochemistry. Clinical relevance has not been evaluated.



Confocal immunofluorescent analysis of RACGAP1 Antibody (N-term)(Cat#AP11461a) with MCF-7 cell followed by Alexa Fluor 488-conjugated goat anti-rabbit IgG (green).DAPI was used to stain the cell nuclear (blue).



RACGAP1 Antibody (N-term) (Cat. #AP11461a) flow cytometric analysis of MCF-7 cells (right histogram) compared to a negative control cell (left histogram).FITC-conjugated goat-anti-rabbit secondary antibodies were used for the analysis.