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RHEB Antibody (C-term)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP11767b

Product Information

Application	WB, IHC-P, E
Primary Accession	Q15382
Other Accession	Q62639, Q921J2, Q56JV3, NP_005605.1
Reactivity	Human
Predicted	Bovine, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB14411
Calculated MW	20497
Antigen Region	104-134

Additional Information

Gene ID	6009
Other Names	GTP-binding protein Rheb, Ras homolog enriched in brain, RHEB, RHEB2
Target/Specificity	This RHEB antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 104-134 amino acids from the C-terminal region of human RHEB.
Dilution	WB~~1:1000 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	RHEB Antibody (C-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	RHEB {ECO:0000303|PubMed:8543055, ECO:0000312|HGNC:HGNC:10011}
Function	Small GTPase that acts as an allosteric activator of the canonical mTORC1 complex, an evolutionarily conserved central nutrient sensor that stimulates anabolic reactions and macromolecule biosynthesis to promote cellular

	biomass generation and growth (PubMed:12172553, PubMed:12271141, PubMed:12842888, PubMed:12869586, PubMed:12906785, PubMed:15340059, PubMed:15854902, PubMed:16098514, PubMed:20381137, PubMed:22819219, PubMed:24529379, PubMed:29416044, PubMed:32470140, PubMed:33157014, PubMed:25816988). In response to nutrients, growth factors or amino acids, specifically activates the protein kinase activity of MTOR, the catalytic component of the mTORC1 complex: acts by causing a conformational change that allows the alignment of residues in the active site of MTOR, thereby enhancing the phosphorylation of ribosomal protein S6 kinase (RPS6KB1 and RPS6KB2) and EIF4EBP1 (4E-BP1) (PubMed:29236692, PubMed:33157014). RHEB is also required for localization of the TSC-TBC complex to lysosomal membranes (PubMed:24529379). In response to starvation, RHEB is inactivated by the TSC-TBC complex, preventing activation of mTORC1 (PubMed:24529379, PubMed:33157014). Has low intrinsic GTPase activity (PubMed:15340059).
Cellular Location	Endomembrane system; Lipid-anchor; Cytoplasmic side. Lysosome membrane; Lipid-anchor; Cytoplasmic side. Golgi apparatus membrane; Lipid-anchor; Cytoplasmic side. Endoplasmic reticulum membrane; Lipid-anchor; Cytoplasmic side. Cytoplasm, cytosol. Note=Farnesylation is required for recruitment to lysosomal membranes, where it activates the mTORC1 complex.
Tissue Location	Ubiquitous (PubMed:8543055). Highest levels observed in skeletal and cardiac muscle (PubMed:8543055)

Background

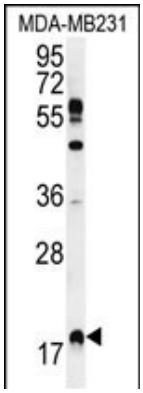
This gene is a member of the small GTPase superfamily and encodes a lipid-anchored, cell membrane protein with five repeats of the RAS-related GTP-binding region. This protein is vital in regulation of growth and cell cycle progression due to its role in the insulin/TOR/S6K signaling pathway. The protein has GTPase activity and shuttles between a GDP-bound form and a GTP-bound form, and farnesylation of the protein is required for this activity. Three pseudogenes have been mapped, two on chromosome 10 and one on chromosome 22.

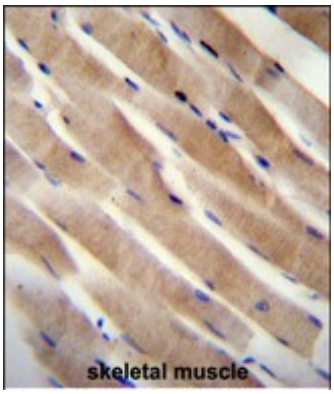
References

Zheng, H., et al. Cancer Lett. 297(1):117-125(2010)
Kim, H.W., et al. Mol. Cell. Biol. 30(22):5406-5420(2010)
Karassek, S., et al. J. Biol. Chem. 285(44):33979-33991(2010)
Wagner, R.J., et al. Am. J. Physiol., Cell Physiol. 299 (1), C119-C127 (2010) :
Lu, Z.H., et al. Cancer Res. 70(8):3287-3298(2010)

Images

RHEB Antibody (C-term) (Cat. #AP11767b) western blot analysis in MDA-MB231 cell line lysates (35ug/lane).This demonstrates the RHEB antibody detected the RHEB protein (arrow).





RHEB Antibody (C-term) (Cat. #AP11767b)immunohistochemistry analysis in formalin fixed and paraffin embedded human skeletal muscle followed by peroxidase conjugation of the secondary antibody and DAB staining.This data demonstrates the use of RHEB Antibody (C-term) for immunohistochemistry. Clinical relevance has not been evaluated.