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Phospho-TSC2(S1387) Antibody

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP3338a

Product Information

Application	DB, IF, E
Primary Accession	P49815
Other Accession	P49816, Q61037
Reactivity	Human
Predicted	Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	200608

Additional Information

Gene ID	7249
Other Names	Tuberin, Tuberous sclerosis 2 protein, TSC2, TSC4
Target/Specificity	This TSC2 Antibody is generated from rabbits immunized with a KLH conjugated synthetic phosphopeptide corresponding to amino acid residues surrounding S1387 of human TSC2.
Dilution	DB~~1:500 IF~~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	Phospho-TSC2(S1387) Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	TSC2 {ECO:0000303|PubMed:7558029, ECO:0000312|HGNC:HGNC:12363}
Function	Catalytic component of the TSC-TBC complex, a multiprotein complex that acts as a negative regulator 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:12906785, PubMed:15340059, PubMed:22819219, PubMed:24529379, PubMed:28215400, PubMed:33436626, PubMed:35772404). Within the TSC-TBC complex, TSC2 acts as a GTPase- activating protein (GAP) for the small GTPase RHEB, a direct activator of the protein kinase activity of mTORC1 (PubMed:12172553, PubMed:12820960, PubMed:12842888, PubMed:12906785, PubMed:15340059, PubMed:22819219, PubMed:24529379, PubMed:33436626). In absence of nutrients, the TSC-TBC complex inhibits mTORC1, thereby preventing phosphorylation of ribosomal protein S6 kinase (RPS6KB1 and RPS6KB2) and EIF4EBP1 (4E-BP1) by the mTORC1 signaling (PubMed:12172553, PubMed:12271141, PubMed:12842888, PubMed:12906785, PubMed:22819219, PubMed:24529379, PubMed:28215400, PubMed:35772404). The TSC-TBC complex is inactivated in response to nutrients, relieving inhibition of mTORC1 (PubMed:12172553, PubMed:24529379). Involved in microtubule-mediated protein transport via its ability to regulate mTORC1 signaling (By similarity). Also stimulates the intrinsic GTPase activity of the Ras- related proteins RAP1A and RAB5 (By similarity).
Cellular Location	Lysosome membrane; Peripheral membrane protein. Cytoplasm, cytosol Note=Recruited to lysosomal membranes in a RHEB-dependent process in absence of nutrients (PubMed:24529379). In response to insulin signaling and phosphorylation by PKB/AKT1, the complex dissociates from lysosomal membranes and relocalizes to the cytosol (PubMed:24529379)
Tissue Location	Liver, brain, heart, lymphocytes, fibroblasts, biliary epithelium, pancreas, skeletal muscle, kidney, lung and placenta.

Background

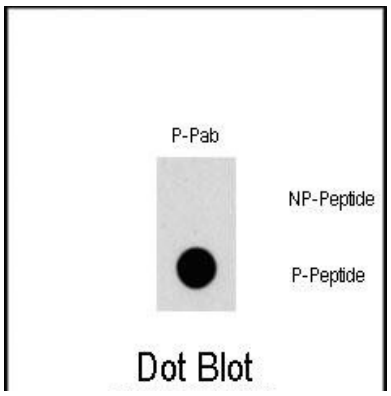
Mutations in TSC2 lead to tuberous sclerosis complex. The protein is believed to be a tumor suppressor and is able to specifically stimulate the intrinsic GTPase activity of the Ras-related protein RAP1A and RAB5. The protein associates with hamartin in a cytosolic complex, possibly acting as a chaperone for hamartin. TSC2 may have a function in vesicular transport, but may also play a role in the regulation of cell growth arrest and in the regulation of transcription mediated by steroid receptors. Interaction between TSC1 and TSC2 may facilitate vesicular docking.

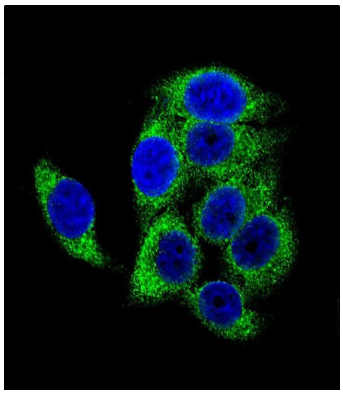
References

Li, Y., et al., Mol. Cell. Biol. 24(18):7965-7975 (2004).
Karbowniczek, M., et al., J. Biol. Chem. 279(29):29930-29937 (2004).
Corradetti, M.N., et al., Genes Dev. 18(13):1533-1538 (2004).
Birchenall-Roberts, M.C., et al., J. Biol. Chem. 279(24):25605-25613 (2004).
Lewis, J.C., et al., J. Med. Genet. 41(3):203-207 (2004).

Images

Dot blot analysis of Phospho-TSC2-S1387 polyclonal antibody (Cat# AP3338a) on nitrocellulose membrane. 50ng of Phospho-peptide or Non Phospho-peptide per dot were adsorbed. Antibody working concentration was 0.5ug per ml. P-Pab: phospho-antibody; P-Peptide: phospho-peptide; NP-Peptide: non-phospho-peptide.





Confocal immunofluorescent analysis of Phospho-TSC2-S1387 Antibody(Cat#AP3338a) with hela cell followed by Alexa Fluor 488-conjugated goat anti-rabbit lgG (green). DAPI was used to stain the cell nuclear (blue).

Citations

- Phospho- □'Np63 □±/Rpn13-dependent regulation of LKB1 degradation modulates autophagy in cancer cells.