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TSC2 Antibody (Center S1418/S1420)

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP20077c

Product Information

Application	WB, IHC-P, E
Primary Accession	P49815
Other Accession	NP_000539.2
Reactivity	Human
Predicted	Mouse, Rat, Bovine, Canine
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	200608
Antigen Region	1397-1426

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 peptide between 1397-1426 amino acids from the Central region of human TSC2.
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 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	TSC2 Antibody (Center S1418/S1420) 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

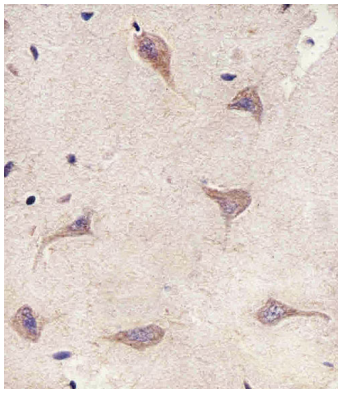
Mutations in this gene lead to tuberous sclerosis complex. Its gene product is believed to be a tumor suppressor and is able to stimulate specific GTPases. The protein associates with hamartin in a cytosolic complex, possibly acting as a chaperone for hamartin. Alternative splicing results in multiple transcript variants encoding different isoforms.

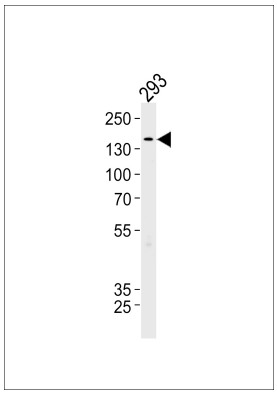
References

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Larson, Y., et al. J. Biol. Chem. 285(32):24987-24998(2010)
Mehta, M.S., et al. Breast Cancer Res. Treat. (2010) In press :
Mieulet, V., et al. Trends Mol Med 16(7):329-335(2010)
Liu, C.Y., et al. Carcinogenesis 31(7):1259-1263(2010)

Images

Immunohistochemical analysis of paraffin-embedded H. brain section using TSC2 Antibody (Center S1418/S1420)(Cat#AP20077c). AP20077c was diluted at 1:25 dilution. A undiluted biotinylated goat polyvalent antibody was used as the secondary, followed by DAB staining.





TSC2 Antibody (Center S1418/S1420) (Cat. #AP20077c) western blot analysis in 293 cell line lysates (35ug/lane).This demonstrates the TSC2 antibody detected the TSC2 protein (arrow).

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