

TSC1 Antibody

Mouse Monoclonal Antibody (Mab)

Catalog # AM1977b

Product Information

Application	WB, E
Primary Accession	Q92574
Other Accession	NP_000359.1 , NP_001155898.1
Reactivity	Human, Mouse
Host	Mouse
Clonality	Monoclonal
Isotype	IgG2b
Clone Names	357CT4.4.2
Calculated MW	129767

Additional Information

Gene ID	7248
Other Names	Hamartin, Tuberous sclerosis 1 protein, TSC1, KIAA0243, TSC
Target/Specificity	Purified His-tagged TSC1 protein(Fragment) was used to produced this monoclonal antibody.
Dilution	WB~~1:500~1000 E~~Use at an assay dependent concentration.
Format	Purified monoclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein G column, 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	TSC1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	TSC1 {ECO:0000303 PubMed:9242607, ECO:0000312 HGNC:HGNC:12362}
Function	Non-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: 12906785 , PubMed: 15340059 , PubMed: 24529379 ,

PubMed:[28215400](#)). The TSC-TBC complex acts as a GTPase-activating protein (GAP) for the small GTPase RHEB, a direct activator of the protein kinase activity of mTORC1 (PubMed:[12906785](#), PubMed:[15340059](#), PubMed:[24529379](#)). 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:[12271141](#), PubMed:[24529379](#), PubMed:[28215400](#), PubMed:[33215753](#)). The TSC-TBC complex is inactivated in response to nutrients, relieving inhibition of mTORC1 (PubMed:[12172553](#), PubMed:[24529379](#)). Within the TSC-TBC complex, TSC1 stabilizes TSC2 and prevents TSC2 self-aggregation (PubMed:[10585443](#), PubMed:[28215400](#)). Acts as a tumor suppressor (PubMed:[9242607](#)). Involved in microtubule- mediated protein transport via its ability to regulate mTORC1 signaling (By similarity). Also acts as a co-chaperone for HSP90AA1 facilitating HSP90AA1 chaperoning of protein clients such as kinases, TSC2 and glucocorticoid receptor NR3C1 (PubMed:[29127155](#)). Increases ATP binding to HSP90AA1 and inhibits HSP90AA1 ATPase activity (PubMed:[29127155](#)). Competes with the activating co-chaperone AHSA1 for binding to HSP90AA1, thereby providing a reciprocal regulatory mechanism for chaperoning of client proteins (PubMed:[29127155](#)). Recruits TSC2 to HSP90AA1 and stabilizes TSC2 by preventing the interaction between TSC2 and ubiquitin ligase HERC1 (PubMed:[16464865](#), PubMed:[29127155](#)).

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 nutrients, the complex dissociates from lysosomal membranes and relocates to the cytosol (PubMed:[24529379](#)).

Tissue Location

Highly expressed in skeletal muscle, followed by heart, brain, placenta, pancreas, lung, liver and kidney (PubMed:[9242607](#)). Also expressed in embryonic kidney cells (PubMed:[9242607](#)).

Background

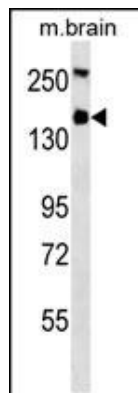
This gene encodes a growth inhibitory protein thought to play a role in the stabilization of tuberlin. Mutations in this gene have been associated with tuberous sclerosis. Alternative splicing results in multiple transcript variants.

References

- Hoogeveen-Westerveld, M., et al. Biochim. Biophys. Acta 1802(9):774-781(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)
 Guo, L., et al. Acta Biochim. Biophys. Sin. (Shanghai) 42(4):266-273(2010)

Images

TSC1 Antibody (Cat. #AM1977b) western blot analysis in mouse brain tissue lysates (35µg/lane). This demonstrates the TSC1 antibody detected the TSC1 protein (arrow).



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