

# Phospho-TSC2(S939) Antibody

Affinity Purified Rabbit Polyclonal Antibody (Pab)

Catalog # AP3415a

## Product Information

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<b>Application</b>	DB, IF, E
<b>Primary Accession</b>	<a href="#">P49815</a>
<b>Other Accession</b>	<a href="#">Q61037</a>
<b>Reactivity</b>	Human
<b>Predicted</b>	Mouse
<b>Host</b>	Rabbit
<b>Clonality</b>	Polyclonal
<b>Isotype</b>	Rabbit IgG
<b>Clone Names</b>	RB11386
<b>Calculated MW</b>	200608

## Additional Information

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<b>Gene ID</b>	7249
<b>Other Names</b>	Tuberin, Tuberous sclerosis 2 protein, TSC2, TSC4
<b>Target/Specificity</b>	This TSC2 Antibody is generated from rabbits immunized with a KLH conjugated synthetic phosphopeptide corresponding to amino acid residues surrounding S939 of human TSC2.
<b>Dilution</b>	DB~~1:500 IF~~1:10~50 E~~Use at an assay dependent concentration.
<b>Format</b>	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.
<b>Storage</b>	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.
<b>Precautions</b>	Phospho-TSC2(S939) Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

## Protein Information

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<b>Name</b>	TSC2 {ECO:0000303   PubMed:7558029, ECO:0000312   HGNC:HGNC:12363}
<b>Function</b>	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 relocates to the cytosol (PubMed:[24529379](#))

#### Tissue Location

Liver, brain, heart, lymphocytes, fibroblasts, biliary epithelium, pancreas, skeletal muscle, kidney, lung and placenta.

## Background

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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

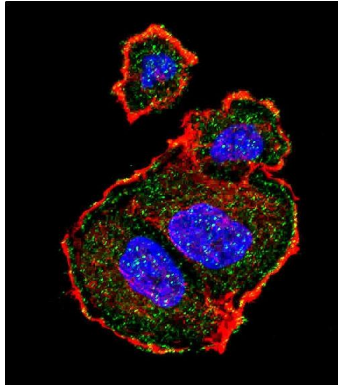
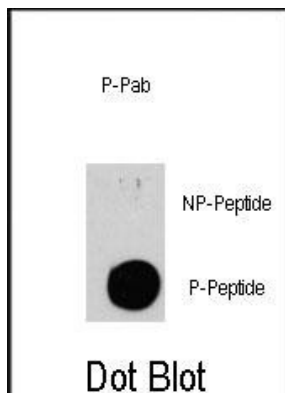
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Li, Y., et al., Mol. Cell. Biol. 24(18):7965-7975 (2004). Karbowniczek, M., et al., J. Biol. Chem. 279(29):29930-29937 (2004). Corradetti, M.N., et al., Genes Dev. 18(13):1533-1538 (2004). Birchenall-Roberts, M.C., et al., J. Biol. Chem. 279(24):25605-25613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

## Images

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Dot blot analysis of anti-TSC2-pS939 Phospho-specific Pab (Cat.AP3415a) on nitrocellulose membrane. 50ng of Phospho-peptide or Non Phospho-peptide per dot were adsorbed. Antibody working concentrations are 0.5ug per ml.



Confocal immunofluorescent analysis of Phospho-TSC2-pS939 Antibody(Cat#AP3415a) with MCF-7 cell followed by Alexa Fluor 488-conjugated goat anti-rabbit IgG (green).Actin filaments have been labeled with Alexa Fluor 555 phalloidin (red).DAPI was used to stain the cell nuclear (blue).

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