

**TSC2 Antibody**  
**Mouse Monoclonal Antibody (Mab)**  
**Catalog # AM1919B**

**Specification**

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**TSC2 Antibody - Product Information**

Application	IF, WB,E
Primary Accession	<a href="#">P49815</a>
Other Accession	<a href="#">NP_000539.2</a> , <a href="#">NP_001070651.1</a>
Reactivity	Mouse
Host	Mouse
Clonality	Monoclonal
Isotype	IgG1,k

**TSC2 Antibody - Additional Information**

**Gene ID** 7249

**Other Names**

Tuberin, Tuberous sclerosis 2 protein, TSC2, TSC4

**Target/Specificity**

This TSC2 monoclonal antibody is generated from mouse immunized with TSC2 recombinant protein.

**Dilution**

IF~~1:10~50

WB~~1:100

**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**

TSC2 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

**TSC2 Antibody - 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**

Lysosomal 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**

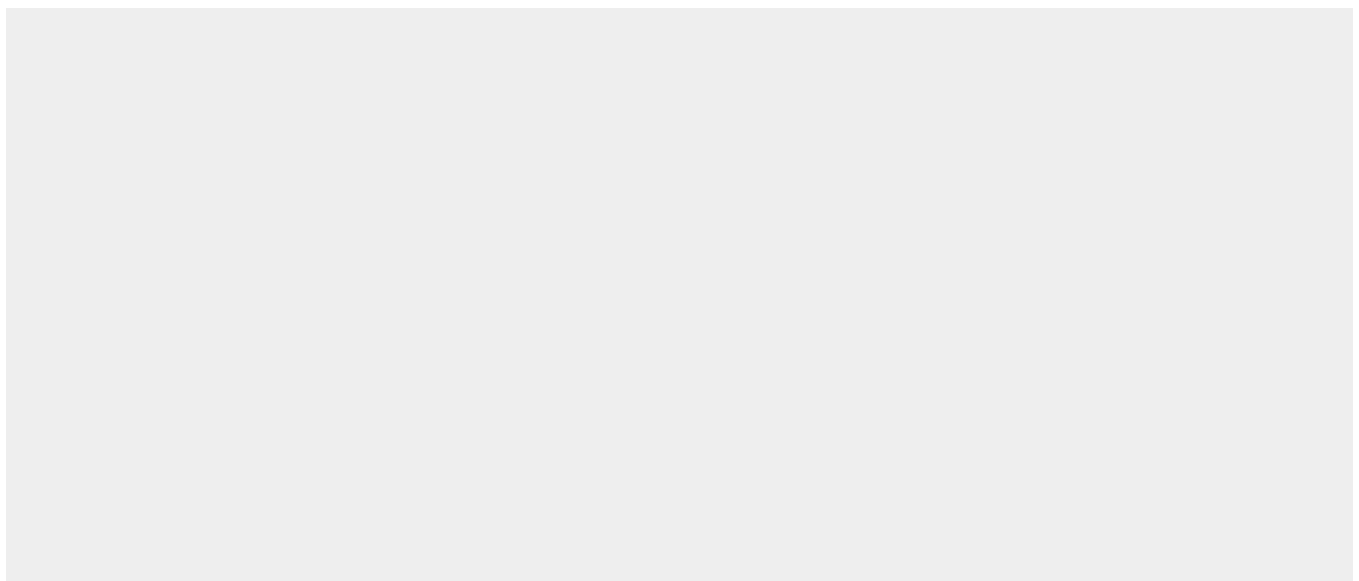
Liver, brain, heart, lymphocytes, fibroblasts, biliary epithelium, pancreas, skeletal muscle, kidney, lung and placenta.

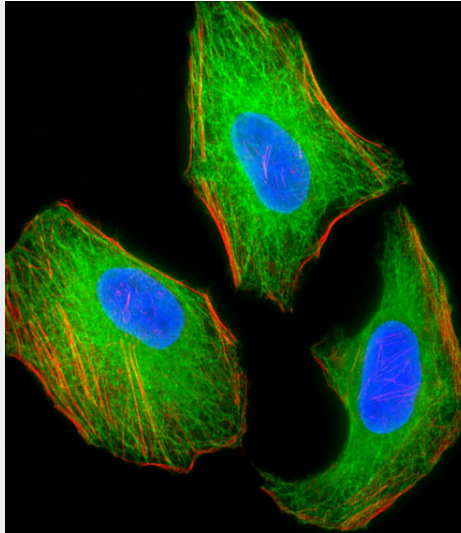
#### **TSC2 Antibody - Protocols**

Provided below are standard protocols that you may find useful for product applications.

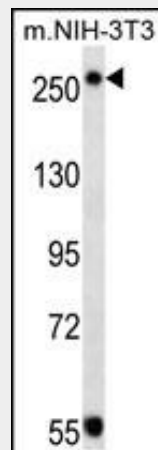
- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

#### **TSC2 Antibody - Images**





Fluorescent image of HeLa cell stained with TSC2 Antibody(Cat#AM1919b/SG110509AA).HeLa cells were fixed with 4% PFA (20 min), permeabilized with Triton X-100 (0.1%, 10 min), then incubated with TSC2 primary antibody (1:25, 1 h at 37°C. For secondary antibody, Alexa Fluor® 488 conjugated donkey anti-mouse antibody (green) was used (1:400, 50 min at 37°C.Cytoplasmic actin was counterstained with Alexa Fluor® 555 (red) conjugated Phalloidin (7units/ml, 1 h at 37°C. Nuclei were counterstained with DAPI (blue) (10 µg/ml, 10 min).TSC2 immunoreactivity is localized to Microtubules significantly.



TSC2 Antibody (Cat. #AM1919b) western blot analysis in mouse NIH-3T3 cell line lysates (35µg/lane).This demonstrates the TSC2 antibody detected the TSC2 protein (arrow).

### TSC2 Antibody - 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.

### TSC2 Antibody - References

- References for protein:
- 1.Slattery, M.L., et al. Carcinogenesis 31(9):1604-1611(2010)
  - 2.Larson, Y., et al. J. Biol. Chem. 285(32):24987-24998(2010)

3. Mehta, M.S., et al. Breast Cancer Res. Treat. (2010) In press :
4. Mieulet, V., et al. Trends Mol Med 16(7):329-335(2010)
5. Liu, C.Y., et al. Carcinogenesis 31(7):1259-1263(2010)

References for HeLa cell line:

1. Scherer WF, Syverton JT, Gey GO (May 1953). "Studies on the propagation in vitro of poliomyelitis viruses. IV. Viral multiplication in a stable strain of human malignant epithelial cells (strain HeLa) derived from an epidermoid carcinoma of the cervix". J. Exp. Med. 97 (5): 695-710. [PubMed:13052828].
2. Macville M, Schröck E, Padilla-Nash H, Keck C, Ghadimi BM, Zimonjic D, Popescu N, Ried T (January 1999). "Comprehensive and definitive molecular cytogenetic characterization of HeLa cells by spectral karyotyping". Cancer Res. 59 (1): 141-50. [PubMed: 9892199].
3. Rahbari R, Sheahan T, Modes V, Collier P, Macfarlane C, Badge RM (April 2009). "A novel L1 retrotransposon marker for HeLa cell line identification". BioTechniques 46 (4): 277-84. [PubMed: 19450234].
4. Capes-Davis A, Theodosopoulos G, Atkin I, Drexler HG, Kohara A, MacLeod RA, Masters JR, Nakamura Y, Reid YA, Reddel RR, Freshney RI (July 2010). "Check your cultures! A list of cross-contaminated or misidentified cell lines". Int. J. Cancer 127 (1): 1-8. [PubMed:20143388].