

**Tuberin / TSC2 Antibody (N-Terminus)**  
**Rabbit Polyclonal Antibody**  
**Catalog # ALS11503****Specification****Tuberin / TSC2 Antibody (N-Terminus) - Product Information**

Application	ICC, IF, IHC
Primary Accession	<a href="#">P49815</a>
Reactivity	Human, Mouse
Host	Rabbit
Clonality	Polyclonal
Calculated MW	201kDa KDa

**Tuberin / TSC2 Antibody (N-Terminus) - Additional Information****Gene ID** 7249**Other Names**

Tuberin, Tuberous sclerosis 2 protein, TSC2, TSC4

**Target/Specificity**

14 amino acid peptide from near the amino terminus of human TSC2

**Reconstitution & Storage**

Short term 4°C, long term aliquot and store at -20°C, avoid freeze thaw cycles. Store undiluted.

**Precautions**

Tuberin / TSC2 Antibody (N-Terminus) is for research use only and not for use in diagnostic or therapeutic procedures.

**Tuberin / TSC2 Antibody (N-Terminus) - 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:<a href="http://www.uniprot.org/citations/12172553" target="\_blank">12172553</a>, PubMed:<a href="http://www.uniprot.org/citations/12271141" target="\_blank">12271141</a>, PubMed:<a href="http://www.uniprot.org/citations/12842888" target="\_blank">12842888</a>, PubMed:<a href="http://www.uniprot.org/citations/12906785" target="\_blank">12906785</a>, PubMed:<a href="http://www.uniprot.org/citations/15340059" target="\_blank">15340059</a>, PubMed:<a href="http://www.uniprot.org/citations/22819219" target="\_blank">22819219</a>, PubMed:<a href="http://www.uniprot.org/citations/24529379" target="\_blank">24529379</a>, PubMed:<a href="http://www.uniprot.org/citations/28215400" target="\_blank">28215400</a>, PubMed:<a href="http://www.uniprot.org/citations/33436626" target="\_blank">33436626</a>, PubMed:<a href="http://www.uniprot.org/citations/35772404" target="\_blank">35772404</a>

target="\_blank">35772404</a>). 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:<a href="http://www.uniprot.org/citations/12172553" target="\_blank">12172553</a>, PubMed:<a href="http://www.uniprot.org/citations/12820960" target="\_blank">12820960</a>, PubMed:<a href="http://www.uniprot.org/citations/12842888" target="\_blank">12842888</a>, PubMed:<a href="http://www.uniprot.org/citations/12906785" target="\_blank">12906785</a>, PubMed:<a href="http://www.uniprot.org/citations/15340059" target="\_blank">15340059</a>, PubMed:<a href="http://www.uniprot.org/citations/22819219" target="\_blank">22819219</a>, PubMed:<a href="http://www.uniprot.org/citations/24529379" target="\_blank">24529379</a>, PubMed:<a href="http://www.uniprot.org/citations/33436626" target="\_blank">33436626</a>). 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:<a href="http://www.uniprot.org/citations/12172553" target="\_blank">12172553</a>, PubMed:<a href="http://www.uniprot.org/citations/12271141" target="\_blank">12271141</a>, PubMed:<a href="http://www.uniprot.org/citations/12842888" target="\_blank">12842888</a>, PubMed:<a href="http://www.uniprot.org/citations/12906785" target="\_blank">12906785</a>, PubMed:<a href="http://www.uniprot.org/citations/22819219" target="\_blank">22819219</a>, PubMed:<a href="http://www.uniprot.org/citations/24529379" target="\_blank">24529379</a>, PubMed:<a href="http://www.uniprot.org/citations/28215400" target="\_blank">28215400</a>, PubMed:<a href="http://www.uniprot.org/citations/35772404" target="\_blank">35772404</a>). The TSC-TBC complex is inactivated in response to nutrients, relieving inhibition of mTORC1 (PubMed:<a href="http://www.uniprot.org/citations/12172553" target="\_blank">12172553</a>, PubMed:<a href="http://www.uniprot.org/citations/24529379" target="\_blank">24529379</a>). 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.

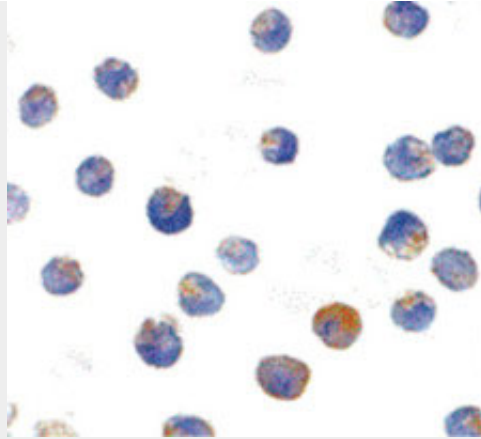
### Tuberin / TSC2 Antibody (N-Terminus) - Protocols

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

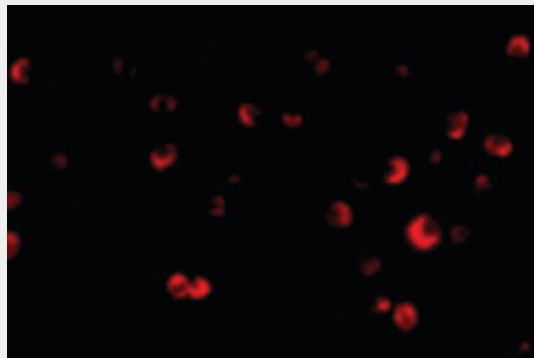
- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

### Tuberin / TSC2 Antibody (N-Terminus) - Images

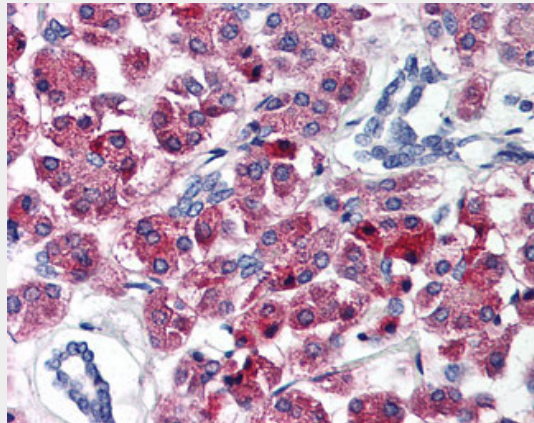




Immunocytochemistry of TSC2 in L1210 cells with TSC2 antibody at 10 ug/ml.



Immunofluorescence of TSC2 in L1210 cells with TSC2 antibody at 20 ug/ml.



Anti-TSC2 / Tuberin antibody IHC of human pancreas.

### **Tuberin / TSC2 Antibody (N-Terminus) - Background**

In complex with TSC1, inhibits the nutrient-mediated or growth factor-stimulated phosphorylation of S6K1 and EIF4EBP1 by negatively regulating mTORC1 signaling. Acts as a GTPase-activating protein (GAP) for the small GTPase RHEB, a direct activator of the protein kinase activity of mTORC1. Implicated as a tumor suppressor. Involved in microtubule-mediated protein transport, but this seems to be due to unregulated mTOR signaling. Stimulates weakly the intrinsic GTPase activity of the Ras-related proteins RAP1A and RAB5 in vitro. Mutations in TSC2 lead to constitutive activation of RAP1A in tumors.

### **Tuberin / TSC2 Antibody (N-Terminus) - References**

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Xu L.,et al.Genomics 27:475-480(1995).  
Maheshwar M.M.,et al.Hum. Mol. Genet. 5:131-137(1996).  
Corominas R.,et al.Nat. Commun. 5:3650-3650(2014).