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Tuberin / TSC2 Antibody (N-Terminus)
Rabbit Polyclonal Antibody
Catalog # ALS11503

Specification

Tuberin / TSC2 Antibody (N-Terminus) - Product Information

Application	**ICC, IF, IHC**
Primary Accession	P49815
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:12172553, PubMed:12271141, PubMed:12842888, PubMed:12906785, PubMed:15340059, PubMed:22819219, PubMed:24529379, PubMed:28215400, PubMed:33436626, PubMed:<a href="http://www.uniprot.org/citations/35772404"

target="_blank">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)

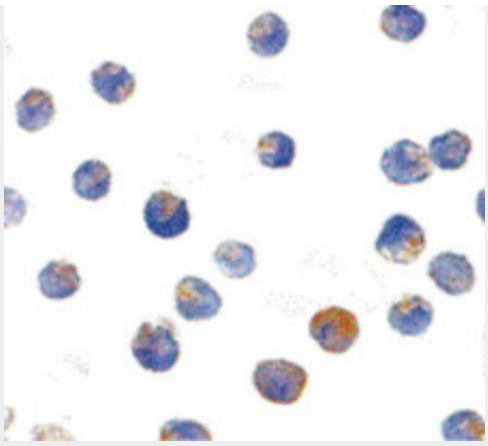
Tissue Location
Liver, brain, heart, lymphocytes, fibroblasts, biliary epithelium, pancreas, skeletal muscle, kidney, lung and placenta.

Tuberin / TSC2 Antibody (N-Terminus) - Protocols

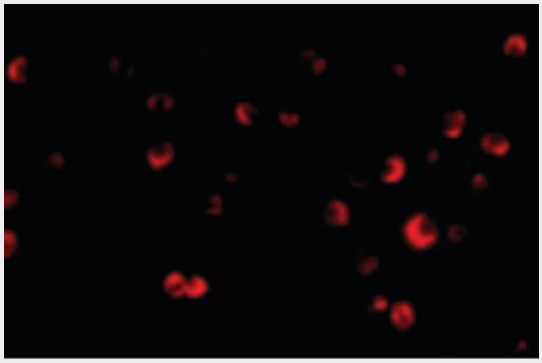
Provided below are standard protocols that you may find useful for product applications.

- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

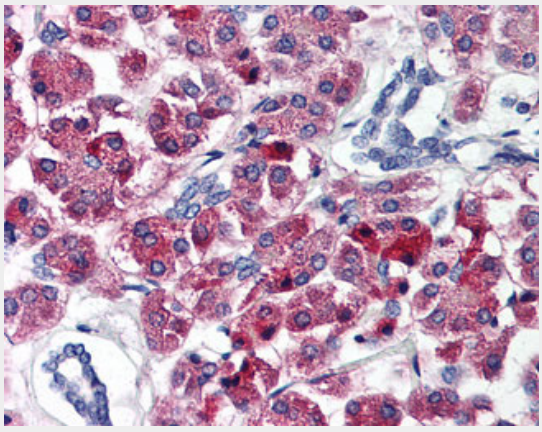
Tuberin / TSC2 Antibody (N-Terminus) - Images



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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Sampson J.R.,et al.Submitted (DEC-1998) to the EMBL/GenBank/DDBJ databases.
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).