

# [KO]Tuberin Rabbit mAb

Catalog # AP76750

## Product Information

|                   |                        |
|-------------------|------------------------|
| Application       | WB, IP                 |
| Primary Accession | <a href="#">P49815</a> |
| Reactivity        | Human, Mouse           |
| Host              | Rabbit                 |
| Clonality         | Monoclonal Antibody    |
| Isotype           | IgG                    |
| Conjugate         | Unconjugated           |
| Purification      | Affinity Purified      |
| Calculated MW     | 200608                 |

## Additional Information

|             |                                                                                                 |
|-------------|-------------------------------------------------------------------------------------------------|
| Gene ID     | 7249                                                                                            |
| Other Names | TSC2                                                                                            |
| Dilution    | WB~~1:1000 IP~~N/A                                                                              |
| Format      | Liquid in 50mM Tris-Glycine(pH 7.4), 0.15M NaCl, 40%Glycerol, 0.01% sodium azide and 0.05% BSA. |
| Storage     | Store at 4°C short term. Aliquot and store at -20°C long term. Avoid freeze/thaw cycles.        |

## Protein Information

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|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name     | TSC2 {ECO:0000303   PubMed:7558029, ECO:0000312   HGNC:HGNC:12363}                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Function | <p>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="#">12172553</a>, PubMed:<a href="#">12271141</a>, PubMed:<a href="#">12842888</a>, PubMed:<a href="#">12906785</a>, PubMed:<a href="#">15340059</a>, PubMed:<a href="#">22819219</a>, PubMed:<a href="#">24529379</a>, PubMed:<a href="#">28215400</a>, PubMed:<a href="#">33436626</a>, PubMed:<a href="#">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="#">12172553</a>, PubMed:<a href="#">12820960</a>, PubMed:<a href="#">12842888</a>, PubMed:<a href="#">12906785</a>, PubMed:<a href="#">15340059</a>, PubMed:<a href="#">22819219</a>, PubMed:<a href="#">24529379</a>, PubMed:<a href="#">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</p> |

(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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This gene is a tumor suppressor gene that encodes the growth inhibitory protein tuberlin. Tuberlin interacts with hamartin to form the TSC protein complex which functions in the control of cell growth. This TSC protein complex negatively regulates mammalian target of rapamycin complex 1 (mTORC1) signaling which is a major regulator of anabolic cell growth. Mutations in this gene have been associated with tuberous sclerosis and lymphangioleiomyomatosis.

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