

Phospho-TSC2(S540) Antibody Blocking peptide
Synthetic peptide
Catalog # BP3477a**Specification**

Phospho-TSC2(S540) Antibody Blocking peptide - Product InformationPrimary Accession [P49815](#)**Phospho-TSC2(S540) Antibody Blocking peptide - Additional Information****Gene ID** 7249**Other Names**

Tuberin, Tuberous sclerosis 2 protein, TSC2, TSC4

Target/Specificity

The synthetic peptide sequence used to generate the antibody [AP3477a](/products/AP3477a) was selected from the region of human Phospho-TSC2-S540. A 10 to 100 fold molar excess to antibody is recommended. Precise conditions should be optimized for a particular assay.

Format

Peptides are lyophilized in a solid powder format. Peptides can be reconstituted in solution using the appropriate buffer as needed.

Storage

Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C.

Precautions

This product is for research use only. Not for use in diagnostic or therapeutic procedures.

Phospho-TSC2(S540) Antibody Blocking peptide - 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](http://www.uniprot.org/citations/12172553), PubMed:[12271141](http://www.uniprot.org/citations/12271141), PubMed:[12906785](http://www.uniprot.org/citations/12906785), PubMed:[12842888](http://www.uniprot.org/citations/12842888), PubMed:[28215400](http://www.uniprot.org/citations/28215400), PubMed:[35772404](http://www.uniprot.org/citations/35772404), PubMed:[15340059](http://www.uniprot.org/citations/15340059), PubMed:[22819219](http://www.uniprot.org/citations/22819219), PubMed:[24529379](http://www.uniprot.org/citations/24529379))

target="_blank">24529379, PubMed:33436626). 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:12906785, PubMed:12842888, PubMed:15340059, PubMed:12820960, 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:12906785, PubMed:12842888, 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.

Phospho-TSC2(S540) Antibody Blocking peptide - Protocols

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

- [Blocking Peptides](#)

Phospho-TSC2(S540) Antibody Blocking peptide - Images

Phospho-TSC2(S540) Antibody Blocking peptide - Background

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.

Phospho-TSC2(S540) Antibody Blocking peptide - References

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).