

Phospho-TSC1(Y312) Blocking Peptide
Synthetic peptide
Catalog # BP3897a**Specification**

Phospho-TSC1(Y312) Blocking Peptide - Product Information

Primary Accession [O92574](#)
Other Accession [NP_000359.1](#)

Phospho-TSC1(Y312) Blocking Peptide - Additional Information

Gene ID 7248

Other Names

Hamartin, Tuberous sclerosis 1 protein, TSC1, KIAA0243, TSC

Target/Specificity

The synthetic peptide sequence is selected from aa 307-319 of HUMAN TSC1

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-TSC1(Y312) Blocking Peptide - Protein Information

Name TSC1 {ECO:0000303|PubMed:9242607, ECO:0000312|HGNC:HGNC:12362}

Function

Non-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:12906785, PubMed:12271141, PubMed:28215400, PubMed:15340059, PubMed:24529379). The TSC-TBC complex acts as a GTPase-activating protein (GAP) for the small GTPase RHEB, a direct activator of the protein kinase activity of mTORC1 (PubMed:12906785, PubMed:15340059, PubMed:24529379).

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: [12271141](http://www.uniprot.org/citations/12271141) / [24529379](http://www.uniprot.org/citations/24529379) / [28215400](http://www.uniprot.org/citations/28215400) / [12172553](http://www.uniprot.org/citations/12172553) / [24529379](http://www.uniprot.org/citations/24529379) / [10585443](http://www.uniprot.org/citations/10585443) / [28215400](http://www.uniprot.org/citations/28215400) / [9242607](http://www.uniprot.org/citations/9242607)). The TSC- TBC complex is inactivated in response to nutrients, relieving inhibition of mTORC1 (PubMed: [12172553](http://www.uniprot.org/citations/12172553) / [24529379](http://www.uniprot.org/citations/24529379) / [10585443](http://www.uniprot.org/citations/10585443) / [28215400](http://www.uniprot.org/citations/28215400) / [9242607](http://www.uniprot.org/citations/9242607)). Acts as a tumor suppressor (PubMed: [9242607](http://www.uniprot.org/citations/9242607) / [29127155](http://www.uniprot.org/citations/29127155)). Involved in microtubule-mediated protein transport via its ability to regulate mTORC1 signaling (By similarity). Also acts as a co-chaperone for HSP90AA1 facilitating HSP90AA1 chaperoning of protein clients such as kinases, TSC2 and glucocorticoid receptor NR3C1 (PubMed: [29127155](http://www.uniprot.org/citations/29127155) / [29127155](http://www.uniprot.org/citations/29127155) / [29127155](http://www.uniprot.org/citations/29127155)). Increases ATP binding to HSP90AA1 and inhibits HSP90AA1 ATPase activity (PubMed: [29127155](http://www.uniprot.org/citations/29127155) / [29127155](http://www.uniprot.org/citations/29127155) / [29127155](http://www.uniprot.org/citations/29127155)). Competes with the activating co-chaperone AHSA1 for binding to HSP90AA1, thereby providing a reciprocal regulatory mechanism for chaperoning of client proteins (PubMed: [29127155](http://www.uniprot.org/citations/29127155) / [29127155](http://www.uniprot.org/citations/29127155) / [29127155](http://www.uniprot.org/citations/29127155)). Recruits TSC2 to HSP90AA1 and stabilizes TSC2 by preventing the interaction between TSC2 and ubiquitin ligase HERC1 (PubMed: [16464865](http://www.uniprot.org/citations/16464865) / [29127155](http://www.uniprot.org/citations/29127155) / [29127155](http://www.uniprot.org/citations/29127155)).

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 nutrients, the complex dissociates from lysosomal membranes and relocates to the cytosol (PubMed:24529379).

Tissue Location

Highly expressed in skeletal muscle, followed by heart, brain, placenta, pancreas, lung, liver and kidney (PubMed:9242607). Also expressed in embryonic kidney cells (PubMed:9242607).

Phospho-TSC1(Y312) Blocking Peptide - Protocols

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

- [Blocking Peptides](#)

Phospho-TSC1(Y312) Blocking Peptide - Images

Phospho-TSC1(Y312) Blocking Peptide - Background

This gene encodes a growth inhibitory protein thought to play a role in the stabilization of tuberlin. Mutations in this gene have been associated with tuberous sclerosis. Alternative splicing results in multiple transcript variants.

Phospho-TSC1(Y312) Blocking Peptide - References

Hoogeveen-Westerveld, M., et al. Biochim. Biophys. Acta 1802(9):774-781(2010)
Mehta, M.S., et al. Breast Cancer Res. Treat. (2010) In press :

Mieulet, V., et al. Trends Mol Med 16(7):329-335(2010)

Liu, C.Y., et al. Carcinogenesis 31(7):1259-1263(2010)

Guo, L., et al. Acta Biochim. Biophys. Sin. (Shanghai) 42(4):266-273(2010)