

TSC1 Blocking Peptide (Center T417)
Synthetic peptide
Catalog # BP20328c**Specification**

TSC1 Blocking Peptide (Center T417) - Product InformationPrimary Accession [Q92574](#)**TSC1 Blocking Peptide (Center T417) - Additional Information****Gene ID** 7248**Other Names**

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

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.

TSC1 Blocking Peptide (Center T417) - 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](http://www.uniprot.org/citations/12172553), PubMed: [12906785](http://www.uniprot.org/citations/12906785), PubMed: [12271141](http://www.uniprot.org/citations/12271141), PubMed: [28215400](http://www.uniprot.org/citations/28215400), PubMed: [15340059](http://www.uniprot.org/citations/15340059), PubMed: [24529379](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/12906785), PubMed: [15340059](http://www.uniprot.org/citations/15340059), PubMed: [24529379](http://www.uniprot.org/citations/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), PubMed: [24529379](http://www.uniprot.org/citations/24529379)).

target="_blank">24529379, PubMed:28215400). The TSC- TBC complex is inactivated in response to nutrients, relieving inhibition of mTORC1 (PubMed:12172553, PubMed:24529379). Within the TSC-TBC complex, TSC1 stabilizes TSC2 and prevents TSC2 self- aggregation (PubMed:10585443, PubMed:28215400). Acts as a tumor suppressor (PubMed:9242607). 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). Increases ATP binding to HSP90AA1 and inhibits HSP90AA1 ATPase activity (PubMed: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). Recruits TSC2 to HSP90AA1 and stabilizes TSC2 by preventing the interaction between TSC2 and ubiquitin ligase HERC1 (PubMed:16464865, PubMed: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).

TSC1 Blocking Peptide (Center T417) - Protocols

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

- [Blocking Peptides](#)

TSC1 Blocking Peptide (Center T417) - Images

TSC1 Blocking Peptide (Center T417) - Background

In complex with TSC2, inhibits the nutrient-mediated or growth factor-stimulated phosphorylation of S6K1 and EIF4EBP1 by negatively regulating mTORC1 signaling. Seems not to be required for TSC2 GAP activity towards RHEB. Implicated as a tumor suppressor. Involved in microtubule-mediated protein transport, but this seems to be due to unregulated mTOR signaling.