

**Phospho-TSC2(S1411) Blocking Peptide**  
**Synthetic peptide**  
**Catalog # BP3866a****Specification**

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**Phospho-TSC2(S1411) Blocking Peptide - Product Information**

Primary Accession [P49815](#)  
Other Accession [NP\\_000539.2](#)

**Phospho-TSC2(S1411) Blocking Peptide - Additional Information**

**Gene ID** 7249

**Other Names**

Tuberin, Tuberous sclerosis 2 protein, TSC2, TSC4

**Target/Specificity**

The synthetic peptide sequence is selected from aa 1404-1418 of HUMAN TSC2

**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(S1411) 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:<a href="http://www.uniprot.org/citations/12172553" target="\_blank">12172553</a>, PubMed:<a href="http://www.uniprot.org/citations/12271141" target="\_blank">12271141</a>, PubMed:<a href="http://www.uniprot.org/citations/12842888" target="\_blank">12842888</a>, PubMed:<a href="http://www.uniprot.org/citations/12906785" target="\_blank">12906785</a>, PubMed:<a href="http://www.uniprot.org/citations/15340059" target="\_blank">15340059</a>, PubMed:<a href="http://www.uniprot.org/citations/22819219" target="\_blank">22819219</a>, PubMed:<a href="http://www.uniprot.org/citations/24529379" target="\_blank">24529379</a>, PubMed:<a href="http://www.uniprot.org/citations/28215400" target="\_blank">28215400</a>, PubMed:<a href="http://www.uniprot.org/citations/33436626" target="\_blank">33436626</a>, PubMed:<a href="http://www.uniprot.org/citations/35772404" target="\_blank">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="http://www.uniprot.org/citations/12172553" target="\_blank">12172553</a>, PubMed:<a href="http://www.uniprot.org/citations/12820960" target="\_blank">12820960</a>, PubMed:<a href="http://www.uniprot.org/citations/12842888" target="\_blank">12842888</a>, PubMed:<a href="http://www.uniprot.org/citations/12906785" target="\_blank">12906785</a>, PubMed:<a href="http://www.uniprot.org/citations/15340059" target="\_blank">15340059</a>, PubMed:<a href="http://www.uniprot.org/citations/22819219" target="\_blank">22819219</a>, PubMed:<a href="http://www.uniprot.org/citations/24529379" target="\_blank">24529379</a>, PubMed:<a href="http://www.uniprot.org/citations/33436626" target="\_blank">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 (PubMed:<a href="http://www.uniprot.org/citations/12172553" target="\_blank">12172553</a>, PubMed:<a href="http://www.uniprot.org/citations/12271141" target="\_blank">12271141</a>, PubMed:<a href="http://www.uniprot.org/citations/12842888" target="\_blank">12842888</a>, PubMed:<a href="http://www.uniprot.org/citations/12906785" target="\_blank">12906785</a>, PubMed:<a href="http://www.uniprot.org/citations/22819219" target="\_blank">22819219</a>, PubMed:<a href="http://www.uniprot.org/citations/24529379" target="\_blank">24529379</a>, PubMed:<a href="http://www.uniprot.org/citations/28215400" target="\_blank">28215400</a>, PubMed:<a href="http://www.uniprot.org/citations/35772404" target="\_blank">35772404</a>). The TSC-TBC complex is inactivated in response to nutrients, relieving inhibition of mTORC1 (PubMed:<a href="http://www.uniprot.org/citations/12172553" target="\_blank">12172553</a>, PubMed:<a href="http://www.uniprot.org/citations/24529379" target="\_blank">24529379</a>). 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(S1411) Blocking Peptide - Protocols

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

- [Blocking Peptides](#)

#### Phospho-TSC2(S1411) Blocking Peptide - Images

#### Phospho-TSC2(S1411) Blocking Peptide - Background

Mutations in this gene lead to tuberous sclerosis complex. Its gene product is believed to be a tumor suppressor and is able to stimulate specific GTPases. The protein associates with hamartin in a cytosolic complex, possibly acting as a chaperone for hamartin. Alternative splicing results in multiple transcript variants encoding different isoforms.

#### Phospho-TSC2(S1411) Blocking Peptide - References

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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)