10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

Phospho-rat TSC1(S1141) Blocking Peptide

Synthetic peptide
Catalog # BP3829a

Specification

Phospho-rat TSC1(S1141) Blocking Peptide - Product Information

Primary Accession	Q9Z136
Other Accession	NP_068626.1

Phospho-rat TSC1(S1141) Blocking Peptide - Additional Information

Gene ID 60445

Other Names
Hamartin, Tuberous sclerosis 1 protein homolog, Tsc1

Target/Specificity
The synthetic peptide sequence is selected from aa 1134-1146 of RAT 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-rat TSC1(S1141) Blocking Peptide - Protein Information

Name Tsc1 {ECO:0000303|PubMed:10029074, ECO:0000312|RGD:620124}

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 (By similarity). 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 (By similarity). 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 (By similarity). The TSC-TBC complex is inactivated in response to nutrients, relieving inhibition of mTORC1 (By similarity). Within the TSC-TBC complex, TSC1 stabilizes TSC2 and prevents TSC2 self-aggregation (PubMed:16707451). Involved in microtubule-mediated protein transport via its ability to regulate mTORC1 signaling (PubMed:16707451). Also acts as a co-chaperone for HSP90AA1 facilitating HSP90AA1 chaperoning of protein clients such as

kinases, TSC2 and glucocorticoid receptor NR3C1 (By similarity). Increases ATP binding to HSP90AA1 and inhibits HSP90AA1 ATPase activity (By similarity). Competes with the activating co-chaperone AHSA1 for binding to HSP90AA1, thereby providing a reciprocal regulatory mechanism for chaperoning of client proteins (By similarity). Recruits TSC2 to HSP90AA1 and stabilizes TSC2 by preventing the interaction between TSC2 and ubiquitin ligase HERC1 (By similarity).

Cellular Location
Lysosome membrane {ECO:0000250|UniProtKB:Q92574}; Peripheral membrane protein {ECO:0000250|UniProtKB:Q92574}. Cytoplasm, cytosol {ECO:0000250|UniProtKB:Q92574}. Note=Recruited to lysosomal membranes in a RHEB-dependent process in absence of nutrients. In response to nutrients, the complex dissociates from lysosomal membranes and relocalizes to the cytosol. {ECO:0000250|UniProtKB:Q92574}

Tissue Location
Highly expressed in brain, spleen and kidney, followed by liver and heart.

Phospho-rat TSC1(S1141) Blocking Peptide - Protocols

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

- Blocking Peptides

Phospho-rat TSC1(S1141) Blocking Peptide - Images

Phospho-rat TSC1(S1141) Blocking Peptide - Background

In complex with TSC2, inhibits the nutrient-mediated or growth factor-stimulated phosphorylation of S6K1 and EIF4EBP1 by negatively regulating mTORC1 signaling (By similarity). Implicated as a tumor suppressor. Involved in microtubule-mediated protein transport, but this seems to be due to unregulated mTOR signaling (By similarity).

Phospho-rat TSC1(S1141) Blocking Peptide - References

Inoue, H., et al. Biosci. Biotechnol. Biochem. 73(11):2488-2493(2009)
Di Nardo, A., et al. J. Neurosci. 29(18):5926-5937(2009)
Chen, P., et al. Exp. Mol. Pathol. 86(2):101-107(2009)
Momose, S., et al. Biochem. Biophys. Res. Commun. 356(3):693-698(2007)
Goncharova, E., et al. J. Cell Biol. 167(6):1171-1182(2004)