

Phospho-TSC1(S505) Antibody

Affinity Purified Rabbit Polyclonal Antibody (Pab) Catalog # AP3470a

Specification

Phospho-TSC1(S505) Antibody - Product Information

Application DB,E **Primary Accession** 092574 Other Accession **09EP53** Reactivity Human Predicted Mouse Host **Rabbit** Clonality **Polyclonal** Isotype Rabbit IgG Calculated MW 129767

Phospho-TSC1(S505) Antibody - Additional Information

Gene ID 7248

Other Names

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

Target/Specificity

This TSC1 Antibody is generated from rabbits immunized with a KLH conjugated synthetic phosphopeptide corresponding to amino acid residues surrounding S505 of human TSC1.

Dilution

DB~~1:500

E~~Use at an assay dependent concentration.

Format

Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification.

Storage

Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.

Precautions

Phospho-TSC1(S505) Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Phospho-TSC1(S505) Antibody - 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: 12271141, PubMed: 12906785, PubMed:15340059, PubMed:24529379, PubMed:28215400). 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, PubMed: 24529379, PubMed: 28215400, PubMed: 33215753). 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 relocalizes 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).

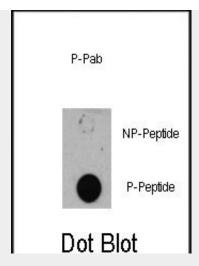
Phospho-TSC1(S505) Antibody - Protocols

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

- Western Blot
- Blocking Peptides
- Dot Blot
- <u>Immunohistochemistry</u>
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

Phospho-TSC1(S505) Antibody - Images





Dot blot analysis of anti-TSC1-pS505 Phospho-specific Pab (RB13337) on nitrocellulose membrane. 50ng of Phospho-peptide or Non Phospho-peptide per dot were adsorbed. Antibody working concentrations are 0.5ug per ml.

Phospho-TSC1(S505) Antibody - Background

TSC1 is implicated as a tumor suppressor, and may have a function in vesicular transport. Interaction between TSC1 and TSC2 may facilitate vesicular docking. Defects in TSC1 are the cause of tuberous sclerosis complex (TSC). The molecular basis of TSC is a functional impairement of the hamartin-tuberin complex. TSC is an autosomal dominant multi-system disorder that affects especially the brain, kidneys, heart, and skin. Defects in TSC1 may be a cause of focal cortical dysplasia of Taylor balloon cell type (FCDBC). FCDBC is a subtype of cortical displasias linked to chronic intractable epilepsy. Cortical dysplasias display a broad spectrum of structural changes, which appear to result from changes in proliferation, migration, differentiation, and apoptosis of neuronal precursors and neurons during cortical development.

Phospho-TSC1(S505) Antibody - References

Wu, J., et al., J. Cutan. Pathol. 31(5):383-387 (2004). Lewis, J.C., et al., J. Med. Genet. 41(3):203-207 (2004). J, et al., J. Child Neurol. 19(2):102-106 (2004). Murthy, V., et al., J. Biol. Chem. 279(2):1351-1358 (2004). Astrinidis, A., et al., J. Biol. Chem. 278(51):51372-51379 (2003).