Revision 1

Store at -20C

#4906

Hamartin/TSC1 Antibody

Cell Signaling TECHNOLOGY®

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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W, IP	H M R	Endogenous	150 to 170	Rabbit	#Q92574	7248

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Immunoprecipitation	1:50

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at –20°C. Do not aliquot the antibody.

Specificity/Sensitivity

Hamartin/TSC1 Antibody detects endogenous levels of total hamartin/TSC1 protein.

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to the sequence of human hamartin. Antibodies are purified by protein A and peptide affinity chromatography.

Background

Tuberous sclerosis complex (TSC) is an autosomal dominant disorder that causes symptoms including hamartomas in brain, kidney, heart, lung and skin (1). The tumor suppressor genes TSC1 and TSC2 encode hamartin and tuberin, respectively (2,3). Hamartin and tuberin form a functional complex and are involved in numerous cellular activities such as vesicular trafficking, regulation of the G1 phase of the cell cycle, steroid hormone regulation, Rho activation and anchoring neuronal intermediate filaments to the actin cytoskeleton (4-9). The combination of genetic, biochemical and cell-biological studies demonstrate that the tuberin/hamartin complex functions as a GTPase-activating protein for the Ras-related small G protein Rheb and thus inhibits targets of rapamycin including mTOR. Cells lacking hamartin or tuberin fail to inhibit phosphorylation of S6 kinase resulting in the activation of S6 ribosomal protein's translation of 5'TOP mRNA transcripts (10). Hamartin is phosphorylated by CDK1 (cdc2) at Thr417, Ser584 and Thr1047 in cells in G2/M phase of the cell cycle (11).

Background References

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6. Tapon, N. et al. (2001) *Cell* 105, 345-355.
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9. Haddad, L.A. et al. (2002) *J. Biol. Chem.* 277, 44180-44186.
10. Manning, B.D. and Cantley, L.C. (2003) *Trends Biochem Sci.* 28, 573-576.
11. Astrinidis, A. et al. (2003) *J. Biol. Chem.* 278, 51372-51379.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting **IP:** Immunoprecipitation

Cross-Reactivity Key

H: Human **M:** Mouse **R:** Rat

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