Revision 1

Store at -20C

#23402

Phospho-Tuberin/TSC2 (Ser1387) (D2R3A) Rabbit mAb

Cell Signaling TECHNOLOGY®

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

Applications:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W, IP	Endogenous	200	Rabbit IgG	#P49815	7249

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, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. Do not aliquot the antibody.

Specificity/Sensitivity

Phospho-Tuberin/TSC2 (Ser1387) (D2R3A) Rabbit mAb detects endogenous levels of tuberin protein only when phosphorylated at Ser1387. This antibody may also cross-reacts with an unidentified 140 kD protein.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Ser1387 of human tuberin protein.

Background

Tuberin is a product of the TSC2 tumor suppressor gene and an important regulator of cell proliferation and tumor development (1). Mutations in either *TSC2* or the related *TSC1* (hamartin) gene cause tuberous sclerosis complex (TSC), an autosomal dominant disorder characterized by development of multiple, widespread non-malignant tumors (2). Tuberin is directly phosphorylated at Thr1462 by Akt/PKB (3). Phosphorylation at Thr1462 and Tyr1571 regulates tuberin-hamartin complexes and tuberin activity (3-5). In addition, tuberin inhibits the mammalian target of rapamycin (mTOR), which promotes inhibition of p70 S6 kinase, activation of eukaryotic initiation factor 4E binding protein 1 (4E-BP1, an inhibitor of translation initiation), and eventual inhibition of translation (3,6,7). Phosphorylation of tuberin by AMPK at Ser1387 is necessary for cell size control in response to energy deprivation and protects from apoptosis (8). Furthermore, phosphorylation at Ser1387 primes phosphorylation by GSK3 of upstream sites (Ser1383, Ser1379 and Ser1375), integrating Wnt signaling (9).

Background References

1. Soucek, T. et al. (1998) *Proc Natl Acad Sci U S A* 95, 15653-8.
2. Sparagana, S.P. and Roach, E.S. (2000) *Curr Opin Neurol* 13, 115-9.
3. Manning, B.D. et al. (2002) *Mol Cell* 10, 151-62.
4. Aicher, L.D. et al. (2001) *J Biol Chem* 276, 21017-21.
5. Dan, H.C. et al. (2002) *J Biol Chem* 277, 35364-70.
6. Goncharova, E.A. et al. (2002) *J Biol Chem* 277, 30958-67.
7. Inoki, K. et al. (2002) *Nat Cell Biol* 4, 648-57.
8. Inoki, K. et al. (2003) *Cell* 115, 577-90.
9. Inoki, K. et al. (2006) *Cell* 126, 955-68.

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

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Limited Uses

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