

#40729 Store at -20°C

Phospho-Tuberin/TSC2 (Ser664) (D3B9Z) Rabbit mAb



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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:
WB, IP	H	Endogenous	200	Rabbit IgG	#P49815	7249

Product Usage Information

Application

Western Blotting
Immunoprecipitation

Dilution

1:1000
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 (Ser664) (D3B9Z) Rabbit mAb recognizes endogenous levels of Tuberin/TSC2 protein only when phosphorylated at Ser664. This antibody cross-reacts with a 140kD protein of unknown origin.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Ser664 of human Tuberin/TSC2 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). p44/42 MAPK (Erk1/2) phosphorylates of TSC2 at Ser664 which leads to TSC1-TSC2 dissociation and considerably decreases the ability of TSC2 to inhibit mTOR signaling, cell proliferation and oncogenic transformation (8,9). Furthermore, studies have indicated that cancer patients with TSC2 phosphorylation at Ser664 may benefit from MAPK and mTOR inhibitors (10).

Background References

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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.
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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. Ma, L. et al. (2005) *Cell* 121, 179-93.
9. Ballif, B.A. et al. (2005) *Proc Natl Acad Sci U S A* 102, 667-72.
10. Ma, L. et al. (2007) *Cancer Res* 67, 7106-12.

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

WB: Western Blotting **IP:** Immunoprecipitation

Cross-Reactivity Key

H: human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** D. melanogaster
X: Xenopus **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** S. cerevisiae **Ce:** C. elegans **Hr:** horse
GP: Guinea Pig **Rab:** rabbit **All:** all species expected

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