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#3611

Phospho-Tuberin/TSC2 (Thr1462) Antibody

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

| | | | | | | |
|---------------------------|---------------------------|-----------------------------------|-------------------------|----------------------------------|-------------------------------|--------------------------------|
| Applications: W | Reactivity: H M | Sensitivity: Endogenous | MW (kDa): 200 | Source/Isotype: Rabbit | UniProt ID: #P49815 | Entrez-Gene Id: 7249 |
|---------------------------|---------------------------|-----------------------------------|-------------------------|----------------------------------|-------------------------------|--------------------------------|

Product Usage Information

Application

Western Blotting

Dilution

1:1000

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

Phospho-Tuberin/TSC2 (Thr1462) Antibody detects endogenous levels of tuberin only when phosphorylated at threonine 1462. This antibody does not detect tuberin phosphorylated at other sites.

Species predicted to react based on 100% sequence homology

Rat

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding Thr1462 of human tuberin. Antibodies are purified by protein A and peptide affinity chromatography.

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). Tuberin is phosphorylated on Ser939 and Thr1462 in response to PI3K activation, and that the human TSC complex is a direct biochemical target of the PI3K/Akt pathway (3). This data complements *Drosophila* genetics studies suggesting the possible involvement of the tuberin-hamartin complex in the PI3K/Akt mediated insulin pathway (8-10).

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.
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. Gao, X. and Pan, D. (2001) *Genes Dev.* 15, 1383-1392.
9. Potter, C. J. et al. (2001) *Cell* 105, 357-368.
10. Tapon, N. et al. (2001) *Cell* 105, 345-355.

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

Cross-Reactivity Key

H: Human **M:** Mouse

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