SANTA CRUZ BIOTECHNOLOGY, INC.

p-tuberin (325.Ser 1798): sc-293149

BACKGROUND

Hamartin (TSC1) and tuberin (TSC2, LAM, TSC4) can form a functional complex and negatively regulate cell growth by inhibiting protein synthesis. Tuberous sclerosis complex (TSC) is a genetic disorder that arises through mutations in the hamartin and tuberin genes. The phosphoinositide 3-kinase (PI3K)/Akt pathway phosphorylates tuberin on Serine-939 and Threonine-1462 and inhibits the tumor suppressor function of the TSC complex. Anisomycin stimulates phosphorylation of Serine-1210 of tuberin via the p38-MK2 kinase cascade. Phosphorylation of tuberin by MK2 creates a 14-3-3 binding site. Phosphorylation of hamartin regulates the function of the hamartin-tuberin complex during the G_2/M phase of the cell cycle.

REFERENCES

1. Li, Y., et al. 2003. The p38 and MK2 kinase cascade phosphorylates tuberin, the tuberous sclerosis 2 gene product, and enhances its interaction with 14-3-3. J. Biol. Chem. 278: 13663-13671.
2. Tee, A.R., et al. 2003. Inactivation of the tuberous sclerosis complex-1 and -2 gene products occurs by phosphoinositide 3-kinase/Akt-dependent and -independent phosphorylation of tuberin. J. Biol. Chem. 278: 37288-37296.

CHROMOSOMAL LOCATION

Genetic locus: TSC2 (human) mapping to 16p13.3.

SOURCE

p-tuberin (325.Ser 1798) is a mouse monoclonal antibody raised against a short amino acid sequence containing Ser 1798 phosphorylated tuberin of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

p-tuberin (325.Ser 1798) is available conjugated to agarose (sc-293149 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; and to HRP (sc-293149 HRP), 200 µg/ml, for WB, IHC(P) and ELISA.

APPLICATIONS

p-tuberin (325.Ser 1798) is recommended for detection of Ser 1798 phosphorylated tuberin of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for tuberin siRNA (h): sc-36762, tuberin shRNA Plasmid (h): sc-36762-SH and tuberin shRNA (h) Lentiviral Particles: sc-36762-V.

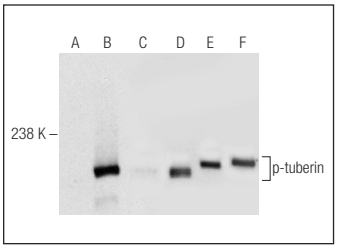
Molecular Weight of p-tuberin: 200 kDa.

Positive Controls: PMA/Calyculin A treated Jurkat whole cell lysate, Jurkat whole cell lysate: sc-2204 or T-47D cell lysate: sc-2293.

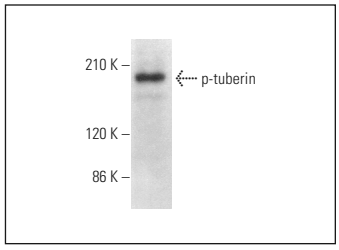
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent), Lambda Phosphatase: sc-200312A and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



Western blot analysis of tuberin phosphorylation in untreated (**A**,**D**), PMA/Calyculin A treated (**B**,**E**) and PMA/Calyculin A and lambda protein phosphatase (sc-200312A) treated (**C**,**F**) Jurkat whole cell lysates. Antibodies tested include p-tuberin (325.Ser 1798): sc-293149 (**A**,**B**,**C**) and tuberin (B-5): sc-271314 (**D**,**E**,**F**).



p-tuberin (325.Ser 1798): sc-293149. Western blot analysis of tuberin phosphorylation in T-47D whole cell lysate.

SELECT PRODUCT CITATIONS

1. Roffé, M., et al. 2015. Two widely used RSK inhibitors, BI-D1870 and SL0101, alter mTORC1 signaling in a RSK-independent manner. Cell. Signal. 27: 1630-1642.
2. Zhang, Y., et al. 2015. PP2AC level determines differential programming of p38-TSC-mTOR signaling and therapeutic response to p38-targeted therapy in colorectal cancer. EBioMedicine 2: 1944-1956.
3. Zuzow, N., et al. 2018. Mapping the mammalian ribosome quality control complex interactome using proximity labeling approaches. Mol. Biol. Cell 29: 1258-1269.
4. Watanabe, D., et al. 2019. FLT3-ITD activates RSK1 to enhance proliferation and survival of AML cells by activating mTORC1 and eIF4B cooperatively with PIM or PI3K and by inhibiting Bad and BIM. Cancers 11: 1827.
5. Katsuta, E., et al. 2022. Targeting PIM2 by JP11646 results in significant antitumor effects in solid tumors. Int. J. Oncol. 61: 114.
6. Huang, Q.J., et al. 2022. Ras inhibitor farnesylthiosalicylic acid conjugated with IR783 dye exhibits improved tumor-targeting and altered anti-breast cancer mechanisms in mice. Acta Pharmacol. Sin. 43: 1843-1856.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures. Not for resale.