unphosphorylated βIII-Tubulin (Ser-444)

Rabbit Polyclonal

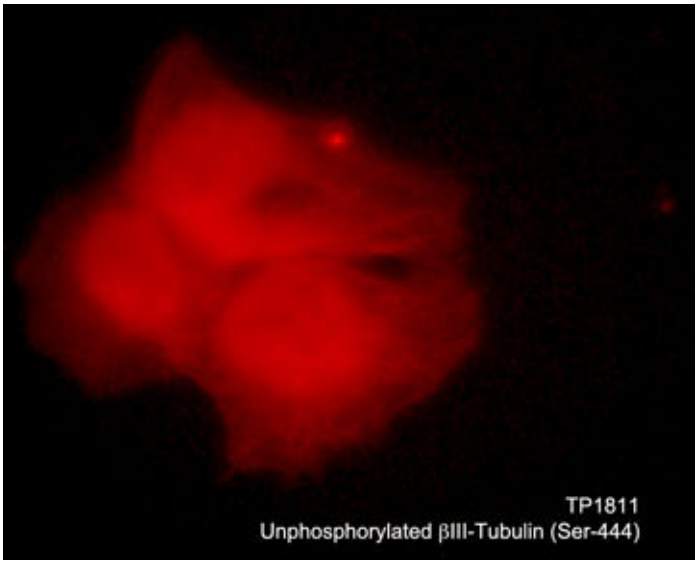
Cat. # TP1811
Size 100 µl

Background

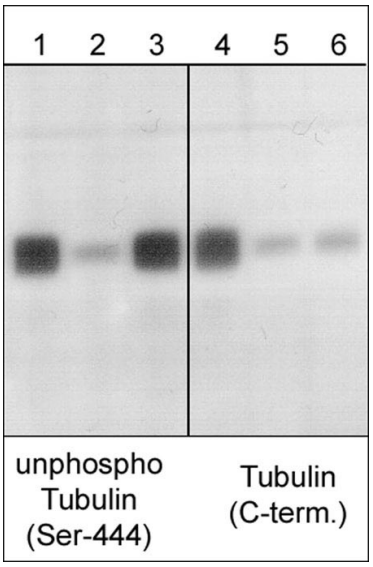
Microtubules (MTs) are cytoskeletal elements that play an essential role in cell division and cytoplasmic organization. MTs are dynamic polymers of a/β-Tubulin heterodimers. At least two populations of MTs, called dynamic and stable according to their rates of turnover, are readily distinguishable in cells. The proteins associated with MTs (MAPs) are among the best-known factors that regulate MT dynamics and stability. In addition, a variety of different post-translational modifications may also regulate MT dynamics and stability. Phosphorylation is one of these modifications and it can occur on serine, threonine, and tyrosine residues in β-Tubulin isoforms. Multiple kinases can phosphorylate Ser-444 at the C-terminus of βIII-Tubulin in vitro. Unphosphorylated Ser-444 in βIII-Tubulin is an early marker for cells of neuronal lineage, while phosphorylation of Ser-444 is upregulated after neuronal maturation and may preferentially occur in assembled MTs. By contrast, Cdk1 phosphorylation of Ser-172 in β-Tubulin occurs in mitotic cells and may impair tubulin incorporation into microtubules.

Background References

Diaz-Nido, J. et al. (1990) J Biol. Chem. 265(23):13949.
Fanarraga, M.L. et al. (1999) Eur. J. Neurosci. 11:517.
Westermann, S. & Weber, K. (2003) Nat. Rev. Mol. Cell. Biol. 4:938.
Fourest-Lieuvin, A. et al. (2006) Mol. Biol. Cell. 17(3):1041.



Immunocytochemical labeling of β-tubulin in aldehyde fixed and NP -40 permeabilized human NCI-H1299 lung carcinoma cells. The cells were labeled with rabbit polyclonal anti-unphosphorylated β-Tubulin (TP1811). The antibody was detected using goat anti-rabbit DyLight® 594.



Western blot analysis of mouse brain. The blot was probed with anti-unphosphorylated βIII-Tubulin (Ser-444) (lanes 1-3) and anti-βIII-Tubulin (C-terminus) (lanes 4-6) polyclonal antibodies. Both antibodies were used in the presence of unphosphorylated βIII-Tublin (Ser-444) peptide (lanes 2 & 5; TX1815) and phospho-βIII-Tublin (Ser-444) peptide (lanes 3 & 6; TX1695).

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Immunogen

Uniprot ID: Q13509

Unphosphorylated βIII-Tubulin (Ser-444) synthetic peptide (coupled to KLH) corresponding to amino acid residues around serine 444 of human βIII-Tubulin. This sequence is not found in bI or βII-Tubulin isotypes, but is well conserved in βIII-Tubulins from rat and mouse.

Buffer and Storage

Rabbit polyclonal, affinity-purified antibody is supplied in 100µl phosphate-buffered saline, 50% glycerol, 1 mg/ml BSA, and 0.05% sodium azide. Store at –20°C. Stable for 1 year.

Applications

WB	1:1000
ICC	1:100
ELISA	1:2000

Species Reactivity

Hu, Rt, Ms

End user should determine optimal dilution for their particular applications and experiments.
Western blot membranes were incubated with diluted antibody in 5% non-fat milk, Tris buffer, 0.04% Tween20 for 1 hour at room temperature.
Abbreviations: E = ELISA, ICC = immunocytochemistry, IHC = immunohistochemistry, IP = immunoprecipitation, MS = mass spectrometry, WB = western blot
Hu = Human, Ms = Mouse, Rt = Rat, Ck = Chicken, F = Frog, B = Bovine

Specificity

This antibody was cross-adsorbed to phospho-βIII-Tubulin (Ser-444) peptide before affinity purification using unphosphorylated βIII-Tubulin (Ser-444) peptide (without carrier). The antibody detects a 50 kDa* protein corresponding to the molecular mass of unphosphorylated βIII-Tubulin on SDS-PAGE immunoblots of purified brain tubulin and mouse brain tissue.

*All molecular weights (MW) are confirmed by comparison to MW standards and to western blot mobilities of known proteins with similar MW.
"Native" western blot utilizes non-reducing sample buffer (no mercaptoethanol or SDS), normal SDS-PAGE gel electrophoresis, and no methanol in transfer buffers.

Related Products

TM1541 β-Tubulin Mouse Monoclonal

TP1691 βIII-Tubulin (C-terminus) Rabbit Polyclonal

TP1721 β-Tubulin (Ser-172), phospho-specific Rabbit Polyclonal

TP1781 β-Tubulin (a.a. 168-177) Rabbit Polyclonal

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