

# $\beta$ -Tubulin (Ser-172), phospho-specific

Cat. # TP1721

Host Rabbit Polyclonal

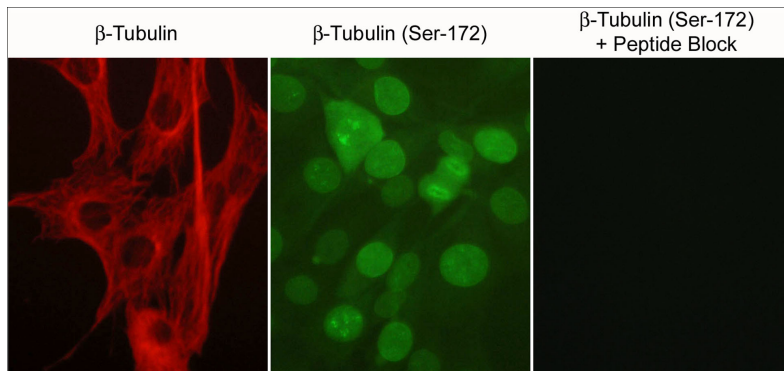
Size 100  $\mu$ l

## Background:

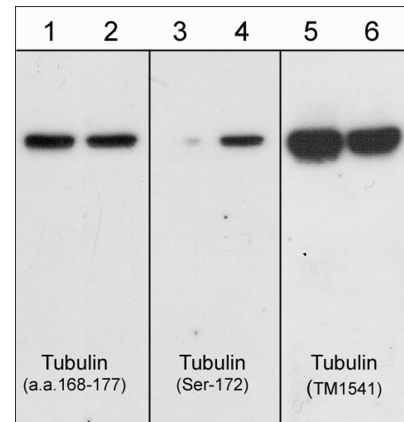
Microtubules (MTs) are cytoskeletal elements that play an essential role in cell division and cytoplasmic organization. MTs are dynamic polymers of  $\alpha/\beta$ -tubulin heterodimers. At least two populations of MTs, called dynamic and stable according to their rates of turnover, are readily distinguishable 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  $\beta$ -tubulin isoforms. Multiple kinases can phosphorylate Ser-444 at the C-terminus of  $\beta$ III-tubulin *in vitro*. Unphosphorylated Ser-444 in  $\beta$ III-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  $\beta$ -tubulin occurs in mitotic cells and may impair tubulin incorporation into microtubules.

## References

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



Immunocytochemical labeling in C2C12 cells using anti- $\beta$ -Tubulin (TM1541) monoclonal antibody and anti- $\beta$ -Tubulin (Ser-172) polyclonal antibody. The specificity of the binding for the latter antibody was demonstrated by using the antibody in the presence of phospho- $\beta$ -Tubulin (Ser-172) peptide (TX1725).



Western blot analysis of purified brain tubulin untreated (lanes 1,3,5) or treated with ERK2 kinase to phosphorylate Ser-172 (lanes 2,4,6). The blot was probed with anti- $\beta$ -Tubulin (a.a. 168-177) (lanes 1 & 2), anti- $\beta$ -Tubulin (Ser-172) (lanes 3 & 4), and anti- $\beta$ -Tubulin (TM1541) (lanes 5 & 6).

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Rev 11/06

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Size 100  $\mu$ l

## **Immunogen:**

Phospho- $\beta$ III-Tubulin (Ser-172) synthetic peptide (coupled to KLH) corresponding to amino acid residues around serine 172 of human  $\beta$ III-tubulin. This sequence is identical to similar regions in  $\beta$ I,  $\beta$ II, and  $\beta$ III-tubulin isotypes, and is well conserved in tubulins from most eukaryotic species.

## **Buffer and Storage:**

Rabbit polyclonal, affinity-purified antibody is supplied in 100 $\mu$ l phosphate-buffered saline, 50% glycerol, 1 mg/ml BSA, and 0.05% sodium azide. Store at  $-20^{\circ}\text{C}$ . Do not aliquot. Stable for 1 year.

## **Applications:**

WB 1:1,000

ICC 1:100

ELISA 1:2,000

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, PBS, 0.04% Tween20 for 1hour at room temperature.

## **Specificity:**

This antibody was cross-adsorbed to unphosphorylated  $\beta$ III-Tubulin (Ser-172) peptide before affinity purification using phospho- $\beta$ III-Tubulin (Ser-172) peptide (without carrier). The antibody detects a 50 kDa\* protein corresponding to the molecular mass of  $\beta$ -Tubulin on SDS-PAGE immunoblots of purified brain tubulin phosphorylated with ERK2 kinase.

\*All molecular weights (MW) are confirmed by comparison to Bio-Rad Rainbow Markers and to western blot mobilities of known proteins with similar MW.

## **Related Products:**

TM1541	$\beta$ -Tubulin
TP1691	$\beta$ III-Tubulin (C-terminus)
TP1811	unphosphorylated $\beta$ III-Tubulin (Ser-444)
TP1781	$\beta$ -Tubulin (a.a. 168-177)

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