

## Datasheet: MCA77P

<b>Description:</b>	RAT ANTI TUBULIN ALPHA:HRP
<b>Specificity:</b>	TUBULIN ALPHA
<b>Format:</b>	HRP
<b>Product Type:</b>	Monoclonal Antibody
<b>Clone:</b>	YL1/2
<b>Isotype:</b>	IgG2a
<b>Quantity:</b>	0.1 mg

## Product Details

**RRID** AB\_2021090

**Applications** This product has been reported to work in the following applications. This information is derived from testing within our laboratories, peer-reviewed publications or personal communications from the originators. Please refer to references indicated for further information. For general protocol recommendations, please visit [www.bio-rad-antibodies.com/protocols](http://www.bio-rad-antibodies.com/protocols).

	Yes	No	Not Determined	Suggested Dilution
Flow Cytometry			▪	
Immunohistology - Frozen	▪			
Immunohistology - Paraffin			▪	
ELISA	▪			
Immunoprecipitation			▪	
Western Blotting	▪			1/100 - 1/1000

Where this antibody has not been tested for use in a particular technique this does not necessarily exclude its use in such procedures. It is recommended that the user titrates the antibody for use in their own system using appropriate negative/positive controls.

**Target Species** Yeast

**Species Cross Reactivity** Reacts with: Ashbya, Human, Mouse, Dog, Rat, Pig, Drosophila, Saccharomyces, Pleurobrachia, Caenorhabditis, Dictyostelium discoideum, Xenopus, Pig-tailed macaque, Clytia sp., Arabidopsis, Strongylocentrotus purpuratus, Dendraster excentricus, Trypanosoma brucei, Potorous tridactylis, Bovine, Hemicentrotus pulcherrimus, Potato, Bombyx mori, Rhodnius prolixus, Beroe abyssicola  
Does not react with: Nephrotoma suturalis, Fungal  
Based on sequence similarity, is expected to react with: Birds, Echinoderm, Plants, Amphibia  
**N.B.** Antibody reactivity and working conditions may vary between species.

**Product Form** Purified IgG conjugated to Horseradish Peroxidase (HRP) - liquid

**Preparation** Purified IgG prepared by affinity chromatography on Protein G from tissue culture supernatant.

**Buffer Solution** Phosphate buffered saline

**Preservative** 0.01% Thiomersal  
**Stabilisers** HRP Stabiliser ([BUF052A](#))

<b>Approx. Protein Concentrations</b>	IgG concentration 1.0 mg/ml
<b>Immunogen</b>	Yeast tubulin.
<b>Fusion Partners</b>	Spleen cells from immunized LOU rats were fused with cells of the Y3.Ag.1.2.3 rat myeloma cell line.
<b>Specificity</b>	<p><b>Rat anti tubulin alpha antibody, clone YL1/2</b> recognizes the alpha subunit of tubulin, specifically binding tyrosylated Tubulin (Tyr-Tubulin) (<a href="#">Wehland et al. 1983</a>). The epitope recognized by this antibody has been extensively studied and would appear to be a linear sequence requiring an aromatic residue at the C terminus, with the two adjacent amino acids being negatively charged (represented by Glu-Glu-Tyr in Tyr-Tubulin).</p> <p>The antibody has been used in epitope tagging procedures to detect proteins tagged with a C-terminal Gly-Gly-Phe epitope. These sequence requirements have been reported to result in some cross-reactivity with other proteins in certain circumstances, including <i>E. coli</i> rec A and oxidized actin (<a href="#">Burns 1987</a>).</p> <p>Rat anti tubulin alpha antibody, clone YL1/2 is routinely tested in ELISA on tubulin.</p>
<b>Western Blotting</b>	MCA77P is suitable for use as a loading control.
<b>References</b>	<ol style="list-style-type: none"> <li>1. Kilmartin, J.V. <i>et al.</i> (1982) Rat monoclonal antitubulin antibodies derived by using a new nonsecreting rat cell line. <a href="#">J Cell Biol. 93 (3): 576-82.</a></li> <li>2. Wehland, J. <i>et al.</i> (1983) A rat monoclonal antibody reacting specifically with the tyrosylated form of alpha-tubulin. I. Biochemical characterization, effects on microtubule polymerization <i>in vitro</i>, and microtubule polymerization and organization <i>in vivo</i>. <a href="#">J Cell Biol. 97 (5 Pt 1): 1467-75.</a></li> <li>3. Wallace, S.W. <i>et al.</i> (2010) Cdc42 regulates apical junction formation in human bronchial epithelial cells through PAK4 and Par6B. <a href="#">Mol Biol Cell. 21 (17): 2996-3006.</a></li> <li>4. Wehland, J. <i>et al.</i> (1984) Amino acid sequence requirements in the epitope recognized by the alpha-tubulin-specific rat monoclonal antibody YL 1/2. <a href="#">EMBO J. 3 (6): 1295-300.</a></li> <li>5. Burns, R. (1987) Cytoskeleton. Tubulin's terminal tyrosine. <a href="#">Nature. 327 (6118): 103-4.</a></li> <li>6. Skinner, R.H. <i>et al.</i> (1991) Use of the Glu-Glu-Phe C-terminal epitope for rapid purification of the catalytic domain of normal and mutant ras GTPase-activating proteins. <a href="#">J Biol Chem. 266 (22): 14163-6.</a></li> <li>7. Abe, Y. <i>et al.</i> (2010) A single starfish Aurora kinase performs the combined functions of Aurora-A and Aurora-B in human cells. <a href="#">J Cell Sci. 123: 3978-88.</a></li> <li>8. Cheishvili, D. <i>et al.</i> (2011) Involvement in Cytoskeleton Regulation and Implication for Familial Dysautonomia. <a href="#">Hum Mol Genet. 20: 1585-94.</a></li> <li>9. Berrueta, L. <i>et al.</i> (1998) The adenomatous polyposis coli-binding protein EB1 is associated with cytoplasmic and spindle microtubules. <a href="#">Proc Natl Acad Sci U S A. 95: 10596-601.</a></li> <li>10. Bruce, E.A. <i>et al.</i> (2010) The Rab11 pathway is required for influenza A virus budding and filament formation. <a href="#">J Virol. 84: 5848-59.</a></li> <li>11. Jager, M. <i>et al.</i> (2008) Insights into the early evolution of SOX genes from expression analyses in a ctenophore. <a href="#">J Exp Zool B Mol Dev Evol. 310: 650-67.</a></li> <li>12. Wise, H.M. <i>et al.</i> (2011) Overlapping signals for translational regulation and packaging of influenza A virus segment 2. <a href="#">Nucleic Acids Res. 39: 7775-90.</a></li> <li>13. Zenner, H.L. <i>et al.</i> (2011) Analysis of Rab GTPase-Activating Proteins Indicates that Rab1a/b and Rab43 Are Important for Herpes Simplex Virus 1 Secondary Envelopment. <a href="#">J Virol. 85: 8012-21.</a></li> <li>14. Timm, T. <i>et al.</i> (2011) Microtubule affinity regulating kinase (MARK) activity in living neurons examined by a genetically encoded FRET/FLIM based biosensor: Inhibitors with therapeutic</li> </ol>

- potential. [J Biol Chem. 286: 41711-22.](#)
15. Virágh, E. *et al.* (2012) Specific Cooperation Between Imp- $\alpha$ 2 and Imp- $\beta$ /Ketel in Spindle Assembly During *Drosophila* Early Nuclear Divisions. [G3 \(Bethesda\). 2 \(1\): 1-14.](#)
  16. Courtois, A. *et al.* (2012) The transition from meiotic to mitotic spindle assembly is gradual during early mammalian development. [J Cell Biol. 198: 357-70.](#)
  17. Feau, S. *et al.* (2013) SLAT Regulates CD8+ T Cell Clonal Expansion in a Cdc42- and NFAT1-Dependent Manner. [J Immunol. 190: 174-83.](#)
  18. Wise, H.M. *et al.* (2012) Identification of a novel splice variant form of the influenza A virus M2 ion channel with an antigenically distinct ectodomain. [PLoS Pathog. 8\(11\): e1002998.](#)
  19. Dayraud, C. *et al.* (2012) Independent specialisation of myosin II paralogues in muscle vs. non-muscle functions during early animal evolution: a ctenophore perspective. [BMC Evol Biol. 12: 107.](#)
  20. Ligon, L.A. *et al.* (2003) The microtubule plus-end proteins EB1 and dynactin have differential effects on microtubule polymerization. [Mol Biol Cell. 14: 1405-17.](#)
  21. Smertenko, A.P. *et al.* (2008) The C-terminal variable region specifies the dynamic properties of *Arabidopsis* microtubule-associated protein MAP65 isoforms. [Plant Cell. 20: 3346-58.](#)
  22. Li, Y. *et al.* (2010) The type II *Arabidopsis* formin14 interacts with microtubules and microfilaments to regulate cell division. [Plant Cell. 22: 2710-26.](#)
  23. Brunk, K. *et al.* (2007) Microcephalin coordinates mitosis in the syncytial *Drosophila* embryo. [J Cell Sci. 120: 3578-88.](#)
  24. Gordon-Weeks, R. *et al.* (2003) Restricted spatial expression of a high-affinity phosphate transporter in potato roots. [J Cell Sci. 116: 3135-44.](#)
  25. Bodor, D.L. *et al.* (2013) Assembly in G1 phase and long-term stability are unique intrinsic features of CENP-A nucleosomes. [Mol Biol Cell. 24: 923-32.](#)
  26. De Faveri, L.E. *et al.* (2013) Putative tumour suppressor gene necdin is hypermethylated and mutated in human cancer. [Br J Cancer. 108: 1368-77.](#)
  27. Machado, E. *et al.* (2007) Prostaglandin signaling and ovarian follicle development in the silkworm, *Bombyx mori*. [Insect Biochem Mol Biol. 37: 876-85.](#)
  28. Meseroll, R.A. *et al.* (2012) Septin ring size scaling and dynamics require the coiled-coil region of Shs1p. [Mol Biol Cell. 23: 3391-406.](#)
  29. Vafopoulou, X. (2009) Ecdysteroid receptor (EcR) is associated with microtubules and with mitochondria in the cytoplasm of prothoracic gland cells of *Rhodnius prolixus* (Hemiptera). [Arch Insect Biochem Physiol. 72: 249-62.](#)
  30. Levy, G.V. *et al.* (2015) Depletion of the SR-Related Protein TbRRM1 Leads to Cell Cycle Arrest and Apoptosis-Like Death in *Trypanosoma brucei*. [PLoS One. 10 \(8\): e0136070.](#)
  31. Iwasaki, D. *et al.* (2016) The MRX Complex Ensures NHEJ Fidelity through Multiple Pathways Including Xrs2-FHA-Dependent Tel1 Activation. [PLoS Genet. 12 \(3\): e1005942.](#)
  32. Zasadil, L.M. *et al.* (2016) High rates of chromosome missegregation suppress tumor progression but do not inhibit tumor initiation. [Mol Biol Cell. 27 \(13\): 1981-9.](#)
  33. Vafopoulou, X. & Steel, C.G. (2012) Cytoplasmic travels of the ecdysteroid receptor in target cells: pathways for both genomic and non-genomic actions. [Front Endocrinol \(Lausanne\). 3: 43.](#)
  34. Vafopoulou, X. & Steel, C.G. (2016) Mitochondria and the insect steroid hormone receptor (EcR): A complex relationship. [Gen Comp Endocrinol. pii: S0016-6480\(16\)30224-6. \[Epub ahead of print\]](#)
  35. Turnbull, M.L. *et al.* (2016) The Role of the B-Allele of the Influenza A Virus Segment 8 in Setting Mammalian Host Range and Pathogenicity. [J Virol. Aug 3. pii: JVI.01205-16. \[Epub ahead of print\]](#)
  36. Vargas, P. *et al.* (2016) Innate control of actin nucleation determines two distinct migration behaviours in dendritic cells. [Nat Cell Biol. 18 \(1\): 43-53.](#)
  37. Kerr, G.W. *et al.* (2016) PP2A(Cdc55)'s role in reductional chromosome segregation during achiasmate meiosis in budding yeast is independent of its FEAR function. [Sci Rep. 6: 30397.](#)
  38. Schlicher, L. *et al.* (2016) SPATA2 promotes CYLD activity and regulates TNF-induced NF- $\kappa$ B signaling and cell death. [EMBO Rep. Jul 25. pii: e201642592. \[Epub ahead of print\]](#)

39. Gholkar AA *et al.* (2016) Fatostatin inhibits cancer cell proliferation by affecting mitotic microtubule spindle assembly and cell division. [J Biol Chem. Aug 12 \[Epub ahead of print\]](#).
40. Takáč, T. *et al.* (2016) Actin depolymerization-induced changes in proteome of *Arabidopsis* roots. [J Proteomics. Jun 14. pii: S1874-3919\(16\)30251-2. \[Epub ahead of print\]](#)
41. Kono, K. *et al.* (2016) Plasma membrane/cell wall perturbation activates a novel cell cycle checkpoint during G1 in *Saccharomyces cerevisiae*. [Proc Natl Acad Sci U S A. 113 \(25\): 6910-5.](#)
42. Koparir, A. *et al.* (2015) Novel POC1A mutation in primordial dwarfism reveals new insights for centriole biogenesis. [Hum Mol Genet. 24 \(19\): 5378-87.](#)
43. Liz, M.A. *et al.* (2014) Neuronal deletion of GSK3 $\beta$  increases microtubule speed in the growth cone and enhances axon regeneration via CRMP-2 and independently of MAP1B and CLASP2. [BMC Biol. 12: 47.](#)
44. Jonasson, E.M. *et al.* (2016) Zds1/Zds2-PP2ACdc55 complex specifies signaling output from Rho1 GTPase. [J Cell Biol. 212 \(1\): 51-61.](#)
45. Nunan, R. *et al.* (2015) Ephrin-Bs Drive Junctional Downregulation and Actin Stress Fiber Disassembly to Enable Wound Re-epithelialization. [Cell Rep. 13 \(7\): 1380-95.](#)
46. Gaudet, A.D. *et al.* (2015) Galectin-1 in injured rat spinal cord: implications for macrophage phagocytosis and neural repair. [Mol Cell Neurosci. 64: 84-94.](#)
47. Klinger, P. *et al.* (2017) PEDF Is Associated with the Termination of Chondrocyte Phenotype and Catabolism of Cartilage Tissue. [Biomed Res Int. 2017: 7183516.](#)
48. Gao, L. *et al.* (2017) Afadin orients cell division to position the tubule lumen in developing renal tubules. [Development. 144 \(19\): 3511-20.](#)
49. Norekian, T.P. & Moroz, L.L. (2019) Neural system and receptor diversity in the ctenophore *Beroe abyssicola*. [J Comp Neurol. Jan 11 \[Epub ahead of print\]](#).

<b>Storage</b>	Store at +4°C. DO NOT FREEZE. This product should be stored undiluted. Should this product contain a precipitate we recommend microcentrifugation before use.
<b>Guarantee</b>	18 months from date of despatch.
<b>Health And Safety Information</b>	Material Safety Datasheet documentation #10131 available at: 10131: <a href="https://www.bio-rad-antibodies.com/uploads/MSDS/10131.pdf">https://www.bio-rad-antibodies.com/uploads/MSDS/10131.pdf</a>
<b>Regulatory</b>	For research purposes only

## Related Products

### Recommended Useful Reagents

[AbGUARD® HRP STABILIZER PLUS \(BUF052A\)](#)

[AbGUARD® HRP STABILIZER PLUS \(BUF052B\)](#)

[AbGUARD® HRP STABILIZER PLUS \(BUF052C\)](#)

[TMB CORE \(BUF056A\)](#)

[TMB CORE+ \(BUF062A\)](#)

[TMB SIGNAL+ \(BUF054A\)](#)

**North & South America** Tel: +1 800 265 7376  
Fax: +1 919 878 3751  
Email: [antibody\\_sales\\_us@bio-rad.com](mailto:antibody_sales_us@bio-rad.com)

**Worldwide** Tel: +44 (0)1865 852 700  
Fax: +44 (0)1865 852 739  
Email: [antibody\\_sales\\_uk@bio-rad.com](mailto:antibody_sales_uk@bio-rad.com)

**Europe** Tel: +49 (0) 89 8090 95 21  
Fax: +49 (0) 89 8090 95 50  
Email: [antibody\\_sales\\_de@bio-rad.com](mailto:antibody_sales_de@bio-rad.com)

'M338841:181217'

Printed on 11 Oct 2019

