

Datasheet: MCA77P

BATCH NUMBER 151496

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

Product Details

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.

	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	<p>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, Candida sp.</p> <p>Does not react with:Nephrotoma suturalis</p> <p>Based on sequence similarity, is expected to react with:Birds, Echinoderm, Plants, Amphibia</p> <p>N.B. Antibody reactivity and working conditions may vary between species. Cross reactivity is derived from testing within our laboratories, peer-reviewed publications or personal communications from the originators. Please refer to references indicated for</p>

further information.

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 Stabilisers	0.01% Thiomersal HRP Stabiliser (BUF052A)
Approx. Protein Concentrations	IgG concentration 1.0 mg/ml
Immunogen	Yeast tubulin.
RRID	AB_2021090
Fusion Partners	Spleen cells from immunized LOU rats were fused with cells of the Y3.Ag.1.2.3 rat myeloma cell line.
Specificity	<p>Rat anti tubulin alpha antibody, clone YL1/2 recognizes the alpha subunit of tubulin, specifically binding tyrosylated Tubulin (Tyr-Tubulin) (Wehland et al. 1983). 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 (Burns 1987).</p> <p>Rat anti tubulin alpha antibody, clone YL1/2 is routinely tested in ELISA on tubulin.</p>
Western Blotting	MCA77P is suitable for use as a loading control.
References	<ol style="list-style-type: none">1. Kilmartin, J.V. et al. (1982) Rat monoclonal anti tubulin antibodies derived by using a new nonsecreting rat cell line. J Cell Biol. 93 (3): 576-82.2. Wehland, J. et al. (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>. J Cell Biol. 97 (5 Pt 1): 1467-75.3. Wehland, J. et al. (1984) Amino acid sequence requirements in the epitope recognized by the alpha-tubulin-specific rat monoclonal antibody YL 1/2. EMBO J. 3 (6): 1295-300.4. Burns, R. (1987) Cytoskeleton. Tubulin's terminal tyrosine. Nature. 327 (6118): 103-4.5. Skinner, R.H. et al. (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. J

6. Berrueta, L. *et al.* (1998) The adenomatous polyposis coli-binding protein EB1 is associated with cytoplasmic and spindle microtubules. *Proc Natl Acad Sci U S A.* 95: 10596-601.
7. Gordon-Weeks, R. *et al.* (2003) Restricted spatial expression of a high-affinity phosphate transporter in potato roots. *J Cell Sci.* 116: 3135-44.
8. Ligon, L.A. *et al.* (2003) The microtubule plus-end proteins EB1 and dynein have differential effects on microtubule polymerization. *Mol Biol Cell.* 14: 1405-17.
9. Müller, S. *et al.* (2004) The plant microtubule-associated protein AtMAP65-3/PLE is essential for cytokinetic phragmoplast function. *Curr Biol.* 14: 412-7.
10. Dorer, M.S. *et al.* (2006) RNA interference analysis of *Legionella* in *Drosophila* cells: exploitation of early secretory apparatus dynamics. *PLoS Pathog.* 2(4): e34.
11. Groeger, G. *et al.* (2007) Co-operative Cdc42 and Rho signalling mediates ephrinB-triggered endothelial cell retraction. *Biochem J.* 404: 23-9.
12. Machado, E. *et al.* (2007) Prostaglandin signaling and ovarian follicle development in the silkworm, *Bombyx mori*. *Insect Biochem Mol Biol.* 37: 876-85.
13. Brunk, K. *et al.* (2007) Microcephalin coordinates mitosis in the syncytial *Drosophila* embryo. *J Cell Sci.* 120: 3578-88.
14. Smertenko, A.P. *et al.* (2008) The C-terminal variable region specifies the dynamic properties of *Arabidopsis* microtubule-associated protein MAP65 isotypes. *Plant Cell.* 20: 3346-58.
15. Tinkle, C.L. *et al.* (2008) New insights into cadherin function in epidermal sheet formation and maintenance of tissue integrity. *Proc Natl Acad Sci U S A.* 105: 15405-10.
16. Hartl, T.A. *et al.* (2008) Condensin II resolves chromosomal associations to enable anaphase I segregation in *Drosophila* male meiosis. *PLoS Genet.* 4(10): e1000228.
17. Jager, M. *et al.* (2008) Insights into the early evolution of SOX genes from expression analyses in a ctenophore. *J Exp Zool B Mol Dev Evol.* 310: 650-67.
18. von Dassow, G. *et al.* (2009) Action at a distance during cytokinesis. *J Cell Biol.* 187: 831-45.
19. 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.
20. Dupin, I. *et al.* (2009) Classical cadherins control nucleus and centrosome position and cell polarity. *J Cell Biol.* 185: 779-86.
21. Heaslip, A.T. *et al.* (2009) TgICMAP1 is a novel microtubule binding protein in *Toxoplasma gondii*. *PLoS One.* 4: e7406.
22. Towers, E. *et al.* (2009) The proapoptotic dp5 gene is a direct target of the MLK-JNK-c-Jun pathway in sympathetic neurons. *Nucleic Acids Res.* 37: 3044-60.
23. Li, Y. *et al.* (2010) The type II *Arabidopsis* formin14 interacts with microtubules and microfilaments to regulate cell division. *Plant Cell.* 22: 2710-26.
24. Liu, D. *et al.* (2010) Regulated targeting of protein phosphatase 1 to the outer kinetochore by KNL1 opposes Aurora B kinase. *J Cell Biol.* 188: 809-20.
25. Omri, S. *et al.* (2010) The outer limiting membrane (OLM) revisited: clinical implications. *Clin Ophthalmol.* 4: 183-95.
26. Wallace, S.W. *et al.* (2010) Cdc42 regulates apical junction formation in human bronchial epithelial cells through PAK4 and Par6B. *Mol Biol Cell.* 21 (17): 2996-3006.
27. Abe, Y. *et al.* (2010) A single starfish Aurora kinase performs the combined functions

- of Aurora-A and Aurora-B in human cells. *J Cell Sci.* 123: 3978-88.
28. Bruce, E.A. *et al.* (2010) The Rab11 pathway is required for influenza A virus budding and filament formation. *J Virol.* 84: 5848-59.
29. Zenner, H.L. *et al.* (2011) Analysis of Rab GTPase-Activating Proteins Indicates that Rab1a/b and Rab43 Are Important for Herpes Simplex Virus 1 Secondary Envelopment. *J Virol.* 85: 8012-21.
30. Wise, H.M. *et al.* (2011) Overlapping signals for translational regulation and packaging of influenza A virus segment 2. *Nucleic Acids Res.* 39: 7775-90.
31. Cheishvili, D. *et al.* (2011) Involvement in Cytoskeleton Regulation and Implication for Familial Dysautonomia. *Hum Mol Genet.* 20: 1585-94.
32. Wise, H.M. *et al.* (2011) Overlapping signals for translational regulation and packaging of influenza A virus segment 2. *Nucleic Acids Res.* 39 (17): 7775-90.
33. Stadler, L.K. *et al.* (2011) Structure-function studies of an engineered scaffold protein derived from Stefin A. II: Development and applications of the SQT variant. *Protein Eng Des Sel.* 24 (9): 751-63.
34. Morishita, D. *et al.* (2011) Cell-permeable carboxyl-terminal p27(Kip1) peptide exhibits anti-tumor activity by inhibiting Pim-1 kinase. *J Biol Chem.* 286: 2681-8.
35. Timm, T. *et al.* (2011) Microtubule affinity regulating kinase (MARK) activity in living neurons examined by a genetically encoded FRET/FLIM based biosensor: Inhibitors with therapeutic potential. *J Biol Chem.* 286: 41711-22.
36. 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.
37. 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.
38. 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.
39. 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.
40. Virág, E. *et al.* (2012) Specific Cooperation Between Imp- α 2 and Imp- β /Ketel in Spindle Assembly During Drosophila Early Nuclear Divisions. *G3 (Bethesda).* 2 (1): 1-14.
41. 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.
42. 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.
43. Feau, S. *et al.* (2013) SLAT Regulates CD8+ T Cell Clonal Expansion in a Cdc42- and NFAT1-Dependent Manner. *J Immunol.* 190: 174-83.
44. De Faveri, L.E. *et al.* (2013) Putative tumour suppressor gene neocidin is hypermethylated and mutated in human cancer. *Br J Cancer.* 108: 1368-77.
45. Liz, M.A. *et al.* (2014) Neuronal deletion of GSK3 β increases microtubule speed in the growth cone and enhances axon regeneration via CRMP-2 and independently of MAP1B and CLASP2. *BMC Biol.* 12: 47.
46. 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.

47. 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.
48. Koparir, A. *et al.* (2015) Novel POC1A mutation in primordial dwarfism reveals new insights for centriole biogenesis. *Hum Mol Genet.* 24 (19): 5378-87.
49. 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.
50. Jonasson, E.M. *et al.* (2016) Zds1/Zds2-PP2ACdc55 complex specifies signaling output from Rho1 GTPase. *J Cell Biol.* 212 (1): 51-61.
51. Ghokar, A.A. *et al.* (2016) Fatostatin Inhibits Cancer Cell Proliferation by Affecting Mitotic Microtubule Spindle Assembly and Cell Division. *J Biol Chem.* 291 (33): 17001-8.
52. 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.
53. Schlicher, L. *et al.* (2016) SPATA2 promotes CYLD activity and regulates TNF-induced NF- κ B signaling and cell death. *EMBO Rep.* 17 (10): 1485-97.
54. 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.
55. Turnbull, M.L. *et al.* (2016) Role of the B Allele of Influenza A Virus Segment 8 in Setting Mammalian Host Range and Pathogenicity. *J Virol.* 90 (20): 9263-84.
56. Vafopoulou, X. & Steel, C.G.H. (2016) Mitochondria and the insect steroid hormone receptor (EcR): A complex relationship. *Gen Comp Endocrinol.* 237: 68-77.
57. 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.
58. 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.
59. 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.
60. Takáč, T. *et al.* (2017) Actin depolymerization-induced changes in proteome of *Arabidopsis* roots. *J Proteomics.* 153: 89-99.
61. Gao, L. *et al.* (2017) Afadin orients cell division to position the tubule lumen in developing renal tubules. *Development.* 144 (19): 3511-20.
62. Klinger, P. *et al.* (2017) PEDF Is Associated with the Termination of Chondrocyte Phenotype and Catabolism of Cartilage Tissue. *Biomed Res Int.* 2017: 7183516.
63. Inoue, D. *et al.* (2019) Actin filaments regulate microtubule growth at the centrosome. *EMBO J.* 38(11): e99630.
64. Norekian, T.P. & Moroz, L.L. (2019) Neural system and receptor diversity in the ctenophore *Beroe abyssicola*. *J Comp Neurol.* 527 (12): 1986-2008.
65. Sawicki, M.P. *et al.* (2019) Menin Associates With the Mitotic Spindle and Is Important for Cell Division. *Endocrinology.* 160 (8): 1926-36.
66. Norekian, T.P. & Moroz, L.L. (2019) Neuromuscular organization of the Ctenophore *Pleurobrachia bachei*. *J Comp Neurol.* 527 (2): 406-36.
67. Patteson, A.E. *et al.* (2019) Loss of Vimentin Enhances Cell Motility through Small Confining Spaces. *Small.* 15 (50): e1903180.
68. Hughes, S.E. *et al.* (2019) The E3 ubiquitin ligase Sina regulates the assembly and disassembly of the synaptonemal complex in *Drosophila* females. *PLoS Genet.* 15 (5): e1008161.

69. Soday, L. *et al.* (2019) Quantitative Temporal Proteomic Analysis of Vaccinia Virus Infection Reveals Regulation of Histone Deacetylases by an Interferon Antagonist. *Cell Rep.* 27 (6): 1920-1933.e7.
70. Bernkopf, D.B. *et al.* (2019) An aggregon in conductin/axin2 regulates Wnt/β-catenin signaling and holds potential for cancer therapy. *Nat Commun.* 10 (1): 4251.
71. Lee, D.K. *et al.* (2019) Cdk5 regulates N-cadherin-dependent neuronal migration during cortical development. *Biochem Biophys Res Commun.* 514 (3): 645-52.
72. Montesinos, J.C. *et al.* (2020) Phytohormone cytokinin guides microtubule dynamics during cell progression from proliferative to differentiated stage. *EMBO J.* 39 (17): e104238.
73. Garrido, D. *et al.* (2020) Cyclin B3 activates the Anaphase-Promoting Complex/Cyclosome in meiosis and mitosis. *PLoS Genet.* 16 (11): e1009184.
74. Norekian, T.P. & Moroz, L.L. (2020) Comparative neuroanatomy of ctenophores: Neural and muscular systems in *Euplokamis dunlapae* and related species. *J Comp Neurol.* 528 (3): 481-501.
75. Norekian, T.P. & Moroz, L.L. (2020) Atlas of the neuromuscular system in the *Trachymedusa aglantha digitale*: Insights from the advanced hydrozoan. *J Comp Neurol.* 528 (7): 1231-54.
76. Gallaud, E. *et al.* (2020) Dynamic centriolar localization of Polo and Centrobin in early mitosis primes centrosome asymmetry. *PLoS Biol.* 18 (8): e3000762.
77. Norekian, T.P. & Moroz, L.L. (2021) Development of the nervous system in the early hatching larvae of the ctenophore *Mnemiopsis leidyi*.. *J Morphol.* 282 (10): 1466-1477.
78. Iida, T. & Kobayashi, T. (2021) Establishment of an "in saccharo" experimental system. *Genes Genet Syst.* 96 (3): 107-18.
79. Capitao, C. *et al.* (2021) A CENH3 mutation promotes meiotic exit and restores fertility in SMG7-deficient *Arabidopsis*. *PLoS Genet.* 17 (9): e1009779.
80. Sprenger, M. *et al.* (2021) A TRP1-marker-based system for gene complementation, overexpression, reporter gene expression and gene modification in *Candida glabrata*. *FEMS Yeast Res.* 20(8):foaa066.
81. Garcia, Y.A. *et al.* (2021) Mapping Proximity Associations of Core Spindle Assembly Checkpoint Proteins. *J Proteome Res.* 20 (7): 3414-27.
82. Linville, A.C. *et al.* (2022) Dysregulation of Cellular VRK1, BAF, and Innate Immune Signaling by the Vaccinia Virus B12 Pseudokinase. *J Virol.* : e0039822.
83. Miete, C. *et al.* (2022) Gai2-induced conductin/axin2 condensates inhibit Wnt/β-catenin signaling and suppress cancer growth. *Nat Commun.* 13 (1): 674.
84. Carnesecchi, J. *et al.* (2022) The Hox transcription factor Ultrabithorax binds RNA and regulates co-transcriptional splicing through an interplay with RNA polymerase II. *Nucleic Acids Res.* 50 (2): 763-783.
85. Yuen, S.W. *et al.* (2023) Polo-like kinase 1 promotes Cdc42-induced actin polymerization for asymmetric division in oocytes *Open Biology.* 13 (3): 220326.

Storage	Store at +4°C. DO NOT FREEZE. This product should be stored undiluted. Should this product contain a precipitate we recommend microcentrifugation before use.
Guarantee	12 months from date of despatch
Health And Safety	Material Safety Datasheet documentation #10131 available at:

Information <https://www.bio-rad-antibodies.com/SDS/MCA77P>
10131

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