

Datasheet: MCA78G

BATCH NUMBER 170159

Description:	RAT ANTI TUBULIN ALPHA
Specificity:	TUBULIN ALPHA
Format:	Purified
Product Type:	Monoclonal Antibody
Clone:	YOL1/34
Isotype:	IgG2a
Quantity:	0.5 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	▪			10ug/ml as detecting antibody
Immunoprecipitation			▪	
Western Blotting	▪			
Immunofluorescence	▪			
Radioimmunoassays	▪			

Where this product has not been tested for use in a particular technique this does not necessarily exclude its use in such procedures. Suggested working dilutions are given as a guide only. It is recommended that the user titrates the product for use in their own system using appropriate negative/positive controls.

Target Species

Yeast

Species Cross Reactivity

Reacts with: Drosophila, Human, Arabidopsis thaliana, Saccharomyces, Platyzoa, Ashbya, Mouse, Naegleria, Asplenium nidus, Seagrass (Cymodocea nodosa), Rye (Secale cereale L.)

Based on sequence similarity, is expected to react with: Birds, Mammals, Fungal
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

further information.

Product Form	Purified IgG - liquid
Preparation	Purified IgG prepared by affinity chromatography on Protein G from tissue culture supernatant.
Buffer Solution	Phosphate buffered saline
Preservative Stabilisers	0.09% Sodium Azide
Carrier Free	Yes
Approx. Protein Concentrations	IgG concentration 1.0mg/ml
Immunogen	Yeast tubulin.
RRID	AB_325005
Fusion Partners	Spleen cells from immunized LOU rats were fused with cells of the rat YB2/0 myeloma cell line.
Specificity	Rat anti tubulin alpha antibody, clone YOL1/34 recognizes the alpha subunit of tubulin. The reactivity pattern is similar to that seen with clone YL1/2 .
References	<ol style="list-style-type: none">1. Sullivan, M. <i>et al.</i> (2001) Orchestrating anaphase and mitotic exit: separate cleavage and localization of Slk19. Nat Cell Biol. 3: 771-7.2. Trieselmann, N. <i>et al.</i> (2003) Ran modulates spindle assembly by regulating a subset of TPX2 and Kid activities including Aurora A activation. J Cell Sci. 116: 4791-8.3. Petronczki, M. <i>et al.</i> (2004) Sister-chromatid cohesion mediated by the alternative RF-CCtf18/Dcc1/Ctf8, the helicase Chl1 and the polymerase-alpha-associated protein Ctf4 is essential for chromatid disjunction during meiosis II. J Cell Sci. 117: 3547-59.4. Chatzimeletiou, K. <i>et al.</i> (2005) Spindle abnormalities in normally developing and arrested human preimplantation embryos in vitro identified by confocal laser scanning microscopy. Hum Reprod. 20: 672-82.5. White, J. <i>et al.</i> (2005) Developmental activation of the Rb-E2F pathway and establishment of cell cycle-regulated cyclin-dependent kinase activity during embryonic stem cell differentiation. Mol Biol Cell. 16 (4): 2018-27.6. Yu, H.G. <i>et al.</i> (2007) The Aurora kinase Ipl1 maintains the centromeric localization of PP2A to protect cohesin during meiosis. J Cell Biol. 176: 911-8.7. D'Ambrosio, C. <i>et al.</i> (2008) Identification of cis-acting sites for condensin loading onto budding yeast chromosomes. Genes Dev. 22: 2215-278. Sullivan, M. <i>et al.</i> (2008) Cyclin-specific control of ribosomal DNA segregation. Mol Cell Biol. 28: 5328-36.9. Hartl, T.A. <i>et al.</i> (2008) Condensin II resolves chromosomal associations to enable anaphase I segregation in <i>Drosophila</i> male meiosis. PLoS Genet. 4: e1000228.10. Waples, W.G. <i>et al.</i> (2009) Putting the brake on FEAR: Tof2 promotes the biphasic

- release of Cdc14 phosphatase during mitotic exit. [Mol Biol Cell. 20 \(1\): 245-55.](#)
11. Fonseca, A.V. *et al.* (2010) Polarization and migration of hematopoietic stem and progenitor cells rely on the RhoA/ROCK I pathway and an active reorganization of the microtubule network. [J Biol Chem. 285: 31661-71.](#)
 12. Lang, C. *et al.* (2010) Structural mutants of the spindle pole body cause distinct alteration of cytoplasmic microtubules and nuclear dynamics in multinucleated hyphae. [Mol Biol Cell. 21 \(5\): 753-66.](#)
 13. Lang, C. *et al.* (2010) Mobility, microtubule nucleation and structure of microtubule-organizing centers in multinucleated hyphae of *Ashbya gossypii*. [Mol Biol Cell. 21: 18-28.](#)
 14. Rossio, V. *et al.* (2010) The RSC chromatin-remodeling complex influences mitotic exit and adaptation to the spindle assembly checkpoint by controlling the Cdc14 phosphatase [J Cell Biol. 191: 981-97.](#)
 15. Mirchenko, L. and Uhlmann, F. (2010) Sli15(INCENP) dephosphorylation prevents mitotic checkpoint reengagement due to loss of tension at anaphase onset. [Curr Biol. 20: 1396-401.](#)
 16. Takeo, S. *et al.* (2010) Calcineurin and its regulation by Sra/RCAN is required for completion of meiosis in *Drosophila*. [Dev Biol. 344 \(2\): 957-67.](#)
 17. Whelan, F. *et al.* (2010) Amino acid substitutions in the aryl hydrocarbon receptor ligand binding domain reveal YH439 as an atypical AhR activator. [Mol Pharmacol. 77: 1037-46.](#)
 18. Finlayson, M.R. *et al.* (2011) Regulation of exit from mitosis in multinucleate *Ashbya gossypii* cells relies on a minimal network of genes. [Mol Biol Cell. 22 \(17\): 3081-93.](#)
 19. Keeling, J.W. and Miller, R.K. (2011) Indirect immunofluorescence for monitoring spindle assembly and disassembly in yeast. [Methods Mol Biol. 782: 231-44.](#)
 20. Raspelli, E. *et al.* (2011) Budding yeast Dma1 and Dma2 participate in regulation of Swe1 levels and localization. [Mol Biol Cell. 22: 2185-97.](#)
 21. Goto, G.H. *et al.* (2011) Bub1-mediated adaptation of the spindle checkpoint. [PLoS Genet. 7: e1001282.](#)
 22. Rossio, V. and Yoshida, S. (2011) Spatial regulation of Cdc55-PP2A by Zds1/Zds2 controls mitotic entry and mitotic exit in budding yeast. [J Cell Biol. 193: 445-54.](#)
 23. Hao, N. *et al.* (2011) Identification of residues in the N-terminal PAS domains important for dimerization of Arnt and AhR. [Nucleic Acids Res. 39 \(9\): 3695-709.](#)
 24. Grava, S. *et al.* (2011) Clustering of Nuclei in Multinucleated Hyphae Is Prevented by Dynein-Driven Bidirectional Nuclear Movements and Microtubule Growth Control in *Ashbya gossypii*. [Eukaryot Cell. 10: 902-15.](#)
 25. Walsh, C.J. (2012) The structure of the mitotic spindle and nucleolus during mitosis in the amoeba-flagellate *Naegleria*. [PLoS One. 7: e34763.](#)
 26. Chatzimeletiou, K. *et al.* (2012) Cytoskeletal analysis of human blastocysts by confocal laser scanning microscopy following vitrification. [Hum Reprod. 27: 106-13.](#)
 27. Elhanany-Tamir, H. *et al.* (2012) Organelle positioning in muscles requires cooperation between two KASH proteins and microtubules. [J Cell Biol. 198 \(5\): 833-46.](#)
 28. Malea, P. *et al.* (2013) Microtubule integrity and cell viability under metal (Cu, Ni and Cr) stress in the seagrass *Cymodocea nodosa*. [Chemosphere. pii: S0045-6535\(13\)00820-5.](#)
 29. Panteris, E. *et al.* (2013) The distribution of TPX2 in dividing leaf cells of the fern *Asplenium nidus*. [Plant Biol \(Stuttg\). 15: 203-9.](#)
 30. Buerstenbinder, K. *et al.* (2013) *Arabidopsis* Calmodulin-binding IQD1 Localizes to

- Microtubules and Interacts with Kinesin Light Chain-Related Protein-1. [J Biol Chem. 288: 1871-82.](#)
31. Adamakis, I.D. *et al.* (2013) Effects of bisphenol A on the microtubule arrays in root meristematic cells of *Pisum sativum* L. [Mutat Res. 750 \(1-2\): 111-20.](#)
32. Hao, N. *et al.* (2013) Reciprocal regulation of the basic helix-loop-helix/Per-Arnt-Sim partner proteins, Arnt and Arnt2, during neuronal differentiation. [Nucleic Acids Res. 41 \(11\): 5626-38.](#)
33. Wang, S. *et al.* (2015) Nesprin provides elastic properties to muscle nuclei by cooperating with spectraplakins and EB1. [J Cell Biol. 209 \(4\): 529-38.](#)
34. Eleftheriou, E.P. *et al.* (2015) Aberration of mitosis by hexavalent chromium in some *Fabaceae* members is mediated by species-specific microtubule disruption. [Environ Sci Pollut Res Int. 22 \(10\): 7590-9.](#)
35. Schweizer, N. *et al.* (2015) An organelle-exclusion envelope assists mitosis and underlies distinct molecular crowding in the spindle region. [J Cell Biol. 210 \(5\): 695-704.](#)
36. Bacon, T. *et al.* (2015) Histone deacetylase 3 indirectly modulates tubulin acetylation. [Biochem J. 472 \(3\): 367-77.](#)
37. Eleftheriou, E.P. *et al.* (2016) Hexavalent chromium-induced differential disruption of cortical microtubules in some *Fabaceae* species is correlated with acetylation of α -tubulin. [Protoplasma. 253 \(2\): 531-42.](#)
38. Okamoto, M. *et al.* (2016) Fyn Accelerates M Phase Progression by Promoting the Assembly of Mitotic Spindle Microtubules. [J Cell Biochem. 117 \(4\): 894-903.](#)
39. Sullivan, A.E. *et al.* (2016) MAGED1 is a novel regulator of a select subset of bHLH PAS transcription factors. [FEBS J. 283 \(18\): 3488-502.](#)
40. Livanos P *et al.* (2016) Deliberate ROS production and auxin synergistically trigger the asymmetrical division generating the subsidiary cells in *Zea mays* stomatal complexes. [Protoplasma. 253 \(4\): 1081-99.](#)
41. Kowanda, M. *et al.* (2016) Loss of function of the *Drosophila* Ninein-related centrosomal protein Bsg25D causes mitotic defects and impairs embryonic development. [Biol Open. 5 \(8\): 1040-51.](#)
42. Diao, L.T. *et al.* (2017) Delineation of the role of chromatin assembly and the Rtt101Mms1 E3 ubiquitin ligase in DNA damage checkpoint recovery in budding yeast. [PLoS One. 12 \(7\): e0180556.](#)
43. Xie, J.L. *et al.* (2017) Staurosporine Induces Filamentation in the Human Fungal Pathogen *Candida albicans* via Signaling through Cyr1 and Protein Kinase A. [mSphere. 2 \(2\): Mar 1;2\(2\). pii: e00056-17. eCollection 2017 Mar-Apr.](#)
44. Panteris, E. *et al.* (2018) Cortical microtubule orientation in *Arabidopsis thaliana* root meristematic zone depends on cell division and requires severing by katanin. [J Biol Res \(Thessalon\). 25: 12.](#)
45. Játiva, S. *et al.* (2019) Cdc14 activation requires coordinated Cdk1-dependent phosphorylation of Net1 and PP2A-Cdc55 at anaphase onset. [Cell Mol Life Sci. 76 \(18\): 3601-20.](#)
46. Giannoutsou, E. *et al.* (2019) De-Esterified Homogalacturonan Enrichment of the Cell Wall Region Adjoining the Preprophase Cortical Cytoplasmic Zone in Some Protodermal Cell Types of Three Land Plants. [Int J Mol Sci. 21\(1\):81.](#)
47. Stojic, L. *et al.* (2020) A high-content RNAi screen reveals multiple roles for long noncoding RNAs in cell division. [Nat Commun. 11 \(1\): 1851.](#)
48. Coronas-Serna, J.M. *et al.* (2020) The TIR-domain containing effectors BtpA and BtpB

from *Brucella abortus* impact NAD metabolism. [PLoS Pathog. 16 \(4\): e1007979.](#)

49. Ellnati, E. *et al.* (2020) The BCL-2 pathway preserves mammalian genome integrity by eliminating recombination-defective oocytes. [Nat Commun. 11 \(1\): 2598.](#)

50. Jühlen, R. *et al.* (2020) Centrosome and ciliary abnormalities in fetal akinesia deformation sequence human fibroblasts. [Sci Rep. 10 \(1\): 19301.](#)

51. Avilés-Pagán, E.E. *et al.* (2020) Identification of New Regulators of the Oocyte-to-Embryo Transition in *Drosophila*. [G3 \(Bethesda\). 10 \(9\): 2989-2998.](#)

52. Yam, C.Q.X. *et al.* (2020) Dun1, a Chk2-related kinase, is the central regulator of securin-separase dynamics during DNA damage signaling. [Nucleic Acids Res. 48 \(11\): 6092-107.](#)

53. Morii, M. *et al.* (2021) Src-mediated tyrosine phosphorylation of PRC1 and kinastrin/SKAP on the mitotic spindle. [Sci Rep. 11 \(1\): 2616.](#)

54. Cavazza, T. *et al.* (2021) Parental genome unification is highly error-prone in mammalian embryos. [Cell. 184 \(11\): 2860-2877.e22.](#)

55. Giourieva, V. & Panteris, E. (2021) Inhibition of cell expansion enhances cortical microtubule stability in the root apex of *Arabidopsis thaliana*. [J Biol Res \(Thessalon\). 28 \(1\): 13.](#)

56. Malea, P. *et al.* (2021) Structural and physiological effects of chromium uptake in the seagrass *Halophila stipulacea*. [Ecological Indicators. 122: 107224.](#)

57. Scheffler, K. *et al.* (2021) Two mechanisms drive pronuclear migration in mouse zygotes. [Nat Commun. 12 \(1\): 841.](#)

58. Benoit, L.B. *et al.* (2023) RBP Image Database: A resource for the systematic characterization of the subcellular distribution properties of human RNA binding proteins. [Nucleic Acids Res. 51 \(D1\): D1549-D1557.](#)

59. Mourer, T. *et al.* (2023) The Pga59 cell wall protein is an amyloid forming protein involved in adhesion and biofilm establishment in the pathogenic yeast *Candida albicans*. [NPJ Biofilms Microbiomes. 9 \(1\): 6.](#)

60. Wu, S. *et al.* (2023) Apical-basal polarity precisely determines intestinal stem cell number by regulating Prospero threshold. [Cell Rep. 42 \(2\): 112093.](#)

61. Choudhary, R. *et al.* (2023) Sen1 and Rrm3 ensure permissive topological conditions for replication termination. [Cell Rep. 42 \(7\): 112747.](#)

62. Rojas, J. *et al.* (2023) Spo13/MEIKIN ensures a Two-Division meiosis by preventing the activation of APC/C(Ama1) at meiosis I. [EMBO J. 42 \(20\): e114288.](#)

63. Ota, S. *et al.* (2023) Distinct effects of heat shock temperatures on mitotic progression by influencing the spindle assembly checkpoint [Exp Cell Res. 429 \(2\): 113672.](#)

64. Gililand, W.D. *et al.* (2024) A Cytological F1 RNAi Screen for Defects in *Drosophila melanogaster* Female Meiosis [bioRxiv. 15 Jan \[Epub ahead of print\].](#)

65. Grigaitis, R. *et al.* (2020) Phosphorylation of the RecQ Helicase Sgs1/BLM Controls Its DNA Unwinding Activity during Meiosis and Mitosis. [Dev Cell. 53 \(6\): 706-723.e5.](#)

66. Pappas, D. *et al.* (2020) The effects of microcystin-LR in *Oryza sativa* root cells: F-actin as a new target of cyanobacterial toxicity. [Plant Biol \(Stuttg\). 22 \(5\): 839-49.](#)

67. Koutalianou, M. *et al.* (2022) *In situ* experiments on the effect of low pH on the ultrastructure of the seagrasses *Cymodocea nodosa* and *Posidonia oceanica*. [Mediterranean Marine Science. 23 \(1\), 30-45.](#)

68. Tsioli, S. *et al.* (2022) Responses of the Mediterranean seagrass *Cymodocea nodosa* to combined temperature and salinity stress at the ionic, transcriptomic, ultrastructural and photosynthetic levels. [Mar Environ Res. 175: 105512.](#)

69. Mylona, Z. *et al.* (2020) Silver nanoparticle toxicity effect on the seagrass *Halophila stipulacea*. [Ecotoxicol Environ Saf. 189: 109925.](#)
70. Mylona, Z. *et al.* (2020) Effects of titanium dioxide nanoparticles on leaf cell structure and viability, and leaf elongation in the seagrass *Halophila stipulacea*. [Sci Total Environ. 719: 137378.](#)
71. Kuwayama, N. *et al.* (2024) Analyses of translation factors Dbp1 and Ded1 reveal the cellular response to heat stress to be separable from stress granule formation [Cell Reports. 43 \(12\): 115059.](#)
72. Trakroo, D. *et al.* (2024) Non-essential kinetochore proteins contribute to meiotic chromosome condensation through polo-like kinase. [Mol Biol Cell. : mbcE24080348.](#)
73. Lebon, S. *et al.* (2025) A biallelic variant in GORASP1 causes a novel Golgipathy with glycosylation and mitotic defects. [Life Sci Alliance. 8 \(4\)Feb 11 \[Epub ahead of print\].](#)

Storage This product is shipped at ambient temperature. It is recommended to aliquot and store at -20°C on receipt. When thawed, aliquot the sample as needed. Keep aliquots at 2-8°C for short term use (up to 4 weeks) and store the remaining aliquots at -20°C.

Avoid repeated freezing and thawing as this may denature the antibody. Storage in frost-free freezers is not recommended.

Guarantee 12 months from date of despatch

Health And Safety Information Material Safety Datasheet documentation #10040 available at: <https://www.bio-rad-antibodies.com/SDS/MCA78G>

Regulatory For research purposes only

Related Products

Recommended Secondary Antibodies

Rabbit Anti Rat IgG (STAR16...)	DyLight@800
Rabbit Anti Rat IgG (STAR17...)	FITC
Goat Anti Rat IgG (MOUSE ADSORBED) (STAR71...)	DyLight@550 , DyLight@650 , DyLight@800
Goat Anti Rat IgG (STAR69...)	FITC
Goat Anti Rat IgG (STAR73...)	RPE
Goat Anti Rat IgG (STAR72...)	HRP
Goat Anti Rat IgG (STAR131...)	Alk. Phos. , Biotin
Rabbit Anti Rat IgG (STAR21...)	HRP

Product inquiries: www.bio-rad-antibodies.com/technical-support

To find a batch/lot specific datasheet for this product, please use our online search tool at: bio-rad-antibodies.com/datasheets
'M381891:210512'

Printed on 20 Apr 2026