Datasheet: MCA77D800

Description:	RAT ANTI TUBULIN ALPHA:DyLight®800
Specificity:	TUBULIN ALPHA
Format:	DyLight®800
Product Type:	Monoclonal Antibody
Clone:	YL1/2
Isotype:	IgG2a
Quantity:	0.1 mg

Product Details

RRID AB_2021091

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	▪			

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 DyLight®800 - liquid

Max Ex/Em

Fluorophore	Excitation Max (nm)	Emission Max (nm)
Dylight®800	777	794

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 (NaN_3)
Approx. Protein Concentrations	IgG concentration 1.0 mg/ml
Immunogen	Yeast tubulin.
Fusion Partners	Spleen cells from immunized LOU rats were fused with cells of the Y3.Ag.1.2.3 rat myeloma cell line.
Specificity	**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). 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 *E. coli* rec A and oxidized actin (Burns 1987). Rat anti tubulin alpha antibody, clone YL1/2 is routinely tested in ELISA on tubulin.
Western Blotting	MCA77D800 is suitable for use as a loading control
References	1. Kilmartin, J.V. *et al.* (1982) Rat monoclonal antitubulin 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 *in vitro*, and microtubule polymerization and organization *in vivo*. J Cell Biol. 97 (5 Pt 1): 1467-75. 3. 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. 4. 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. 5. Burns, R. (1987) Cytoskeleton. Tubulin's terminal tyrosine. Nature. 327 (6118): 103-4. 6. 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 Biol Chem. 266 (22): 14163-6. 7. 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. 8. Cheishvili, D. *et al.* (2011) Involvement in Cytoskeleton Regulation and Implication for Familial Dysautonomia. Hum Mol Genet. 20: 1585-94. 9. 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. 10. Bruce, E.A. *et al.* (2010) The Rab11 pathway is required for influenza A virus budding and filament formation. J Virol. 84: 5848-59. 11. 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. 12. 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. 13. 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.
14. 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.
15. Virágh, E. *et al.* (2012) Specific Cooperation Between Imp-α2 and Imp-β/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 isotypes. 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 silkmoth, *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-κB 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 GSK3β 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 abyssicolaJ Comp Neurol. Jan 11 [Epub ahead of print].*

Storage	Store at +4°C or at -20°C if preferred. This product should be stored undiluted. Storage in frost free freezers is not recommended. This product is photosensitive and should be protected from light. Avoid repeated freezing and thawing as this may denature the antibody. Should this product contain a precipitate we recommend microcentrifugation before use
Guarantee	18 months from date of despatch
Acknowledgements	DyLight® is a trademark of Thermo Fisher Scientific Inc. and its subsidiaries
Health And Safety Information	Material Safety Datasheet documentation #10040 available at: 10040: https://www.bio-rad-antibodies.com/uploads/MSDS/10040.pdf
Regulatory	For research purposes only

North & South America Tel: +1 800 265 7376 Fax: +1 919 878 3751 Email: 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
Europe Tel: +49 (0) 89 8090 95 21 Fax: +49 (0) 89 8090 95 50 Email: antibody_sales_de@bio-rad.com

'M338839:181217'

Printed on 11 Oct 2019