

α -Tubulin

Cat.No. 302 211; Monoclonal mouse antibody, 100 μ g purified IgG (lyophilized)

Data Sheet

Reconstitution/ Storage	100 μ g purified IgG, lyophilized. Azide was added before lyophilization. For reconstitution add 100 μ l H ₂ O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C until use.
Applications	WB: 1 : 1000 up to 1 : 5000 (AP staining) IP: yes ICC: 1 : 500 up to 1 : 1000 IHC: 1 : 500 IHC-P/FFPE: 1 : 500 up to 1 : 1000 ELISA: yes (see remarks)
Clone	3A2
Subtype	IgG1 (κ light chain)
Immunogen	Synthetic peptide corresponding to AA 419 to 435 from human α -tubulin 4A (UniProt Id: P68366)
Epitop	Epitop: AA 419 to 435 from human α -tubulin 4A (UniProt Id: P68366)
Reactivity	Reacts with: human (P68366), rat, mouse, vertebrates, invertebrates, yeast. Other species not tested yet.
Specificity	Specific for α -tubulin (glu- and tyr- α -tubulin).
matching control	302-21P
Remarks	ELISA: Suitable as capture antibodies for sandwich-ELISA with cat. no. 302 203 as detector antibody (protocol for sandwich-ELISA).

TO BE USED IN VITRO / FOR RESEARCH ONLY NOT TOXIC, NOT HAZARDOUS, NOT INFECTIOUS, NOT CONTAGIOUS

Microtubules are involved in a wide variety of cellular activities ranging from mitosis and transport events to cell movement and the maintenance of cell shape. Tubulin itself is a globular protein which consists of two polypeptides, α -tubulin and β -tubulin. α - and β -tubulin dimers are assembled to 13 protofilaments that form a microtubule of 22 nm diameter. Tyrosine ligase adds a C-terminal tyrosine to monomeric α -tubulin. Assembled microtubules can again be detyrosinated by a cytoskeleton associated carboxypeptidase. Detyrosinated α -tubulin is referred to as **Glu- α -tubulin**. Another post-translational modification of detyrosinated α -tubulin is C-terminal polyglutamylation which is characteristic for microtubules in neuronal cells and the mitotic spindle. A third variant of detyrosinated α -tubulin is **Δ 2-tubulin** which lacks the C-terminal glutamic acid. It cannot be tyrosinated by tyrosine ligase and is one of the dominant α -tubulin isoforms in neurons.

Selected References SYSY Antibodies

- Regulated Dynamic Trafficking of Neurexins Inside and Outside of Synaptic Terminals.
Neupert C, Schneider R, Klatt O, Reissner C, Repetto D, Biermann B, Niesmann K, Missler M, Heine M
The Journal of neuroscience : the official journal of the Society for Neuroscience (2015) 35(40): 13629-47. **ICC**
- Liprin- α 2 promotes the presynaptic recruitment and turnover of RIM1/CASK to facilitate synaptic transmission.
Spangler SA, Schmitz SK, Kevenaar JT, de Graaff E, de Wit H, Demmers J, Toonen RF, Hoogenraad CC
The Journal of cell biology (2013) 201(6): 915-28. **WB; tested species: rat**
- Intrinsic refractive index matched 3D dSTORM with two objectives: Comparison of detection techniques.
Schmidt NC, Kahms M, Hüve J, Klingauf J
Scientific reports (2018) 8(1): 13343. **ICC; tested species: mouse**
- Truncated tau deregulates synaptic markers in rat model for human tauopathy.
Jadhav S, Katina S, Kovac A, Kazmerova Z, Novak M, Zilka N
Frontiers in cellular neuroscience (2015) 9: 24. **WB**
- BDNF enhances spontaneous and activity-dependent neurotransmitter release at excitatory terminals but not at inhibitory terminals in hippocampal neurons.
Shinoda Y, Ahmed S, Ramachandran B, Bharat V, Brockelt D, Altas B, Dean C
Frontiers in synaptic neuroscience (2014) 6: 27. **WB; tested species: rat**
- Exocyst sec5 regulates exocytosis of newcomer insulin granules underlying biphasic insulin secretion.
Xie L, Zhu D, Kang Y, Liang T, He Y, Gaisano HY
PloS one (2013) 8(7): e67561. **WB; tested species: human,mouse,rat**
- Doc2b is a high-affinity Ca²⁺ sensor for spontaneous neurotransmitter release.
Groffen AJ, Martens S, Díez Arozola R, Cornelisse LN, Lozovaya N, de Jong AP, Goriounova NA, Habets RL, Takai Y, Borst JG, Brose N, et al.
Science (New York, N.Y.) (2010) 327(5973): 1614-8. **WB; tested species: mouse**

Selected General References

- A vital role of tubulin-tyrosine-ligase for neuronal organization.
Erck C, Peris L, Andrieux A, Meissirel C, Gruber AD, Vernet M, Schweitzer A, Saoudi Y, Pointu H, Bosc C, Salin PA, et al.
Proceedings of the National Academy of Sciences of the United States of America (2005) 102(22): 7853-8.
- Association of tubulin carboxypeptidase with microtubules in living cells.
Contin MA, Sironi JJ, Barra HS, Arce CA
The Biochemical journal (1999) 339 (Pt 2): 463-71.
- Accumulation of delta 2-tubulin, a major tubulin variant that cannot be tyrosinated, in neuronal tissues and in stable microtubule assemblies.
Paturle-Lafanechère L, Manier M, Trigault N, Pirollet F, Mazarguil H, Job D
Journal of cell science (1994) 107 (Pt 6): 1529-43.
- Characterization of the tubulin-tyrosine ligase.
Ersfeld K, Wehland J, Plessmann U, Dodemont H, Gerke V, Weber K
The Journal of cell biology (1993) 120(3): 725-32.
- Class II tubulin, the major brain beta tubulin isotype is polyglutamylated on glutamic acid residue 435.
Rüdiger M, Plessman U, Klöppel KD, Wehland J, Weber K
FEBS letters (1992) 308(1): 101-5.
- Autoregulation of tubulin synthesis in hepatocytes and fibroblasts.
Caron JM, Jones AL, Kirschner MW
The Journal of cell biology (1985) 101(5 Pt 1): 1763-72.
- Autoregulation of tubulin synthesis in enucleated cells.
Caron JM, Jones AL, Rall LB, Kirschner MW
Nature () 317(6038): 648-51.