SYSY Antibodies

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α-Tubulin

Cat.No. 302 211; Recombinant mouse antibody, 100 µg recombinant IgG (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µg purified recombinant IgG, lyophilized. Albumin and azide were added for stabilization. For **reconstitution** add 100 µl H_2O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C to -80°C until use. Antibodies should be stored at +4°C when still lyophilized. Do not freeze! For detailed information, see back of the data sheet.
Applications	**WB**: 1 : 1000 up to 1 : 5000 (AP staining) **IP**: yes **ICC**: 1 : 500 up to 1 : 1000 **IHC**: 1 : 500 **IHC-P**: 1 : 500 up to 1 : 1000 **ELISA**: yes (see remarks)
Clone	3A2
Subtype	IgG1 (κ light chain)
Immunogen	Synthetic peptide corresponding to residues near the carboxy terminus of 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.

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

Background

Microtubules are involved in a wide variety of cellular activities ranging from mitosis and transport events to cell movement and the maintainance 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. Assembled microtubules can be detyrosinated by a carboxypeptidaseS called vasohibins / SVBPs. Detyrosinated α-tubulin is referred to as **Glu-α-tubulin** and occurs for exemple in neurons. This reaction can be reverted by Tubulin tyrosine ligase (TTL) that ads a C-terminal tyrosin to Glu α-tubulin. Another post-translational modification of α-tubulin is C-terminal polyglutamylation which is also characteristic for microtubules in neuronal cells and the mitotic spindle. A third variant of detyrosinated α-tubulin is **Δ2-tubulin** which lacks the C-terminal glutamic acid. It cannot be tyrosinated by TTL and is one of the dominant α-tubulin isoforms in neurons.

Selected References for 302 211

Protein disulfide isomerases as CSF biomarkers for the neuronal response to tau pathology.
Wolzak K, Vermunt L, Campo MD, Jorge-Oliva M, van Ziel AM, Li KW, Smit AB, Chen-Ploktkin A, Irwin DJ, Lemstra AW, Pijnenburg Y, et al.
Alzheimer's & dementia : the journal of the Alzheimer's Association (2023) 198: 3563-3574. . **DOTBLOT; tested species: mouse**

Heat denaturation enables multicolor X10-STED microscopy.
Saal KA, Shaib AH, Mougios N, Crzan D, Opazo F, Rizzoli SO
Scientific reports (2023) 131: 5366. . **EXM; tested species: rat**

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) 3540: 13629-47. . **ICC**

Liprin-α2 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) 2016: 915-28. . **WB; tested species: rat**

Microtubules as a versatile reference standard for expansion microscopy.
Chowdhury R, Mimoso T, Chouaib AA, Mougios N, Krah D, Opazo F, Köster S, Rizzoli SO, Shaib AH
Communications biology (2025) 81: 499. . **EXM; tested species: human**

One-step nanoscale expansion microscopy reveals individual protein shapes.
Shaib AH, Chouaib AA, Chowdhury R, Altendorf J, Mihaylov D, Zhang C, Krah D, Imani V, Spencer RKW, Georgiev SV, Mougios N, et al.
Nature biotechnology (2024) : . . **EXM; tested species: rat**

Reduced synaptic depression in human neurons carrying homozygous disease-causing STXBP1 variant L446F.
Öttl M, Toonen RF, Verhage M
Human molecular genetics (2024) : . . **WB; tested species: stem cells**

Tomosyn affects dense core vesicle composition but not exocytosis in mammalian neurons.
Subkhangulova A, Gonzalez-Lozano MA, Groffen AJA, van Weering JRT, Smit AB, Toonen RF, Verhage M
eLife (2023) 12: . . **WB; tested species: mouse**

A Versatile Synaptotagmin-1 Nanobody Provides Perturbation-Free Live Synaptic Imaging And Low Linkage-Error in Super-Resolution Microscopy.
Queiroz Zetune Villa Real K, Mougios N, Rehm R, Sograte-Idrissi S, Albert L, Rahimi AM, Maidorn M, Hentze J, Martínez-Carranza M, Hosseini H, Saal KA, et al.
Small methods (2023) : e2300218. . **ICC; tested species: rat**

Access the online factsheet including applicable protocols at https://sysy.com/product/302211 or scan the QR-code.

FAQ - How should I store my antibody?

Shipping Conditions

- All our antibodies and control proteins / peptides are shipped lyophilized (vacuum freeze-dried) and are stable in this form without loss of quality at ambient temperatures for several weeks.

Storage of Sealed Vials after Delivery

- **Unlabeled** and **biotin-labeled antibodies** and **control proteins** should be stored at 4°C before reconstitution. **They must not be stored in the freezer when still lyophilized!** Temperatures below zero may cause loss of performance.
- **Fluorescence-labeled antibodies** should be reconstituted immediately upon receipt. Long term storage (several months) may lead to aggregation.
- **Control peptides** should be kept at -20°C before reconstitution.

Long Term Storage after Reconstitution (General Considerations)

- The storage freezer must not be of the frost-free variety ("no-frost freezer"). This cycle between freezing and thawing (to reduce frost-build-up), which is exactly what should be avoided. For the same reason, antibody vials should be placed in an area of the freezer that has minimal temperature fluctuations, for instance towards the back rather than on a door shelf.
- Aliquot the antibody and store frozen (-20°C to -80°C). Avoid very small aliquots (below 20 µl) and use the smallest storage vial or tube possible. The smaller the aliquot, the more the stock concentration is affected by evaporation and adsorption of the antibody to the surface of the storage vial or tube. Adsorption of the antibody to the surface leads to a substantial loss of activity.
- The addition of glycerol to a final concentration of 50% lowers the freezing point of your stock and keeps your antibody at -20°C in liquid state. This efficiently avoids freeze and thaw cycles.

Product Specific Hints for Storage

Control proteins / peptides

- Store at -20°C to -80°C.

Monoclonal Antibodies

- **Ascites** and **hybridoma supernatant** should be stored at -20°C up to -80°C. **Prolonged storage at 4°C is not recommended!** Unlike serum, ascites may contain proteases that will degrade the antibodies.
- **Purified IgG** should be stored at -20°C up to -80°C. Adding a carrier protein like BSA will increase long term stability. Many of our antibodies already contain carrier proteins. Please refer to the data-sheet for detailed information.

Polyclonal Antibodies

- **Crude antisera**: With anti-microbials added, they may be stored at 4°C. However, frozen storage (-20°C up to -80°C) is preferable.
- **Affinity purified antibodies**: Less robust than antisera. Storage at -20°C up to -80°C is recommended. Adding a carrier protein like BSA will increase long term stability. Most of our antibodies already contain carrier proteins. Please refer to the data-sheet for detailed information.

Fluorescence-labeled Antibodies

- Store as a liquid with 1 : 1 (v/v) glycerol at -20°C. Protect these antibodies from light exposure.

Avoid repeated freeze-thaw cycles for all antibodies!

FAQ - How should I reconstitute my antibody?

Reconstitution

- All our purified antibodies are lyophilized from PBS. To reconstitute the antibody in PBS, add the amount of deionized water given in the respective datasheet. If higher volumes are preferred, add water as mentioned above and then the desired amount of PBS and a stabilizing carrier protein (e.g. BSA) to a final concentration of 2%. Some of our antibodies already contain albumin. Take this into account when adding more carrier protein.
  For complete reconstitution, carefully remove the lid. After adding water, briefly vortex the solution. You can spin down the liquid by placing the vial into a 50 ml centrifugation tube filled with paper.
- If desired, add small amounts of azide or thimerosal to prevent microbial growth. This is especially recommended if you want to keep an aliquot a 4°C.
- After reconstitution of fluorescence-labeled antibodies, add 1 : 1 (v/v) glycerol to a final concentration of 50%. This lowers the freezing point of your stock and keeps your antibody in liquid state at -20°C.
- Glycerol may also be added to unlabeled primary antibodies. It is a suitable way to avoid freeze-thaw cycles.
- Please refer to our **tips and hints for subsequent storage** of reconstituted antibodies and control peptides and proteins.