SYSY Antibodies

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α-Tubulin

Cat.No. 302 008; Recombinant rabbit antibody, 100 µg recombinant IgG (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µg purified recombinant IgG, lyophilized. 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**: not tested yet **ICC**: 1 : 500 (see remarks) **IHC**: 1 : 500 **IHC-P**: not tested yet
Clone	RbF2C
Subtype	IgG1 (κ light chain)
Immunogen	α-Tubulin purified from bovine brain
Reactivity	Reacts with: human, rat, mouse, cow. Other species not tested yet.
Specificity	Specific for α-tubulin
Remarks	This antibody is a chimeric antibody based on the monoclonal mouse antibody F2C. The constant regions of the heavy and light chains have been replaced with rabbit specific sequences. The antibody can therefore be used with standard anti-rabbit secondary reagents. The antibody has been expressed in mammalian cells and carries a Strep-tag® at the C-terminus of the heavy chain. **ICC**: The following fixatives are possible: 4% formaldehyde/PFA, methanol.

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 intracellular events including cell division, intracellular transport and secretion, axonal transport, and maintenance of cell morphology. They are composed of tubulin, a heterodimeric protein, consisting of two polypeptides, **α-tubulin** and β-tubulin (1).
α Tubulin undergoes numerous post-translational modifications that include tyrosination-detyrosination and deglutamylation, phosphorylation, acetylation, polyglutamylation, and polyglycylation. In one of the major posttranslational modifications, the C-terminal tyrosine residue in α-tubulin is added or removed reversibly, producing Glu-tubulin (after detyrosination) and Tyr-tubulin (with re-added tyrosine). Early stages of cell development are often enriched in Tyr tubulin, whereas mature cells show increased Glu tubulin in stable structures. Some microtubule associated proteins (MAPs), motor proteins like kinesins, or stabilizing factors have different affinities for Glu- or Tyr-tubulin (2,3,4).
A third variant of detyrosinated α-tubulin is Δ2-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 (5).

Selected References for 302 008

SNAP23 depletion enables more SNAP25/calcium channel excitosome formation to increase insulin exocytosis in type 2 diabetes.
Liang T, Qin T, Kang F, Kang Y, Xie L, Zhu D, Dolai S, Greitzer-Antes D, Baker RK, Feng D, Tuduri E, et al.
JCI insight (2020) 53: . . **WB; tested species: human,mouse**

Selected General References

Post-translational modifications regulate microtubule function.
Westermann S et al. Nat Rev Mol Cell Biol (2003) PubMed:14685172

The chemical complexity of cellular microtubules: tubulin post-translational modification enzymes and their roles in tuning microtubule functions.
Garnham CP et al. Cytoskeleton (Hoboken) (2012) PubMed:22422711

Post-translational modifications of tubulin in the nervous system.
Fukushima N et al. J Neurochem (2009) PubMed:19250341

A vital role of tubulin-tyrosine-ligase for neuronal organization.
Erck C et al. Proc. Natl. Acad. Sci. U.S.A. (2005) PubMed:15899979

Accumulation of delta 2-tubulin, a major tubulin variant that cannot be tyrosinated, in neuronal tissues and in stable microtubule assemblies.
Paturle-Lafanechère L et al. J. Cell. Sci. (1994) PubMed:7962195

Access the online factsheet including applicable protocols at https://sysy.com/product/302008 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.