SYSY Antibodies

Rudolf-Wissell-Str. 28a
37079 Göttingen, Germany
Phone: +49 551-50556-0
Fax: +49 551-50556-384
E-mail: sales@sysy.com
Web: www.sysy.com

β3-Tubulin (TuJ1)

Cat.No. 302 304; Polyclonal Guinea pig antibody, 100 µl antiserum (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µl antiserum, lyophilized. For **reconstitution** add 100 µl H_2O, then aliquot and store at -20°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 : 10000 (AP staining) **IP**: yes **ICC**: 1 : 500 **IHC**: 1 : 200 **IHC-P (FFPE)**: 1 : 200 up to 1 : 500
Immunogen	Synthetic peptide corresponding to residues near the carboxy terminus of mouse β3-tubulin (UniProt Id: Q9ERD7)
Reactivity	Reacts with: human (Q13509), rat (Q4QRB4), mouse (Q9ERD7). Other species not tested yet.
Specificity	Specific for β3-tubulin.
Matching control	302-3P

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 (1).
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 25 nm diameter (1).
Class III β-tubulin is abundant in the central and peripheral nervous systems (CNS and PNS) where it is prominently expressed during fetal and postnatal development (2).
It is widely used as a neuronal marker in normal and neoplastic tissues but has also been reported to be expressed in certain tumors of non-neuronal origin (3).

Selected References for 302 304

Synaptotagmin-3 drives AMPA receptor endocytosis, depression of synapse strength, and forgetting.
Awasthi A, Ramachandran B, Ahmed S, Benito E, Shinoda Y, Nitzan N, Heukamp A, Rannio S, Martens H, Barth J, Burk K, et al.
Science (New York, N.Y.) (2018) : . . **WB; tested species: rat**

Re-evaluation of neuronal P2X7 expression using novel mouse models and a P2X7-specific nanobody.
Kaczmarek-Hajek K, Zhang J, Kopp R, Grosche A, Rissiek B, Saul A, Bruzzone S, Engel T, Jooss T, Krautloher A, Schuster S, et al.
eLife (2018) 7: . . **IHC; tested species: mouse**

Morphological and functional differentiation in BE(2)-M17 human neuroblastoma cells by treatment with Trans-retinoic acid.
Andres D, Keyser BM, Petrali J, Benton B, Hubbard KS, McNutt PM, Ray R
BMC neuroscience (2013) 14: 49. . **ICC**

Intellectual disability-causing mutations in KIF11 impair microtubule dynamics and dendritic arborization.
Wingfield JL, Niese L, Avchalumov Y, Liu X, Grover R, Nakahata Y, Raveendra BL, Gonzalez-Santiago AE, Carter JP, Yasuda R, Yuan JX, et al.
Nature communications (2026) 171: . . **ICC; tested species: mouse**

Impact of Tau overexpression on DNA replication dynamics in centromeres of human neural progenitor cells.
Balzano E, Twayana S, Kosiyatrakul ST, Logsdon GA, Thakur BL, Eichler EE, Bohl B, Koch P, Sidoli S, Kumari A, Munson KM, et al.
iScience (2026) 292: 114707. . **ICC; tested species: human**

Distinct Arp2/3 isocomplexes drive axonal actin ring assembly and integrity.
Costa AR, Lopes T, Rodrigues LP, Rocha JM, Mateus JC, Moura ML, Spahn C, Lampe M, Kogata N, Pereira AJ, Aguiar P, et al.
Science advances (2026) 1239: eaec9522. . **ICC; tested species: rat**

Neuronal expression of S100B triggered by oligomeric Aβ peptide contributes to protection against cytoskeletal damage and synaptic loss.
Saavedra J, Nascimento M, Figueira AJ, Oliveira da Silva MI, Gião T, Oliveira J, Liz MA, Gomes CM, Cardoso I
Frontiers in molecular neuroscience (2025) 18: 1636365. . **ICC; tested species: rat**

CACNA1A loss-of-function affects neurogenesis in human iPSC-derived neural models.
Musante I, Cangelosi D, Muzzi L, Jaudon F, Di Duca M, Guerrisi S, Antonini F, De Spelorzi YCC, Cingolani LA, Zara F, Scudieri P, et al.
Cellular and molecular life sciences : CMLS (2025) 821: 234. . **ICC; tested species: human**

Epigenetic modulation through BET bromodomain inhibitors as a novel therapeutic strategy for progranulin-deficient frontotemporal dementia.
Rosenthal ZC, Fass DM, Payne NC, She A, Patnaik D, Hennig KM, Tesla R, Werthmann GC, Guhl C, Reis SA, Wang X, et al.
Scientific reports (2024) 141: 9064. . **ICC; tested species: human**

The autism susceptibility kinase, TAOK2, phosphorylates eEF2 and modulates translation.
Henis M, Rücker T, Scharrenberg R, Richter M, Baltussen L, Hong S, Meka DP, Schwanke B, Neelagandan N, Daaboul D, Murtaza N, et al.
Science advances (2024) 1015: eadf7001. . **ICC; tested species: mouse**

Access the online factsheet including applicable protocols at https://sysy.com/product/302304 or scan the QR-code.

FAQ - How should I store my antibody?

Shipping Conditions

- All SYSY antibodies and control proteins/peptides are shipped lyophilized (vacuum freeze-dried). In this form, they remain stable 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. **Do not freeze lyophilized antibodies**. Temperatures below 0°C may impair performance.
- **Fluorescence-labeled antibodies** should be reconstituted immediately upon receipt. Long-term storage of lyophilized fluorophore-conjugates may cause aggregation.
- **Control peptides** should be stored at -20°C before reconstitution.

Long Term Storage after Reconstitution (General Considerations)

- **Do not use frost-free ("no-frost") freezers.** These units periodically warm to remove ice buildup, causing freeze–thaw cycles that can damage antibodies.
- Store vials in areas with minimal temperature fluctuation - preferably toward the back of the freezer, not on the door.
- Aliquot reconstituted antibodies and store at –20°C to –80°C.
- Avoid very small aliquots (<20 µL), as evaporation and adsorption to tube surfaces can reduce antibody concentration and activity.
- Use the smallest practical storage vial to minimize surface area.
- Adding glycerol to a final concentration of 50% prevents freezing at -20°C, allowing storage in liquid form and effectively avoiding freeze–thaw cycles.

Product Specific Hints for Storage

Control proteins / peptides

- Store at -20°C to -80°C

Monoclonal Antibodies

- **Ascites and hybridoma supernatant:** Store at -20°C to -80°C
  Prolonged storage at 4°C is not recommended, as proteases present in ascites may degrade antibodies.
- **Purified IgG:** Store at -20°C to -80°C
  Adding a carrier protein (e.g., BSA) enhances long-term stability.
  Many SYSY antibodies already contain carrier proteins - refer to the respective datasheet for details.

Polyclonal Antibodies

- **Crude antisera:** Can be stored at 4°C with antimicrobials added, but -20°C to -80°C is preferred
- **Affinity-purified antibodies:** Less stable than antisera; store at -20°C to -80°C
  Adding a carrier protein such as BSA improves long-term stability.
  Most SYSY antibodies already contain carrier proteins - refer to the respective datasheet for details.

Fluorescence-labeled Antibodies

- Store as a liquid with 1:1 (v/v) glycerol at -20°C, and protect from light exposure

Avoid repeated freeze-thaw cycles for all antibodies!

FAQ - How should I reconstitute my antibody?

Reconstitution

- All purified SYSY antibodies are lyophilized from PBS. To reconstitute the antibody in PBS, add the volume of deionized water specified in the corresponding datasheet. If a larger final volume is desired, first add the recommended amount of water, then adjust with PBS and, if needed, add a stabilizing carrier protein (e.g., BSA) to a final concentration of 2%. Some SYSY antibodies already contain albumin; please take this into account before adding additional carrier protein.

For complete reconstitution, carefully remove the vial cap. After adding water, briefly vortex the solution. To collect the liquid at the bottom of the vial, place the vial inside a 50 ml centrifuge tube padded with paper and centrifuge briefly.

- If desired, small amounts of azide or thimerosal may be added to prevent microbial growth. This is particularly recommended when storing an aliquot at 4°C.
- After reconstitution of fluorescence-labeled antibodies, add glycerol 1:1 (v/v) to achieve a final concentration of 50%. This prevents freezing at –20°C and keeps the antibody in liquid form, effectively avoiding freeze–thaw cycles.
- Glycerol may also be added to unlabeled primary antibodies as a general measure to prevent freeze–thaw damage.
- For further guidance, please refer to our **storage tips** and recommendations for reconstituted antibodies, control peptides, and control proteins.