

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 ₂ O, 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 (see remarks) IHC-P: 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
Remarks	IHC: For best results we recommend antigen retrieval with pepsin according to Lorincz A & Nusser Z (2008).

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 maintenance 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

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**

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**

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**

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 Spelozzi YCC, Cingolani LA, Zara F, Scudieri P, et al.
Cellular and molecular life sciences : CMLS (2025) 821: 234. . **ICC; tested species: human**

Pre-clinical development of AP4B1 gene replacement therapy for hereditary spastic paraplegia type 47.
Wiseman JP, Scarrott JM, Alves-Cruzeiro J, Saffari A, Böger C, Karyka E, Dawes E, Davies AK, Marchi PM, Graves E, Fernandes F, et al.
EMBO molecular medicine (2024) : . . **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**

Generation of two iPSC lines from Mowat-Wilson syndrome patients carrying heterozygous ZEB2 mutations.
Gorrieri G, Tamburro S, Baldassari S, Guerrisi S, Zara F, Ricci E, Maria Cordelli D, Scudieri P, Musante I
Stem cell research (2024) 76: 103333. . **ICC; tested species: human**

Direct neuronal reprogramming of NDUF54 patient cells identifies the unfolded protein response as a novel general reprogramming hurdle.
Sonsalla G, Malpartida AB, Riedemann T, Gusic M, Rusha E, Bulli G, Najas S, Janjic A, Hersbach BA, Smialowski P, Drukker M, et al.
Neuron (2024) : . . **ICC; tested species: human**

High-content screening identifies a small molecule that restores AP-4-dependent protein trafficking in neuronal models of AP-4-associated hereditary spastic paraplegia.
Saffari A, Brechmann B, Böger C, Saber WA, Jumo H, Whye D, Wood D, Wahlster L, Alecu JE, Ziegler M, Scheffold M, et al.
Nature communications (2024) 151: 584. . **ICC; tested species: human**

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 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 at 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.