

Tau

Cat.No. 314 004; 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 (AP staining) IP: yes ICC: 1 : 1000 IHC: 1 : 200 IHC_P: 1 : 500
Immunogen	Recombinant protein corresponding to the N-terminal half of mouse Tau-D (UniProt Id: P10637-5)
Reactivity	Reacts with: rat (P19332), mouse (P10637). Weaker signal: human (P10636). No signal: chicken. Other species not tested yet.
Specificity	This antibody binds phosphorylated and non-phosphorylated tau proteins. The sequence used for immunization is present in all splice variants except human TauA (UniProt Id: P10636-3).
Matching control	314-OP
Remarks	For human tissue cat.no. 314 012 and 314 111 are highly recommended.

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

Background

There are two major classes of heat stable microtubule associated proteins (MAPS): MAP 2 (280 kD), and **tau** (55-65 kD). Both protein classes are involved in the regulation of microtubule polymerization in cells. Tau is a neuronal protein that mainly localizes to axons. Hyperphosphorylated tau has been shown to be a major element of paired helical filaments in Alzheimer's disease.

Selected References for 314 004

Oxidative stress and altered mitochondrial protein expression in the absence of amyloid-β and tau pathology in iPSC-derived neurons from sporadic Alzheimer's disease patients.

Birnbaum JH, Wanner D, Gietl AF, Saake A, Kündig TM, Hock C, Nitsch RM, Tackenberg C

Stem cell research (2018) 27: 121-130. . **WB; tested species: human**

Up-regulation of neurofilament light chains is associated with diminished immunoreactivities for MAP2 and tau after ischemic stroke in rodents and in a human case.

Härtig W, Krueger M, Hofmann S, Preißler H, Märkel M, Frydrychowicz C, Mueller WC, Bechmann I, Michalski D

Journal of chemical neuroanatomy (2016) 78: 140-148. . **IHC**

Nongenomic, glucocorticoid receptor-mediated regulation of serotonin transporter cell surface expression in embryonic stem cell derived serotonergic neurons.

Lau T, Heimann F, Bartsch D, Schloss P, Weber T

Neuroscience letters (2013) 554: 115-20. . **ICC; tested species: mouse**

Cannabidiol modulates excitatory-inhibitory ratio to counter hippocampal hyperactivity.

Rosenberg EC, Chamberland S, Bazelot M, Nebet ER, Wang X, McKenzie S, Jain S, Greenhill S, Wilson M, Marley N, Salah A, et al.

Neuron (2023) : . . **ICC; tested species: rat**

Translocation of Distinct Alpha Synuclein Species from the Nucleus to Neuronal Processes during Neuronal Differentiation.

Pieger K, Schmitt V, Gauer C, Gießl N, Prots I, Winner B, Winkler J, Brandstätter JH, Xiang W

Biomolecules (2022) 128: . . **ICC; tested species: human**

Disruption of tubulin-alpha4a polyglutamylase prevents aggregation of hyper-phosphorylated tau and microglia activation in mice.

Hausar TJ, Janiesch PC, Breiden P, Lutz D, Hoffmeister-Ullrich S, Hermans-Borgmeyer I, Failla AV, Kneussel M

Nature communications (2022) 131: 4192. . **ICC; tested species: mouse**

Human cerebral organoids reveal progenitor pathology in EML1-linked cortical malformation.

Jabali A, Hoffrichter A, Uzquiano A, Marsoner F, Wilkens R, Siekmann M, Bohl B, Rossetti AC, Horschitz S, Koch P, Francis F, et al.

EMBO reports (2022) : e54027. . **IHC; tested species: human**

The ZIP3 zinc transporter is localized to mossy fiber terminals and is required for kainate-induced degeneration of CA3 neurons.

Bogdanovic M, Asraf H, Gottesman N, Sekler I, Aizenman E, Hershinkel M

The Journal of neuroscience : the official journal of the Society for Neuroscience (2022) : . . **ICC; tested species: mouse**

Pharmacological perturbation of CXCL1 signaling alleviates neuropathogenesis in a model of HEV71 infection.

Gunaseelan S, Ariffin MZ, Khanna S, Ooi MH, Perera D, Chu JJH, Chua JJE

Nature communications (2022) 131: 890. . **ICC; tested species: rat**

Loss of FEZ1, a gene deleted in Jacobsen syndrome, causes locomotion defects and early mortality by impairing motor neuron development.

Gunaseelan S, Wang Z, Tong VKJ, Ming SWS, Razar RBBA, Srimasorn S, Ong WY, Lim KL, Chua JJE

Human molecular genetics (2021) : . . **ICC; tested species: human**

A photoswitchable GPCR-based opsin for presynaptic inhibition.

Copits BA, Gowrishankar R, O'Neill PR, Li JN, Girven KS, Yoo JJ, Meshik X, Parker KE, Spangler SM, Elerding AJ, Brown BJ, et al.

Neuron (2021) 10911: 1791-1809.e11. . **ICC; tested species: mouse**

Interneuronal exchange and functional integration of synaptobrevin via extracellular vesicles.

Vilcaes AA, Chanaday NL, Kavalali ET

Neuron (2021) 1096: 971-983.e5. . **ICC; tested species: mouse, rat**

Access the online factsheet including applicable protocols at <https://sysy.com/product/314004> 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.