Product Information

Anti-β-Tubulin III (neuronal) antibody, Mouse Monoclonal

~1.0 mg/mL, clone 2G10, purified from hybridoma cell culture

T8578

Product Description

Anti-β-Tubulin III (neuronal) (mouse IgG2a isotype) is derived from the hybridoma 2G10 produced by the fusion of mouse myeloma cells and splenocytes from BALB/c mice immunized with a synthetic peptide corresponding to a fragment of neuronal specific βIII tubulin. The corresponding sequence is identical in human, dog, and has one amino acid difference in rat and mouse βIII tubulin. The isotype is determined using a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents, Cat. No. ISO2.

Anti-β-Tubulin III (neuronal) reacts with human, rat, and mouse neuronal β-tubulin III. The antibody may be used in various immunochemical techniques including immunoblotting (~50 kDa), immunoprecipitation, immunocytochemistry, and immunohistochemistry.[1]

Tubulin is the major building block of microtubules. This intracellular, cylindrical, filamentous structure is present in almost all eukaryotic cells. Microtubules function as structural and mobile elements in mitosis, intracellular transport, flagellar movement, and the cytoskeleton. Tubulin is a heterodimer that consists of α-tubulin and β-tubulin. Both subunits have a molecular mass of ~50 kDa and share considerable homology. In addition to α- and β-tubulin, several other tubulins have been identified, bringing the number of distinct tubulin classes to seven. Most of these tubulins have distinct subcellular localization and an emerging diverse set of functions.[2] Out of the seven different tubulins, four new members of the tubulin family were identified, which consist of δ,ζ,η, and ε-tubulin. η and ε-tubulins were discovered by database searches.[3] Microtubular systems contain at least three α-tubulin isoforms. Two α tubulin isoform proteins are very similar but are encoded by two different genes. The third isoform is generated by post-translational modification.[4] At least three modifications of tubulin subunits have been described: phosphorylation of β-tubulin from brain, removal of the carboxyterminal tyrosine form α-tubulin in vertebrate tissues, and acetylation of the amino group of lysine(s) in α-tubulin.

Monoclonal antibodies recognizing α-tubulin, together with monoclonal antibodies to other tubulin types (e.g. β tubulin isotypes I, II, and III, tyrosine tubulin, and acetylated-α-tubulin) provide specific and useful tools in studying the intracellular distribution of tubulin, and the static and dynamic aspects of the cytoskeleton. In addition, several tubulin isoforms have been implicated in various cancerous processes and are thus suggested as potential targets for cancer therapy.[5] Specifically, β tubulin III isoform has been suggested to be both a prognostic and a predictive factor of different treatment settings.[6]

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide as a preservative.

Antibody concentration: ~1.0 mg/mL

Precautions and Disclaimer

For R&D use only. Not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2–8 °C for up to one month. For extended storage, freeze at –20 °C in working aliquots. Repeated freezing and thawing, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

Product Profile

Immunoblotting: a working antibody concentration of 0.25-0.5 µg/mL is recommended using PC12 cell extract.

Note: In order to obtain best results in various techniques and preparations, it is recommended to determine optimal working dilutions by titration.

References

1. Lee, M.K., et al., Cell Motil. Cytoskeleton, 17, 118-132 (1990).
2. Dutcher, S.K., et al., Curr. Opin. Cell Biol., 13, 49-54 (2001)
3. McKean, P.G., et al., J. Cell Sci., 114, 2723-2733 (2001).
4. LeDizet, M., and Piperno, G., J. Cell Biol., 104, 13-22 (1986).
5. Carlson, R.O., Expert Opin. Investig. Drug, 17, 707-712 (2008).
6. Sève, P., and Dumontet, C., Lancet Oncol., 9, 168-175 (2008).

Notice

We provide information and advice to our customers on application technologies and regulatory matters to the best of our knowledge and ability, but without obligation or liability. Existing laws and regulations are to be observed in all cases by our customers. This also applies in respect to any rights of third parties. Our information and advice do not relieve our customers of their own responsibility for checking the suitability of our products for the envisaged purpose.

The information in this document is subject to change without notice and should not be construed as a commitment by the manufacturing or selling entity, or an affiliate. We assume no responsibility for any errors that may appear in this document.

Technical Assistance

Visit the tech service page at SigmaAldrich.com/techservice.

Standard Warranty

The applicable warranty for the products listed in this publication may be found at SigmaAldrich.com/terms.

Contact Information

For the location of the office nearest you, go to SigmaAldrich.com/offices.

PIS T8578 Rev 05/22