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ProductInformation

Anti-γ-Tubulin (QG-17)
Developed in Rabbit
Affinity Isolated Antibody

Product Number **T 0950**

Product Description

Anti-γ-Tubulin (QG-17) is developed in rabbit using as immunogen a synthetic peptide corresponding to the C-terminus of *Drosophila* γ-tubulin (amino acids 441-457 with N-terminal added cysteine-glycine), conjugated to KLH. This sequence is highly specific for *Drosophila* γ-tubulin and not found in γ-tubulin of other species or other members of the tubulin family such as α-,β-,δ-, and ε-tubulins. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-γ-Tubulin (QG-17) recognizes *Drosophila* γ-tubulin (48 kDa) by immunoblotting. Staining of γ-tubulin in immunoblotting is specifically inhibited with the γ-tubulin immunizing peptide (*Drosophila*, amino acids 441-457,with N-terminal added cysteine-glycine).

γ-Tubulin (48 kDa) is a widely expressed and highly conserved protein within the microtubule organizing centers (MTOCs) or centrosome in eukaryotic cells.[1] It is a member of the tubulin superfamily of proteins, which includes α- and β-tubulin and the newly discovered centrosomal-associated proteins, δ- and ε-tubulin.[1, 2] The microtubule cytoskeleton consists of a dynamic, highly polarized network of microtubules filaments, microtubule-associated proteins, microtubule motors, and microtubule-organizing proteins. The proper organization of microtubules is essential for cell division and chromosome segregation, directed cell movement, interphase cytoplasmic organization, and other cytoskeletal functions.[1] Microtubules are complex polymers composed of α-tubulin/β-tubulin heterodimers. Centrosomes nucleate the assembly of microtubules and establish the polarity of microtubules. γ-Tubulin has an essential role in microtubule nucleation by the centrosomes.[3-9] γ-Tubulin does not polymerize with α-tubulin/β-tubulin, but instead it is localized to the centrosome and to the cytoplasm.[1, 4-6] γ-Tubulin is found as part of a large protein complex containing at least five other proteins, and has a shape of a ring (γ-tubulin ring complex, γ-TuRC) that is roughly the same diameter as a microtubule.[9-13] γ-Tubulin binds the microtubule minus ends and is responsible for mediating the link between microtubules and the centrosome.[1,6] It binds to the β-tubulin half of the tubulin molecule, thus establishing the polarity of a microtubule, leaving the α-tubulin half exposed at the plus end. γ-Tubulin abundance is less than 1% of the level of either α- or β-tubulin.[5] γ-Tubulin shares approximately 28-32% identity with α-tubulin from various organisms, 32-36% identity with β-tubulins and 29-30% identity with δ- and ε-tubulins, respectively. Some regions (including regions thought to be involved in GTP binding) are highly conserved among α-, β-, γ-, δ-, and ε-tubulins.[2]

Reagent

Anti-γ-Tubulin (QG-17) is supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 1% bovine serum albumin and 15 mM sodium azide.

Antibody Concentration: 0.5-1.0 mg/ml

Precautions and Disclaimer

Due to the sodium azide content, a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS 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 in working aliquots. Repeated freezing and thawing is not recommended. 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

By immunoblotting, a working antibody concentration of 0.2-0.4 µg/ml is recommended using a whole cell extract of the Schneider's *Drosophila* Line 2 [D. Mel.(2), SL2].

Note: In order to obtain the best results using various techniques and preparations, we recommend determining the optimal working concentration by titration.

References

1. Oakley, B.R., Trends Cell Biol., **10,** 537-542 (2000). Chang, P., and Stearns, T., Nature Cell Biol., **2,** 30-35 (2000).
2. Oakley, C.E., and Oakley, B.R., Nature, **338**, 662-664 (1989).
3. Oakley, B.R., Cell, **61**, 1289-1301 (1990).
4. Stearns, T., et al., Cell, **65**, 825-836 (1991).
5. Zheng, Y., et al., Cell, **65**, 817-823 (1991).
6. Joshi, H.C., et al., Nature, **356**, 80-83 (1992).
7. Felix, M.A., et al., J. Cell Biol., **124**, 19-31 (1994).
8. Stearns, T., and Kirschner, M., Cell, **76**, 623-637 (1994).
9. Oakley, B.R., Nature, **378**, 555-556 (1995).
10. Zheng, Y., et al., Nature, **378**, 578-583 (1995).
11. Moritz, M., et al., Nature, **378**, 638-640 (1995).
12. Oegema, K., et al., J. Cell Biol., **144**, 721-733 (1999).

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