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PRODUCT INFORMATION



Detyrosinated α -Tubulin Rabbit Monoclonal Antibody

Item No. 35807

Overview and Properties

Contents:	This vial contains 100 μ l of protein A-affinity purified monoclonal antibody.
Synonyms:	Glu-tubulin
Immunogen:	A peptide corresponding to detyrosinated α -tubulin
Cross Reactivity:	(+) Detyrosinated α -tubulin
Species Reactivity:	(+) Human
Form:	Liquid
Storage:	-20°C (as supplied)
Stability:	\geq 1 year
Storage Buffer:	PBS with 50% glycerol, 1% BSA, and 0.09% sodium azide
Host:	Rabbit
Isotype:	IgG
Applications:	Immunocytochemistry (ICC), immunofluorescence (IF), Western blot (WB); the recommended starting dilution is 1:100-1:200 for ICC and IF and 1:1,000-1:2,000 for WB. Other applications were not tested, therefore optimal working concentration/ dilution should be determined empirically.

Description

Detyrosinated α -tubulin is a form of the cytoskeletal protein α -tubulin that has been post-translationally modified by the tubulin carboxypeptidases vasohibin 1 (VASH-1) and VASH-2, which remove the C-terminal tyrosine from α -tubulin.¹ Detyrosination of α -tubulin occurs in the cytosol and exposes two consecutive glutamate residues that can be further processed to form Δ 2- or Δ 3-tubulin. Detyrosinated α -tubulin monomers can be re-tyrosinated by tubulin tyrosine ligase and be incorporated into microtubules again. α -Tubulin detyrosination is associated with, but not sufficient for, increased stability of the microtubule and is involved in a variety of biological processes, including neuronal development, β -oxidation, mitosis, and cardiomyocyte contraction.¹⁻⁴ Increased levels of detyrosination are associated with tumor development *in vitro*, have been found in tumor tissue from patients with breast cancer, and are positively correlated with breast cancer aggressiveness.^{5,6} Cayman's Detyrosinated α -Tubulin Rabbit Monoclonal Antibody can be used for immunocytochemistry (ICC), immunofluorescence (IF), and Western blot (WB) applications.

References

1. Nieuwenhuis, J. and Brummelkamp, T.R. The tubulin detyrosination cycle: Function and enzymes. *Trends Cell Biol.* **29(1)**, 80-92 (2019).
2. Chen, J., Kholina, E., Szyk, A., *et al.* α -tubulin tail modifications regulate microtubule stability through selective effector recruitment, not changes in intrinsic polymer dynamics. *Dev. Cell* **56(14)**, 2016-2028.e4 (2021).
3. Herms, A., Bosch, M., Reddy, B.J.N., *et al.* AMPK activation promotes lipid droplet dispersion on detyrosinated microtubules to increase mitochondrial fatty acid oxidation. *Nat. Commun.* **6**, 7176 (2015).
4. Chen, C.Y., Caporizzo, M.A., Bedi, K., *et al.* Suppression of detyrosinated microtubules improves cardiomyocyte function in human heart failure. *Nat. Med.* **24(8)**, 1225-1233 (2018).
5. Wattanathamsan, O. and Pongrakhananon, V. Post-translational modifications of tubulin: Their role in cancers and the regulation of signaling molecules. *Cancer Gene Ther.* (2021).
6. Mialhe, A., Lafanechère, L., Peloux, I.T.N., *et al.* Tubulin detyrosination is a frequent occurrence in breast cancers of poor prognosis. *Cancer Res.* **61(13)**, 5024-5027 (2001).

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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