

Taxol (69E4A8E): sc-69899

BACKGROUND

Taxol, also known as paclitaxel, is a mitotic inhibitor derived from the bark of the Pacific yew tree (*Taxus brevifolia*). It is widely used in cancer chemotherapy as an anticancer drug, treating patients with ovarian, lung, breast, prostate, head and neck cancer, as well as other neoplasms. Taxol functions by disrupting the normal microtubule growth during cell division. More specifically, Taxol binds to β Tubulin, promoting polymerization and stabilization of microtubules, resulting in G₂/M phase arrest and subsequent apoptosis. Despite its success in anticancer drug treatment, Taxol has been associated with drug resistance and cross resistance with other chemotherapy drugs as well as serious side effects. One major side effect of Taxol is peripheral neurotoxicity, in which Taxol affects large myelinated nerve fibers causing mixed motor and sensory dysfunction leading to severe disabling symptoms.

REFERENCES

1. Sahenk, Z., Barohn, R., New, P. and Mendell, J.R. 1994. Taxol neuropathy. Electrodiagnostic and sural nerve biopsy findings. Arch. Neurol. 51: 726-729.
2. Hilkens, P.H. and van den Bent, M.J. 1997. Chemotherapy-induced peripheral neuropathy. J. Peripher. Nerv. Syst. 2: 350-361.
3. Snyder, J.P., Nettles, J.H., Cornett, B., Downing, K.H. and Nogales, E. 2001. The binding conformation of Taxol in β Tubulin: a model based on electron crystallographic density. Proc. Natl. Acad. Sci. USA 98: 5312-5316.
4. Gallagher, B.M., Jr. 2007. Microtubule-stabilizing natural products as promising cancer therapeutics. Curr. Med. Chem. 14: 2959-2967.
5. Bane, S.L., Ravindra, R. and Zaydman, A.A. 2007. High-throughput screening of microtubule-interacting drugs. Methods Mol. Med. 137: 281-288.
6. Vellon, L., Menendez, J.A., Liu, H. and Lupu, R. 2007. Upregulation of $\alpha_v\beta_3$ Integrin expression is a novel molecular response to chemotherapy-induced cell damage in a heregulin-dependent manner. Differentiation 75: 819-830.
7. Ohishi, Y., Oda, Y., Basaki, Y., Kobayashi, H., Wake, N., Kuwano, M. and Tsuneyoshi, M. 2007. Expression of β Tubulin isotypes in human primary ovarian carcinoma. Gynecol. Oncol. 105: 586-592.
8. Callizot, N., Andriambelolon, E., Glass, J., Revel, M., Ferro, P., Cirillo, R., Vitte, P.A. and Dreano, M. 2008. Interleukin-6 protects against paclitaxel, cisplatin and vincristine-induced neuropathies without impairing chemotherapeutic activity. Cancer Chemother. Pharmacol. 62: 995-1007.
9. Hansch, C. and Verma, R.P. 2008. Understanding Tubulin/microtubule-taxane interactions: a quantitative structure-activity relationship study. Mol. Pharm. 5: 151-161.

SOURCE

Taxol (69E4A8E) is a mouse monoclonal antibody raised against Taxol-BSA conjugate.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

PRODUCT

Each vial contains 200 μ g IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Taxol (69E4A8E) is available conjugated to agarose (sc-69899 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-69899 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-69899 PE), fluorescein (sc-69899 FITC), Alexa Fluor® 488 (sc-69899 AF488), Alexa Fluor® 546 (sc-69899 AF546), Alexa Fluor® 594 (sc-69899 AF594) or Alexa Fluor® 647 (sc-69899 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-69899 AF680) or Alexa Fluor® 790 (sc-69899 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

Taxol (69E4A8E) is recommended for detection of Taxol by solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); non cross-reactive with taxotere. Has been used in Tubulin disassembly assays and cytotoxicity studies using Taxol derivatives.

Molecular Weight of Taxol: 853.906 g/mol.

SELECT PRODUCT CITATIONS

1. Soliman, S.S., et al. 2011. Chemical inhibitors suggest endophytic fungal paclitaxel is derived from both mevalonate and non-mevalonate-like pathways. J. Nat. Prod. 74: 2497-2504.
2. Soliman, S.S. and Raizada, M.N. 2013. Interactions between co-habiting fungi elicit synthesis of taxol from an endophytic fungus in host taxus plants. Front. Microbiol. 4: 3.
3. Soliman, S.S.M. and Raizada, M.N. 2020. Sites of biosynthesis and storage of taxol in taxus media (Rehder) plants: mechanism of accumulation. Phytochemistry 175: 112369.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.