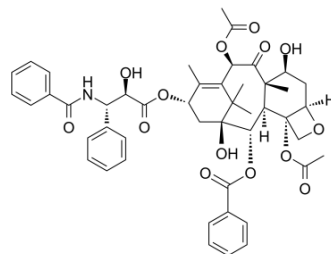


Paclitaxel

Cat. No.:	HY-B0015
CAS No.:	33069-62-4
Molecular Formula:	C ₄₇ H ₅₁ NO ₁₄
Molecular Weight:	853.91
Target:	Microtubule/Tubulin; ADC Cytotoxin; Apoptosis; Autophagy
Pathway:	Cell Cycle/DNA Damage; Cytoskeleton; Antibody-drug Conjugate/ADC Related; Apoptosis; Autophagy
Storage:	4°C, protect from light * In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 50 mg/mL (58.55 mM)
 H₂O : < 0.1 mg/mL (insoluble)
 * "≥" means soluble, but saturation unknown.

	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM	1.1711 mL	5.8554 mL	11.7108 mL
	5 mM	0.2342 mL	1.1711 mL	2.3422 mL
	10 mM	0.1171 mL	0.5855 mL	1.1711 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 2.08 mg/mL (2.44 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: 2.08 mg/mL (2.44 mM); Suspended solution; Need ultrasonic
- Add each solvent one by one: 10% DMSO >> 90% corn oil
Solubility: ≥ 2.08 mg/mL (2.44 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Paclitaxel is a naturally occurring antineoplastic agent and stabilizes tubulin polymerization. Paclitaxel can cause both mitotic arrest and apoptotic cell death. Paclitaxel also induces autophagy^{[1][2]}.

IC₅₀ & Target

Traditional Cytotoxic Agents

In Vitro

Paclitaxel (20 nM; 48 hours) induces programmed cell death and exerts a block at the G2/M phase of the cell cycle^[1].

Paclitaxel (20 nM; 48 hours) induces a consistent increase in the level of p53^[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Apoptosis Analysis^[1]

Cell Line:	MCF-7, MDA-MB-231 cells
Concentration:	20 nM
Incubation Time:	48 hours
Result:	Induced programmed cell death.

Cell Cycle Analysis^[1]

Cell Line:	MCF-7, MDA-MB-231 cells
Concentration:	20 nM
Incubation Time:	48 hours
Result:	>60% of MCF-7 cells and 50% of MDA-MB-231 cells were in the G2/M phase following 24 h treatment.

Western Blot Analysis^[1]

Cell Line:	MCF-7 cells (harboring wild-type p53)
Concentration:	20 nM
Incubation Time:	48 hours
Result:	Induced a consistent increase in the level of p53.

In Vivo

Paclitaxel (1-20 mg/kg; i.p.; 1 time/2 days for five cycles) obviously induces liver metastases at the low-Paclitaxel group with little influence on primary tumor growth^[3].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	MDA-231 xenograft-bearing mice ^[3]
Dosage:	1, 20 mg/kg
Administration:	Intraperitoneal injection; five cycles (1 time/2 days)
Result:	Liver metastases were obviously induced in the low-PTX (1 mg/kg) group with little influence on primary tumor growth compared with high-PTX group.

CUSTOMER VALIDATION

- Nucleic Acids Res. 2020 Apr 6;48(6):2912-2923.
- Autophagy. 2021 Mar 22;1-17.
- Cell Syst. 2019 Jul 24;9(1):35-48.e5.
- Theranostics. 2021 Mar 24;11(12):5650-5674.
- Cell Mol Immunol. 2020 May;17(5):496-506.

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REFERENCES

- [1]. Choi YH, et al. Paclitaxel-induced growth arrest and apoptosis is associated with the upregulation of the Cdk inhibitor, p21WAF1/CIP1, in human breast cancer cells. *Oncol Rep.* 2012 Dec;28(6):2163-9.
- [2]. Dziadyk JM, et al. Paclitaxel-induced apoptosis may occur without a prior G2/M-phase arrest. *Anticancer Res.* 2004 Jan-Feb;24(1):27-36.
- [3]. Li Q, et al. Low doses of paclitaxel enhance liver metastasis of breast cancer cells in the mouse model. *FEBS J.* 2016 Aug;283(15):2836-52.
- [4]. Pan Z, et al. Paclitaxel attenuates Bcl-2 resistance to apoptosis in breast cancer cells through an endoplasmic reticulum-mediated calcium release in a dosage dependent manner. *Biochem Biophys Res Commun.* 2013 Feb 13. pii: S0006-291X(13)00259-3.
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- [8]. Jing C, et al. E7080 enhances the antitumor effects of paclitaxel in anaplastic thyroid cancer. *Am J Cancer Res.* 2017 Apr 1;7(4):903-912.
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Caution: Product has not been fully validated for medical applications. For research use only.

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