产品名称：戊柔比星
产品别名：**Valrubicin**

生物活性：

Description	Valrubicin is a chemotherapy agent, inhibits TPA- and PDBu-induced PKC activation with IC_{50}s of 0.85 and 1.25 μM, respectively, and has antitumor and antiinflammatory activity.	
IC_{50} & Target [1]	TPA-activated PKC	PDBu-activated PKC
	0.85 μM (IC_{50})	1.25 μM (IC_{50})
In Vitro	Valrubicin (AD 32) is a chemotherapy agent, inhibits TPA- and PDBu-induced PKC activation with IC50s of 0.85 and 1.25 μM, respectively. Valrubicin inhibits the binding of [3H]PDBu to PKC. Therefore, Valrubicin competes with the tumor promoter for the PKC binding site and prevents the latter from both interacting with the phospholipid and binding to PKC[1]. Valrubicin shows cytotoxic activity against squamous cell carcinoma (SCC) cell line colony formation, with IC50s and IC90s of 8.24 ± 1.60 μM and 14.81 ± 2.82 μM for UMSCC5 cells, 15.90 ± 0.90 μM, 29.84 ± 0.84 μM for UMSCC5/CDDP‡ cells, and 10.50 ± 2.39 μM, 19.00 ± 3.91 μM for UMSCC10b cells, respectively. Moreover, Valrubicin in combination with radiation enhances the cytotoxicity[2].	
In Vivo	Valrubicin (3, 6, or 9 mg) reduces tumor growth at week 3 by intratumoral jection in hamster. Valrubicin (6 mg) combined with minimally cytotoxic irradiation (150, 250, or 350 cGy) causes significant tumor shrinkage in hamster[2]. Valrubicin (0.1 μg/μL) significantly reduces the number of infiltrating neutrophils in biopsies challenged with TPA at 24 h and attenuates chronic inflammation in mice. Valrubicin also decreases the expression levels of inflammatory cytokines in the acute model[3].	

Solvent&Solubility

In Vitro:

DMSO : ≥ 130 mg/mL (179.65 mM)

H2O : < 0.1 mg/mL (insoluble)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	1.3819 mL	6.9095 mL	13.8190 mL
	5 mM	0.2764 mL	1.3819 mL	2.7638 mL
	10 mM	0.1382 mL	0.6910 mL	1.3819 mL

*请根据产品在不同溶剂中的溶解度选择合适的溶剂配制储备液；一旦配成溶液，请分装保存，避免反复冻融造成的产品失效。

储备液的保存方式和期限：-80°C, 6 months; -20°C, 1 month。-80°C 储存时，请在 6 个月内使用，-20°C 储存时，请在 1 个月内使用。

In Vivo:

请根据您的实验动物和给药方式选择适当的溶解方案。以下溶解方案都请先按照 **In Vitro** 方式配制澄清的储备液，再依次添加助溶剂：

——为保证实验结果的可靠性，澄清的储备液可以根据储存条件，适当保存；体内实验的工作液，建议您现用现配，当天使用； 以下溶剂前显示的百分比是指该溶剂在您配制终溶液中的体积占比；如在配制过程中出现沉淀、析出现象，可以通过加热和/或超声的方式助溶

1.请依序添加每种溶剂： 10% DMSO→40% PEG300 →5% Tween-80 → 45% saline

Solubility: ≥ 2.17 mg/mL (3.00 mM); Clear solution

此方案可获得 ≥ 2.17 mg/mL (3.00 mM，饱和度未知) 的澄清溶液。

	以 1 mL 工作液为例，取 100 μL 21.7 mg/mL 的澄清 DMSO 储备液加到 400 μL PEG300 中，混合均匀向上述体系中加入 50 μL Tween-80，混合均匀；然后继续加入 450 μL 生理盐水定容至 1 mL。
References	[1]. Chuang LF, et al. Activation of human leukemia protein kinase C by tumor promoters and its inhibition by N-trifluoroacetyladriamycin-14-valerate (AD 32). Biochem Pharmacol. 1992 Feb 18;43(4):865-72. [2]. Wani MK, et al. Rationale for intralesional valrubicin in chemoradiation of squamous cell carcinoma of the head and neck. Laryngoscope. 2000 Dec;110(12):2026-32. [3]. Hauge E, et al. Topical valrubicin application reduces skin inflammation in murine models. Br J Dermatol. 2012 Aug;167(2):288-95.

实验参考：

Cell Assay	UMSCC5 cells exposed to Valrubicin (2 μM for 3 h), a single dose of radiation (400 cGy), or the combined treatment are cultured for a further 12, 24, or 48 hours. At these times, the cells are collected by trypsinization (0.25%), washed in phosphate-buffered saline (PBS), and fixed at 5×10^6 cells/mL with 95% ethanol. Cells are incubated with ribonuclease (50 μg; 70-90 Kunitz units/mg for 30 min), and the resulting pellet resuspended in and incubated with propidium iodide (0.05 mg/mL for 10 min). The DNA content of the samples is determined by flow cytometry according to standard technique[2].
Animal Administration	Hamsters[2] Hamsters with cheek pouch tumors of 100 mm^2 are randomly assigned to one of five treatment groups. Momentarily anesthetized animals each receives once a week × 3 injections (27 g × 0.5-inch needle: 0.1 mL administered slowly to the base of the lesion) of Valrubicin (3, 6, or 9 mg) or drug vehicle (Cremophor: alcohol;1:1 by volume; NCl diluent 12). A further group of animals receives anesthesia but no direct tumor treatment (control). Individual tumor sizes are measured with calipers at weekly intervals for 4 weeks, at which time the animals are sacrificed[2].
References	[1]. Chuang LF, et al. Activation of human leukemia protein kinase C by tumor promoters and its inhibition by N-trifluoroacetyladriamycin-14-valerate (AD 32). Biochem Pharmacol. 1992 Feb 18;43(4):865-72. [2]. Wani MK, et al. Rationale for intralesional valrubicin in chemoradiation of squamous cell carcinoma of the head and neck. Laryngoscope. 2000 Dec;110(12):2026-32. [3]. Hauge E, et al. Topical valrubicin application reduces skin inflammation in murine models. Br J Dermatol. 2012 Aug;167(2):288-95.