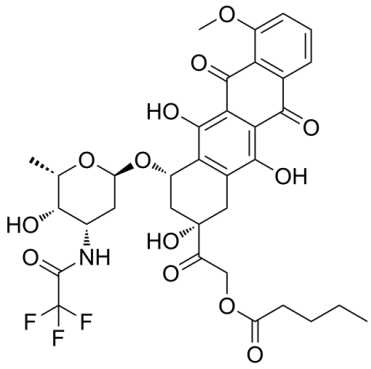
Data Sheet

Product Name:	Valrubicin
Cat. No.:	CS-2929
CAS No.:	56124-62-0
Molecular Formula:	$C_{34}H_{36}F_3NO_{13}$
Molecular Weight:	723.64
Target:	Antibiotic; PKC
Pathway:	Anti-infection; Epigenetics; TGF-beta/Smad
Solubility:	DMSO : 125 mg/mL (ultrasonic)



BIOLOGICAL ACTIVITY:

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. IC50 & Target: IC50: 0.85 μM (TPA-activated PKC), 1.25 μM (PDBu-activated PKC) [1] ***In Vitro:*** Valrubicin (AD 32) is a chemotherapy agent, inhibits TPA- and PDBu-induced PKC activation with IC_{50}s of 0.85 and 1.25 μM, respectively. Valrubicin inhibits the binding of [^{3}H]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 IC_{50}s and IC_{90}s 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].

PROTOCOL (Extracted from published papers and Only for reference)

Cell Assay: [2]**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: Valrubicin is formulated in vehicle (Cremophor: alcohol;1:1 by volume; NCI diluent 12)[2].[2]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; NCI 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.

CAIndexNames:

Pentanoic acid, 2-[(2S,4S)-1,2,3,4,6,11-hexahydro-2,5,12-trihydroxy-7-methoxy-6,11-dioxo-4-[[2,3,6-trideoxy-3-[(2,2,2-trifluoroacetyl)amino]-α-L-lyxo-hexopyranosyl]oxy]-2-naphthacenyl]-2-oxoethyl ester

SMILES:

CCCCC(OCC([C@]1(O)CC2=C(C(O)=C3C(C4=C(C(C3=C2O)=O)C=CC=C4OC)=O)[C@@H](O[C@H]5C[C@H](NC(C(F)(F)F)=O)[C@H](O)[C@H](C)O5)C1)=O)=O

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