Datasheet

Daunorubicin HCl

Product Name	Daunorubicin HCl
Catalogue Number	BSV-S3035
Chemical Formula	$C_{27}H_{29}NO_{10}$. HCl
Function	Topoisomerase inhibitor
CAS No.:	23541-50-6

Description:

Daunorubicin HCl inhibits both DNA and RNA synthesis and inhibits **DNA** synthesis with **K_i** of 0.02 μM in a cell-free assay.

Product Details:

Target DNA synthesis [1] (Cell-free assay) 20nM (Ki)

Chemical name: 5,12-Naphthacenedione, 8-acetyl-10-[(3-amino-2,3,6-trideoxy-α-L-lyxo-hexopyranosyl)oxy]-7,8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy-, hydrochloride (1:1), (8S,10S)-

Formula: $C_{27}H_{29}NO_{10}$. HCl

Molecular weight: **563.98**

Purity: **99.08** %

Solubility: 100 mg/mL (DMSO), 100 mg/mL (water), 30 mg/mL (Saline)

Storage: 3 years -20°C powder, 2 years -80°C in solvent

Regulatory/ Restrictions: For laboratory use only.

Preparing stock solutions

Concentration/ Mass	1 mg	5 mg	10 mg
1 mM	1.7731 mL	8.8656 mL	17.7311 mL
5 mM	0.3546 mL	1.7731 mL	3.5462 mL
10 mM	0.1773 mL	0.8866 mL	1.7731 mL
50 mM	0.0355 mL	0.1773 mL	0.3546 mL

Biological Activity:

In vitro:

At drug concentrations that reflect the peak plasma concentration after Daunorubicin administration, the primary mechanism is likely to be through interaction with topoisomerase II, which may be a primary triggering event for growth arrest and/or cell killing through a signalling pathway leading to apoptosis, at least in leukemic cells and thymocytes. The quinone structure permits daunorubicin to act as electron acceptors in reactions mediated by oxoreductive enzymes including cytochrome P450 reductase, NADH dehydrogenase, and xanthine oxidase. At Daunorubicin concentrations exceeding approximately 2–4 μM, free radical mediated toxicity and DNA cross-linking may become evident. Daunorubicin inhibits both DNA and RNA syntheses in HeLa cells over a concentration range of 0.2 through 2 μM. Daunorubicin inhibits both DNA syntheses in Ehrlich ascites tumor cells over a concentration range of 4 μM. Daunorubic triggers apoptosis at concentrations of 0.5 and 1 μM in either HL-60 or U-937 human leukemic cells. [1] Daunorubicin stimulates ceramide elevation and apoptosis in P388 and U937 cells through de novo synthesis via activation of the enzyme ceramide synthase. [2] Daunorubicin dose-dependently increases the phosphatidylserine exposure and consequent procoagulant activity of human umbilical vein endothelial cells. Daunorubicin (0.2 mM) significantly enhances the release of endothelial microparticles which are highly procoagulant in human umbilical vein endothelial cells. [3]

References:

[1] Gewirtz DA, et al. Biochem Pharmacol, 1999, 57(7), 727-741.
[2] Bose R, et al. Cell, 1995, 82(3), 405-414.
[3] Fu Y, et al. Thromb Haemost, 2010, 104(6), 1235-1241.
[4] Tardi P, et al. Leuk Res, 2009, 33(1), 129-139.