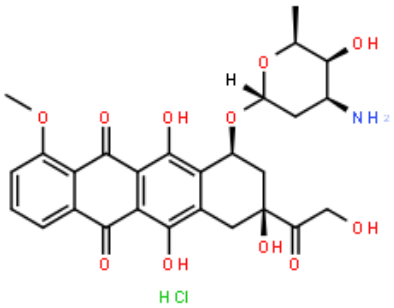
Product Data Sheet

Cas No.:	25316-40-9	Cat. No:	PC10250
Product Name:	Doxorubicin (Adriamycin) HCl.		
Product synonym:	盐酸阿霉素;(8S-cis)-10-[(3-氨基-2,3,6-三去氧-a-L-来苏己吡喃基)-氧]-7,8,9,10-四氢-6,8,11-三羟基-8-羟基乙酰基-1-甲氧基-5,12-并四苯二酮盐酸盐;盐酸多柔比星;盐酸柔红霉素;14-羟正定霉素;阿得里亚霉素;阿霉素盐酸盐;亚德里亚霉素盐酸盐;盐酸亚德里亚霉素;亚德里亚霉素,阿霉素(盐酸盐);盐酸阿霉;盐酸多柔比星,阿霉素;12-萘二酮的盐酸盐;Doxorubicin Hydrochloride 盐酸多柔比星;Doxorubicin hydrochloride 盐酸阿霉素;阿霉素;阿霉素-13C-D3盐酸;阿霉素盐酸盐 ,Doxorubicin hydrochloride;羟基柔红霉素盐酸盐;盐酸阿霉素 (盐酸多柔比星);盐酸阿霉素 EP标准品;盐酸阿霉素 标准品;盐酸阿霉素盐酸多柔比星;盐酸阿霉素、盐酸多柔比星;盐酸多柔比星 Doxorubicin HCl;盐酸多柔比星 USP标准品;盐酸多柔比星(比星类);盐酸多柔比星Doxorubicin hydrochloride;盐酸多柔比星标准品;盐酸多柔吡星;盐酸羟基柔红霉素;盐酸阿霉素,阿霉素;盐酸多柔比星,盐酸柔红霉素,阿得里亚霉素,14-羟正定霉素,阿霉素;多柔比星® 盐酸盐;羟基柔红霉素 盐酸盐		
Chemical name:	Doxorubicin (Adriamycin) HCl.		
MF:	C27H30CLNO11	FW:	579.9802
Purity:	≥99%	Batch No.:	-
Storage:			
Structural formula:			
λmax:	-	Formulation:	-
Solubility :			
SMILES :	Cl[H].O([C@@]1([H])C([H])([H])[C@@]([H])([C@@]([H])([C@]([H])(C([H])([H])[H])O1)O[H])N([H])[H])[C@]1([H])C2C(=C3C(C4C(=C([H])C([H])=C([H])C=4C(C3=C(C=2C([H])([H])[C@@](C(C([H])([H])O[H])=O)(C1([H])[H])O[H])O[H])=O)OC([H])([H])[H])=O)O[H]		
InChI Code:	-		
InChI Key:			

WARNING This product is not for human or veterinary use.

Product Description

Doxorubicin hydrochloride是一种有细胞毒性的蒽环类抗生素，用于治疗多种癌症。 Doxorubicin 在癌细胞中起作用的可能机制是嵌入 DNA 和破坏 topoisomerase-II 介导的DNA修复。

生物活性	Doxorubicin (Hydroxydaunorubicin) hydrochloride, a cytotoxic anthracycline antibiotic, is an anti-cancer chemotherapy agent. Doxorubicin hydrochloride is a potent human **DNA topoisomerase I** and **topoisomerase II** inhibitor with **IC_{50}**s of 0.8 μM and 2.67 μM, respectively. Doxorubicin hydrochloride reduces basal phosphorylation of AMPK and its downstream target acetyl-CoA carboxylase. Doxorubicin hydrochloride induces **apoptosis** and autophagy.

IC50 & Target[1][2]

Topoisomerase I	Topoisomerase II	Daunorubicins/Doxorubicins	HIV-1
0.8 μM (IC_{50})	2.67 μM (IC_{50})		

体外研究(In Vitro)

Doxorubicin hydrochloride (1-8 μM; 24 and 48 hours) decreases the viability of MCF-10F, MCF-7 and MDA-MB-231 cells in a time- and dose-dependent manner.

Doxorubicin hydrochloride (1 μM; 3 and 24 hours) results in Hct-116 human colon carcinoma cells reduction in G0/G1 phase and accumulation in G2 phase.

Doxorubicin hydrochloride (1 μM for MCF-10F and MDA-MB-231 cells, 4 μM for MCF-7 cells; 48 hours) induces apoptosis by upregulating Bax, caspase-8 and caspase-3 and downregulation of Bcl-2 protein expression.

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

Cell Viability Assay

Cell Line:	Breast cancer cell lines MCF-10F, MCF-7 and MDA-MB-231
Concentration:	0, 1, 2, 4 and 8 μM
Incubation Time:	24 and 48 hours
Result:	IC_{50} was 1 μM for both MCF-10F and MDA-MB-231 cell lines. IC_{50} was 4 μM for MCF-7 cell line.

Cell Cycle Analysis

Cell Line:	Hct-116 human colon carcinoma cells
Concentration:	1 μM
Incubation Time:	3 hours and 24 hours
Result:	Both, bolus (3 h) and continuous (24 h) incubation led to a significant reduction of cells in G0/G1 and accumula

Western Blot Analysis

Cell Line:	Breast cancer cell lines MCF-10F, MCF-7 and MDA-MB-231
Concentration:	1 μM for MCF-10F and MDA-MB-231 cells, 4 μM for MCF-7 cells
Incubation Time:	48 hours
Result:	Bax protein expression was upregulated in MCF-10F and MDA-MB-231 cell lines but MCF-7 cells did not show Caspase-8 gene expression was upregulated in MCF-10F, but it was downregulated in MCF-7 and MDA-MB-23

<table>
<tr><td>体内研究(In Vivo)</td><td>Treatment with Doxorubicin (2 mg/kg) or Zoledronic acid (100 μg/kg) alone does not statistically significantly decrease final tumor volume compared with saline. Mice treated with Doxorubicin plus Zoledronic acid have statistically significantly smaller final tumor volumes than those treated with Doxorubicin alone.

Medlife has not independently confirmed the accuracy of these methods. They are for reference only.
<table><tr><td>Animal Model:</td><td>Female MF1 nu/nu mice bearing MDA-G8 breast tumor xenograft (6-week-old)</td></tr><tr><td>Dosage:</td><td>Doxorubicin (2 mg/kg); Zoledronic acid (100 μg/kg)</td></tr><tr><td>Administration:</td><td>Intravenous injection; once a week; 6 weeks</td></tr><tr><td>Result:</td><td>Moderate inhibition of subcutaneous tumor growth in mice that were treated with 2 mg/kg Doxorubicin alone
Mice treated with Zoledronic acid and Doxorubicin together had statistically significant smaller mean tumor vo</td></tr></table></td></tr>
<tr><td>包装储存</td><td>4°C, sealed storage, away from moisture and light

*In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture and light)</td></tr>
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溶解度数据

体外研究:

DMSO : 35.71 mg/mL (61.57 mM; ultrasonic and warming and heat to 60°C)

H_2O : 20 mg/mL (34.48 mM; Need ultrasonic)

配制储备溶液	溶剂体积 质量 浓度	1 mg	5 mg	10 mg
	1 mM	1.7242 mL	8.6210 mL	17.2420 mL
	5 mM	0.3448 mL	1.7242 mL	3.4484 mL
	10 mM	0.1724 mL	0.8621 mL	1.7242 mL

* 产品不同，其溶解度不同。建议根据产品选择合适的溶剂配制储备溶液；配成溶液后，**建议分装保存，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 (sealed storage, away from moisture and light)。-80°C 储存时，建议在 6 个月内使用，-20°C 储存时，建议在 1 个月内使用。

体内研究:

建议根据您的实验动物和给药方式选择适当的溶解方案。以下溶解方案都建议先按照 **体外研究** 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. 建议依照次序添加每种溶剂： 5% DMSO 40% PEG300 5% Tween-80 50% saline

   Solubility: ≥ 2.75 mg/mL (4.74 mM); Clear solution

2. 建议依照次序添加每种溶剂： 10% DMSO 40% PEG300 5% Tween-80 45% saline

   Solubility: ≥ 2.08 mg/mL (3.59 mM); Clear solution

   此方案可获得 ≥ 2.08 mg/mL (3.59 mM，饱和度未知) 的澄清溶液。

   以 1 mL 工作液为例，取 100 μL 20.8 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。

   将 0.9 g 氯化钠，完全溶解于 100 mL ddH?O 中，得到澄清透明的生理盐水溶液

3. 建议依照次序添加每种溶剂： 10% DMSO 90% (20% SBE-β-CD in saline)

   Solubility: ≥ 2.08 mg/mL (3.59 mM); Clear solution

   此方案可获得 ≥ 2.08 mg/mL (3.59 mM，饱和度未知) 的澄清溶液。

   以 1 mL 工作液为例，取 100 μL 20.8 mg/mL 的澄清 DMSO 储备液加到 900 μL 20% 的 SBE-β-CD 生理盐水水溶液中，混合均匀。

   将 2 g 磺丁基醚 β-环糊精加入 5 mL 生理盐水中，再用生理盐水定容至 10 mL，完全溶解，澄清透明

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