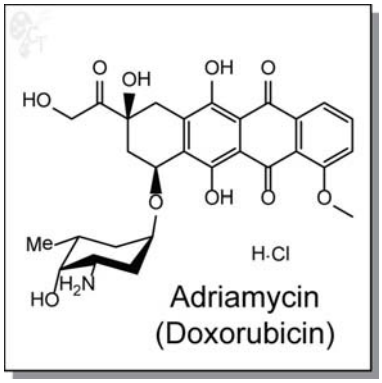
Product Specification Sheet

Product Name: Adriamycin (Doxorubicin)

Catalog Number: C2374



Technical information:

Chemical Formula:	$C_{27}H_{29}NO_{11}.HCl$
CAS #:	25316-40-9
Molecular Weight:	579.98
Purity:	> 98%
Appearance:	Red Orange solid
Solubility:	Soluble in DMSO up to 100mM
Chemical Name:	(8S,10S)-10-((2R,4S,5S,6S)-4-amino-5-hydroxy-6-methyl-tetrahydro-2H-pyran-2-yloxy)-6,8,11-trihydroxy-8-(2-hydroxyacetyl)-1-methoxy-7,8,9,10-tetrahydrotetracene-5,12-dione hydrochloride
Storage:	Store solid powder at 4°C desiccated; Store DMSO solution at -20°C.
Shelf Life:	In the unopened package, powder is stable for 1 year and DMSO solution is stable for 6 months under proper storage condition.

Handling:

- To make 10 mM stock solution, add 0.172mL of DMSO for each mg of Adriamycin (Doxorubicin)
- For DMSO solution, briefly spin the vial at 500 rpm in a 50 mL conical tube to ensure maximum sample recovery.

Biological Activity:

Adriamycin (Doxorubicin) is an intravenous, anthracycline-based antibiotic and antineoplastic agent derived from Streptomyces bacterium. Adriamycin enters cancer cell DNA and inhibits cell replication by arresting protein synthesis.

In HK-2 cells, adriamycin decreases cell viability in a dose-dependent manner and induces an increase in cells in the sub G1 and G2/M phases. It also increases secretion of TNFa, decreases expression of phosphorylated PKA and Bcl-2, and increases phosphoryled signal transducer and activator of transcription 3, phospho-ERK,and ATF3. [1]

Due to adriamycin's route of administration and cytotoxic effects, extensive research has been conducted in the area of assisted delivery of the chemotherapeutic (liposome [2], prodrug [3], polymer, gold-particles, etc.)

Reference:

1. Park et al., Doxorubicin induces cytotoxicity through upregulation of pERK-dependent ATF3. PLoSONE, 2012, 7(9), e44990. Pubmed ID: 23028726
2. Macmillan and Cancer Backup factsheet
3. Albright et al., Matrix metalloproteinase-activated doxorubicin prodrugs inhibit HT1080 xenograft growth better than doxorubicin with less toxicity. Mol. Cancer Ther. 2005, 4, 751-760. Pubmed ID: 15897239

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