bio-techne
TOCRIS

Print Date: Jul 18th 2025

Certificate of Analysis

www.tocris.com

Product Name: **Doxorubicin hydrochloride** **Catalog No.: 2252** **Batch No.: 7**

CAS Number: 25316-40-9 EC Number: 246-818-3

IUPAC Name: 10-[(3-Amino-2,3,6-trideoxy-α-L-lyxohexopyranosyl)oxy]-7,8,9,10-tetrahydro-6,8,11-trihydroxy-8-(hydroxyacetyl)-5,12-naphthacenedione hydrochloride

1. PHYSICAL AND CHEMICAL PROPERTIES

Batch Molecular Formula: $C_{27}H_{29}NO_{11}.HCl$

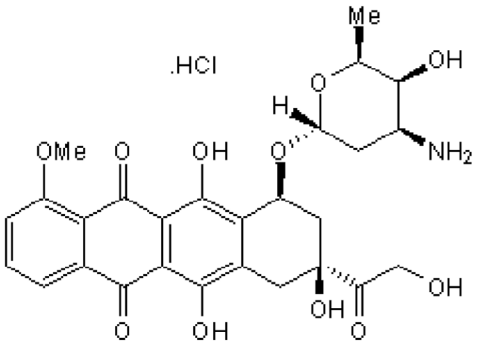
Batch Molecular Weight: 579.99

Physical Appearance: Orange solid

Solubility: water to 50 mM
DMSO to 50 mM

Storage: Desiccate at RT

Batch Molecular Structure:



2. ANALYTICAL DATA

HPLC: Shows 99.5% purity

^{1}H NMR: Consistent with structure

Mass Spectrum: Consistent with structure

Microanalysis:

	Carbon	Hydrogen	Nitrogen
Theoretical	55.91	5.21	2.42
Found	55.47	5.03	2.31

bio-techne.com
info@bio-techne.com
techsupport@bio-techne.com

North America
Tel: (800) 343 7475

China
info.cn@bio-techne.com
Tel: +86 (21) 52380373

Europe Middle East Africa
Tel: +44 (0)1235 529449

Rest of World
www.tocris.com/distributors
Tel:+1 612 379 2956

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Description:

Doxorubicin hydrochloride is a 14-hydroxylated version of Daunorubicin (Cat. No. 1467) that is naturally fluorescent. Doxorubicin is an antitumor antibiotic agent that inhibits DNA topoisomerase II. It is a DNA intercalator that inhibits nucleic acid synthesis and induces apoptosis. Doxorubicin reduces intracellular tau levels. Doxorubicin also promotes formation of free radicals for the disruption of membrane lipids and DNA strands. Doxorubicin fluorescence is quenched upon intercalation into the DNA; while binding to histones or partitioning into the phospholipid phase of PEG-phospholipid micelles or hydrophobic cores of polymeric micelle... Please see product specific page on www.tocris.com for full description.

Physical and Chemical Properties:

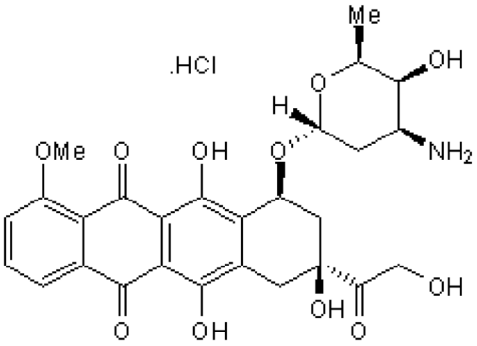
Batch Molecular Formula: $C_{27}H_{29}NO_{11}.HCl$

Batch Molecular Weight: 579.99

Physical Appearance: Orange solid

Minimum Purity: ≥98%

Batch Molecular Structure:



Storage: Desiccate at RT

Solubility & Usage Info:

water to 50 mM
DMSO to 50 mM

CAUTION - This product is hygroscopic and we recommend that it is desiccated upon arrival. Solutions should be made up as soon as the vial is opened.

Stability and Solubility Advice:

Some solutions can be difficult to obtain and can be encouraged by rapid stirring, sonication or gentle warming (in a 45-60°C water bath).

Information concerning product stability, particularly in solution, has rarely been reported and in most cases we can only offer a general guide. *Unless contradicted by product-specific protocols or instructions, our standard recommendations apply:

SOLIDS: Provided storage is as stated on the product label and the vial is kept tightly sealed, the product can be stored for up to 6 months from date of receipt.

SOLUTIONS: We recommend that stock solutions, once prepared, are stored aliquoted in tightly sealed vials at -20°C or below and used within 1 month. Wherever possible solutions should be made up and used on the same day.

References:

Mohan *et al* (2010) Doxorubicin as a molecular nanotheranostic agent: effect of doxorubicin encapsulation in micelles or nanoemulsions on the ultrasound-mediated intracellular delivery and nuclear trafficking. Mol.Pharm. ***7*** 1959. PMID: 20957997.

Dickey *et al* (2006) Pharmacologic reductions of total tau levels; implications for the role of microtubule dynamics in regulating tau expression. Mol.Neurodegen. ***1*** 6. PMID: 16930453.

Gewirtz (1999) A critical evaluation of the mechanisms of action proposed for the antitumor effects of the anthracycline antibiotics adriamycin and daunoru. Biochem.Pharmacol. ***57*** 727. PMID: 10075079.