PRODUCT INFORMATION

Doxorubicinol (hydrochloride)

Item No. 22386

Formal Name: (8S,10S)-10-[(3-amino-2,3,6-trideoxy-α-L-lyxo-hexopyranosyl)oxy]-8-(1,2-dihydroxyethyl)-7,8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy-5,12-naphthacenedione, monohydrochloride

MF: $C_{27}H_{31}NO_{11}$ • HCl

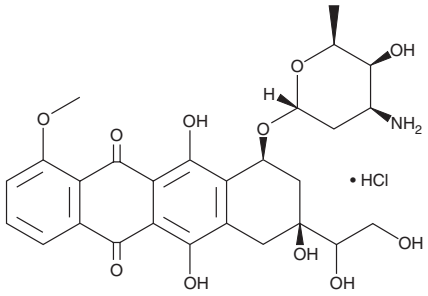
FW: 582.0

Purity: ≥90%

Supplied as: A solid

Storage: 4°C

Stability: ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Doxorubicinol (hydrochloride) is supplied as a solid. A stock solution may be made by dissolving the doxorubicinol (hydrochloride) in the solvent of choice. Doxorubicinol (hydrochloride) is soluble in organic solvents such as DMSO and methanol, which should be purged with an inert gas.

Description

Doxorubicinol is the major metabolite of doxorubicin (Item No. 15007), an anthracycline antitumor antibiotic that inhibits DNA topoisomerase II by inducing double-stranded DNA breaks.[1,2] Doxorubicinol is formed by NADPH-dependent reduction of the side chain carbonyl group of doxorubicin in human, rabbit, and canine cardiac tissue.[3,4] Doxorubicinol inhibits sodium-potassium-dependent ATPase activity (IC_{50} = 5.40 µg/ml) and ATP-dependent calcium uptake (IC_{50}= 4.5 µg/ml) in canine cardiac muscle and increases resting stress in contracting rabbit cardiac muscle.[2] Clinically observed cardiotoxicities following doxorubicin treatment have been attributed to the formation and cardiac action of doxorubicinol.[2-4]

References

1. Patel, S., Sprung, A.U., Keller, B.A., *et al.* Identification of yeast DNA topoisomerase II mutants resistant to the antitumor drug doxorubicin: Implications for the mechanisms of doxorubicin action and cytotoxicity. *Mol. Pharmacol.* **52(4)**, 658-666 (1997).
2. Boucek, R.J., Jr., Olson, R.D., Brenner, D.E., *et al.* The major metabolite of doxorubicin is a potent inhibitor of membrane-associated ion pumps. A correlative study of cardiac muscle with isolated membrane fractions. *J. Biol. Chem.* **262(33)**, 15851-15856 (1987).
3. Salvatorelli, E., Menna, P., Cascegna, S., *et al.* Paclitaxel and docetaxel stimulation of doxorubicinol formation in the human heart: Implications for cardiotoxicity of doxorubicin-taxane chemotherapies. *J. Pharmacol. Exp. Ther.* **318(1)**, 424-433 (2006).
4. Mordente, A., Minotti, G., Martorana, G.E., *et al.* Anthracycline secondary alcohol metabolite formation in human or rabbit heart: Biochemical aspects and pharmacologic implications. *Biochem. Pharmacol.* **66(6)**, 989-998 (2003).

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