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Doxorubicin

5 mg

For Research Use Only. Not for Use in Diagnostic Procedures.

Background

Doxorubicin, an anthracycline antibiotic, inhibits DNA and RNA synthesis in mammalian cells and has been shown to be a very effective anti-tumor agent (1,2). Doxorubicin binds to nucleic acids by intercalating the DNA double helix and stabilizing topoisomerase II cleavage complexes, leading to DNA strand breaks at specific doxorubicin-induced sites (3). Doxorubicin has been shown to inhibit DNA synthesis in a dose-dependent manner in MCF7 cells, which corresponds closely with growth inhibition (4). Researchers have also demonstrated that doxorubicin effectively inhibits human DNA topoisomerase I (5).

Molecular Formula

C₂₇H₂₉NO₁₁ · HCl

Molecular Weight

579.98 g/mol

Purity

>99%

CAS

25316-40-9

Solubility

Soluble in DMSO at 100mg/ml and H₂O at 10mg/ml.

Storage

Store lyophilized or in solution at -20°C, desiccated. Protect from light. In lyophilized form, the chemical is stable for 24 months. Once in solution, use within 3 months to prevent loss of potency. Aliquot to avoid multiple freeze/thaw cycles.

Directions for Use

Doxorubicin is supplied as a lyophilized powder. For a 10 mM stock, reconstitute the 5 mg in 860 µl DMSO. Working concentrations and length of treatments vary depending on the desired effect, but it is typically used at 0.1-5 µM for 12-24 hours. Soluble in DMSO at 100 mg/ml; very poorly soluble in ethanol; soluble in water at 10 mg/ml with slight warming.

Background References

1. Kim, S.H. and Kim, J.H. (1972) *Cancer Res* 32, 323-5.
2. Momparler, R.L. et al. (1976) *Cancer Res* 36, 2891-5.
3. Capranico, G. et al. (1990) *Nucleic Acids Res* 18, 6611-9.
4. Fornari, F.A. et al. (1994) *Mol Pharmacol* 45, 649-56.
5. Foglesong, P.D. et al. (1992) *Cancer Chemother Pharmacol* 30, 123-5.

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