Doxorubicin

☑ 5 mg

**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:** C_{27}H_{29}NO_{11}•HCl

**Molecular Weight:** 579.98 g/mol

**Solubility:** Soluble in DMSO at 100 mg/ml; very poorly soluble in ethanol; soluble in water at 10 mg/ml with slight warming.

**Purity:** >99%

**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:**


**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.

**Applications Key:**

- **W**—Western
- **IP**—Immunoprecipitation
- **IHC**—Immunohistochemistry
- **ChIP**—Chromatin Immunoprecipitation
- **IF**—Immunofluorescence
- **F**—Flow cytometry
- **E-P**—ELISA-Peptide

**Species Cross-Reactivity Key:**

- **H**—human
- **M**—mouse
- **R**—rat
- **Hm**—hamster
- **Mm**—monkey
- **Mm**—minx
- **C**—chicken
- **Dm**—D. melanogaster
- **X**—Xenopus
- **Z**—zebrafish
- **B**—bovine
- **Dg**—dog
- **Pg**—pig
- **Sc**—S. cerevisiae

All—all species expected

Species enclosed in parentheses are predicted to react based on 100% homology.
Appropriate engineering controls

Shaders, eyewash station, and ventilation systems.
This product does not contain any substances regulated under the Chemical Weapons Convention (CWC).

This product does not contain any substances regulated as pesticides.

This product contains chemicals known to the State of California to cause cancer or reproductive toxicity.

Delayed and immediate effects as well as chronic effects from short and long-term exposure.

Information on toxicological effects

This material should only be handled by, or under the close supervision of, those properly qualified in the handling and use of potentially hazardous chemicals. It should be borne in mind that the toxicological and physiological properties of this compound is not well defined.

Chemical Name TSCA 8(b) TSCA 12(b) DSL NDSL

Doxorubicin hydrochloride - - -

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Doxorubicin HCl can result in myocardial damage, including acute left ventricular failure.

Target Organ Effects

Reproductive Hazard

No information available.

Mobility

No information available.

Persistence and degradability

No information available.

Disposal considerations

Do not empty into drains; dispose of this material and its container in a safe way.

End of Safety Data Sheet

U.S. Drug Enforcement Administration Information

This product does not contain any substances regulated under the DEA.

End of Safety Data Sheet

This material is not subject to regulation as a hazardous material for shipping.