Product Name: Doxorubicin

Chemical Properties

Product Name: Doxorubicin
Cas No.: 23214-92-8
M.Wt: 543.52
Formula: C27H29NO11
Synonyms: Adriamycin, Doxil, Adriablastin, Doxorubicinum, Myocet
Chemical Name: \((7S,9S)-7-[(2R,4S,5S,6S)-4-amino-5-hydroxy-6-methyloxan-2-yl]oxy-6,9,11-trihydroxy-9-(2-hydroxyacetyl)-4-methoxy-8,10-dihydro-7H-tet racene-5,12-dione\)
Canonical SMILES: CC1C(C(C(C(C(O1)OC2CC(CC3=C(C4=C(C(=C23)O)C(=O)C5=C(C4=O)C=C C=C5OC)O)(C(=O)CO)O)N)O
Solubility: \(\geq 27.2\text{mg/mL in DMSO}\)
Storage: Store at RT
General tips: For obtaining a higher solubility, please warm the tube at 37° C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20° C for several months.

Shopping Condition: Evaluation sample solution: ship with blue ice
All other available size: ship with RT, or blue ice upon request

Biological Activity

Targets: DNA Damage/DNA Repair
Pathways: Topoisomerase
Description: Doxorubicin is a semi-synthesized anticancer agent derived from bacterial culture. [1] It is an anthracycline antibiotic. It is been widely used in blood cancers, solid tumors and sarcomas.
Doxorubicin intercalates into DNA double strand and inhibits the progression of DNA topoisomerase II, stopping replication process. [2] Doxorubicin also induces histone eviction from open chromatin, causing DNA damage and epigenetic deregulation. [3] Doxorubicin is administrated intravenously. Approximately 75% of doxorubicin and its metabolites bind to plasma protein. Doxorubicin does not cross blood brain barrier. 50% of the drug is eliminated unchanged from the body mainly though bile excretion. The remaining undergoes one-electron reduction, two-electron reduction, and deglycosidation. The major metabolite is a potent membrane ion pump inhibitor, which is associated with cardiomyopathy. [4]

Reference:

Protocol

Cell experiment:

Cell lines MDA-MB-231 cells
Preparation method This compound is soluble in DMSO. General tips for obtaining a higher concentration: Please warm the tube at 37 °C for 10 minutes and/or shake it in the ultrasonic bath for a while. Stock solution can be stored below -20 °C for several months.
Reacting conditions 20 nM; 72 hrs
Applications In MDA-MB-231 cells, SH003 at 120 μg/mL with Doxorubicin at 20 nM showed a synergistic effect.

Animal experiment [3]:

Animal models Female athymic nude mice injected s.c. with MB231 cells
Dosage form 3 mg/kg/day; delivered intratumorly
Applications Doxorubicin in combination with adenoviral MnSOD (AdMnSOD) plus 1,3-bis(2-chloroethyl)-1-nitrosourea (BCNU) showed the greatest effect in decreasing the volumes of MB231 tumors and
prolonging survival of mice.

Other notes Please test the solubility of all compounds indoor, and the actual solubility may slightly differ with the theoretical value. This is caused by an experimental system error and it is normal.

Reference:

Product Citations

Caution

FOR RESEARCH PURPOSES ONLY.

NOT FOR HUMAN, VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

Specific storage and handling information for each product is indicated on the product datasheet. Most ApexBio products are stable under the recommended conditions. Products are sometimes shipped at a temperature that differs from the recommended storage temperature. Short-term storage of many products are stable in the short-term at temperatures that differ from that required for long-term storage. We ensure that the product is shipped under conditions that will maintain the quality of the reagents. Upon receipt of the product, follow the storage recommendations on the product data sheet.