Product Name: Chloroquine diphosphate

Revision Date: 6/30/2018

Product Data Sheet

Chemical Properties

Product Name: Chloroquine diphosphate
Cas No.: 50-63-5
M.Wt: 515.86
Formula: C18H26ClN3.2H3PO4
Synonyms: N/A
Chemical Name: 4-N-(7-chloroquinolin-4-yl)-1-N,1-N-diethylpentane-1,4-diamine; phosphoric acid
Canonical SMILES: CCN(CC)CCCC(C)NC1=C2C=CC(=CC2=NC=C1)Cl.OP(=O)(O)O.OP(=O)(O)O
Solubility: ≥106.06mg/mL in H2O
Storage: Desiccate 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: Ubiquitination/Proteasome
Pathways: Autophagy
Description:
Chloroquine diphosphate is used as an antimalarial drug and also functions to increase sensitivity of tumor cells to radiation and chemotherapy via inducing autophagy [1]. Chloroquine diphosphate has been reported as an adjuvant for radiation and chemotherapy for inducing cell autophagy to anti-cancer cells proliferation or metastasis [2]. The mechanism of chloroquine diphosphate inducing cells autophagy is arresting cells in G1, up-regulates the
expression of p27 and p53 while down-regulates the expression of CDK2 and cyclin D1 [3]. Apart from anti-malarial, chloroquine diphosphate also has long been reported functioning in cell apoptosis. Pretreated CNE-2 human nasopharyngeal carcinoma cells with chloroquine diphosphate enhanced ionizing radiation induced cell apoptosis via increasing cells autophagic ratio [4]. When treated with mouse breast cancer 4T1 cells, chloroquine diphosphate treatment inhibited cellular proliferation and viability which resulted in cells apoptosis in a time- and dose-dependent manner [2]. In human colon cancer DLD-1 cells, combination of 5-FU and chloroquine diphosphate could inhibit cells proliferation via inducing autophagy [3]. In mouse model with 4T1 cells subcutaneous xenograft, chloroquine diphosphate treatment significantly inhibited tumor growth and tumor cells metastasis to the lung, thus enhanced the mice survival [2]. In BALB/c mice injected with colon26 cells subcutaneously, chloroquine diphosphate cooperated with 5-FU significantly enhanced the inhibition of tumor growth induced by 5-FU through increasing the ratio of apoptotic cells [5].

Reference:

Protocol

Cell experiment:

Cell lines
Mouse breast cancer 4T1 cells

Preparation method
The solubility of this compound in DMSO is limited. 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

Applications
According to the results of the MTT assay, Chloroquine Diphosphate dose- and time-dependently inhibited proliferation of 4T1 cells.
Animal experiment [3]:

Animal models 4T1 tumor-bearing BALB/c mice

Dosage form 25 and 50 mg/kg; i.p.; q.d., for 28 days

Applications Chloroquine Diphosphate treatment at the doses of 25 and 50 mg/kg significantly reduced the rates of primary tumor growth. In addition, 30% and 60% of mice in the 25 and 50 mg/kg Chloroquine Diphosphate-treated groups still survived on 61st day.

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.