Product Data Sheet

Chemical Properties

Product Name: Beta-Lapachone

Cas No.: 4707-32-8
M.Wt: 242.27
Formula: C15H14O3

Chemical Name: 2,2-dimethyl-3,4-dihydrobenzo[h]chromene-5,6-dione

Canonical SMILES: CC1(CCC2=C(O1)C3=CC=CC3C(=O)C2=O)C

Solubility: ≥10.85mg/mL in DMSO

Storage: Store at -20°C

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:

Beta-Lapachone is an inhibitor of DNA topoisomerase I [1].
Beta-Lapachone is found to inhibit the activity of topoisomerase I in a DNA unwinding assay. It inhibits the relaxation at 1μM. The potency of beta-Lapachone can be increased when pretreating topoisomerase I with beta-Lapachone for 5 min at 37°C. Beta-Lapachone is selective
for topoisomerase I and shows no inhibition activity for topoisomerase II. Besides, beta-Lapachone is also proved to have no induction in topoisomerase I mediated DNA cleavage [1].

Beta-Lapachone has anti-tumor efficacy in a broad spectrum of human carcinoma cells. It induces cell death of AD2780s, HT-29, DLD, G480 and MCF-7 with IC50 values of 2μM, 5μM, 5μM, 4μM and 2μM, respectively. It is found that beta-Lapachone induces cell death of both apoptosis and necrosis through releasing cytochrome C. Beta-Lapachone is also reported to affect cell cycle. It induces primarily S-phase arrest in SW480 cells, late S- and G2/M-phase arrest in SW620 cells and early S-phase arrest in DLD1 cells [2, 3].

Reference:

Protocol

Cell experiment:

Cell lines
HL-60, PC-3, DU145 and LNCaP cells

Preparation method
The solubility of this compound in DMSO is > 10.85 mg/mL. 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
In H HL-60, PC-3, DU145 and LNCaP cells, Beta-Lapachone at the doses of 1 ~ 5 μM arrested cells in the G0/G1 phase of the cell cycle. Moreover, Beta-Lapachone induced apoptosis before or at the early stage of DNA synthesis, in a p53-independent manner. The mechanism of Beta-Lapachone-induced apoptosis might be through locking Topo I onto DNA and blocking replication fork movement.

Animal experiment [3]:

Animal models
Nude mice bearing human ovarian cancer 36M2 cells

Dosage form
25 ~ 50 mg/kg; i.p.

Applications
In nude mice bearing human ovarian cancer 36M2 cells,
Beta-Lapachone treatment (50 mg/kg) potently inhibited tumor growth. The combination of Beta-Lapachone and Taxol caused a synergistic induction of apoptosis. In addition, mice treated with both drugs appeared to be healthy without reduction in body weight. No gross abnormalities in internal organs were observed from autopsy as well.

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:

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. Shortterm 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.

ApexBio Technology

www.apexbt.com

7505 Fannin street, Suite 410, Houston, TX 77054.