Chemical Properties

Product Name: Camptothecin

Cas No.: 7689-03-4

M.Wt: 348.35

Formula: C20H16N2O4

Chemical Name: (S)-4-ethyl-4-hydroxy-1H-pyrano[3',4':6,7]indolizino[1,2-b]quinoline-3,14(4H,12H)-dione

Canonical SMILES: O=C(N(CC1=CC(C=CC=C2)=C2N=C13)C3=C4(C(CO5)=C4[C@@](O)(CC)C5)=O

Solubility: Limited solubility

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: Topoisomerase

Pathways: DNA Damage/DNA Repair >> Topoisomerase

Description: Camptothecin is a selective inhibitor of topoisomerase I with IC50 value of 679 nM [1]. Camptothecin could induce cell death in SMMC-7721, MCF-7, and HCT-116 tumor cells. Camptothecin has been reported to induce autophagy via AMPK-TSC2-mTOR pathway, at the mean time, induce premature senescence by ATM-Chk2-p53-p21 pathway [2].
Studies indicated that camptothecin had anti-tumor activity in (non-small cell lung cancer) NSCLC xenografts. Camptothecin -induced DNA damage has revealed to cause phosphorylation of H2AX (γH2AX). Previous studies have also demonstrated to reduce the expression of Top1 in cancer cells treated with camptothecins [3].

Reference:

Protocol

Cell experiment:

<table>
<thead>
<tr>
<th>Cell lines</th>
<th>HCT116 and RKO colorectal cancer (CRC) cells</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparation method</td>
<td>Limited solubility 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.</td>
</tr>
<tr>
<td>Reacting conditions</td>
<td>20 and 50 nM; 72 hrs</td>
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<tr>
<td>Applications</td>
<td>The low doses of Camptothecin for HCT116 and RKO CRC cells were 20 nM and 50 nM, respectively, both of which induced the least detectable cell death. Low-dose Camptothecin induced autophagy via AMPK-TSC2-mTOR pathway and premature senescence by ATM-Chk2-p53-p21 pathway.</td>
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</tbody>
</table>

Animal experiment [3]:

<table>
<thead>
<tr>
<th>Animal models</th>
<th>Nude mice bearing xenografts of CASE, SW48, DOY, SPA, and CLO cells</th>
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<tbody>
<tr>
<td>Dosage form</td>
<td>0 ~ 8 mg/kg; i.m. or i.v.; twice a week</td>
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<tr>
<td>Applications</td>
<td>In mice xenografts of various tumors, including colon, lung, breast, stomach and ovary tumors, Camptothecin treatment (8 mg/kg)</td>
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</tbody>
</table>
exhibited complete growth inhibition and regression.

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.