Oxaliplatin

Cat. No.: HY-17371
CAS No.: 61825-94-3
Molecular Formula: C₈H₁₄N₂O₄Pt
Molecular Weight: 397.29
Target: DNA Alkylator/Crosslinker; DNA/RNA Synthesis; Autophagy
Pathway: Cell Cycle/DNA Damage; Autophagy
Storage: 4°C, protect from light, stored under nitrogen

*S In solvent: -80°C, 6 months; -20°C, 1 month (protect from light, stored under nitrogen)

SOLVENT & SOLUBILITY

In Vitro

H₂O : 11 mg/mL (27.69 mM; ultrasonic and adjust pH to 2 with H₂O; DMSO can inactivate Oxaliplatin’s activity)
DMF : 4 mg/mL (10.07 mM; Need ultrasonic; DMSO can inactivate Oxaliplatin’s activity)
Ethanol : < 1 mg/mL (insoluble; DMSO can inactivate Oxaliplatin’s activity)

Preparing Stock Solutions

<table>
<thead>
<tr>
<th>Solvent</th>
<th>Mass Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 mg</td>
<td>2.5171 mL</td>
</tr>
<tr>
<td>5 mg</td>
<td>12.5853 mL</td>
</tr>
<tr>
<td>10 mg</td>
<td>25.1705 mL</td>
</tr>
<tr>
<td>1 mM</td>
<td>0.5034 mL</td>
</tr>
<tr>
<td>5 mM</td>
<td>2.5171 mL</td>
</tr>
<tr>
<td>10 mM</td>
<td>0.2517 mL</td>
</tr>
</tbody>
</table>

In Vivo

1. Add each solvent one by one: 5% w/v Glucose Solution

Solubility: 5 mg/mL (12.59 mM); Clear solution; Need ultrasonic and warming and heat to 50°C

BIOLOGICAL ACTIVITY

Description

Oxaliplatin is a DNA synthesis inhibitor. Oxaliplatin causes DNA crosslinking damage, prevents DNA replication and transcription and causes cell death. Oxaliplatin time-dependently inhibits human melanoma cell lines C32 and G361 with IC₅₀ values of 0.98 μM and 0.14 μM, respectively. Oxaliplatin induces cell autophagy[1][2].

IC₅₀ & Target

IC₅₀: DNA synthesis[1]

In Vitro

Oxaliplatin acts through the formation of DNA-adducts. Oxaliplatin induces primary and secondary DNA lesions leading to cell apoptosis[3]. Oxaliplatin inhibits human melanoma cell lines C32 and G361 with IC₅₀ values of 0.98 μM and 0.14 μM, respectively[2]. Oxaliplatin potently inhibits bladder carcinoma cell lines RT4 and TCCSUP, ovarian carcinoma cell line A2780, colon carcinoma cell line HT-29, glioblastoma cell lines U-373MG and U-87MG, and melanoma cell lines SK-MEL-2 and HT-144 with IC₅₀ of 11 μM, 15 μM, 0.17 μM, 0.97 μM, 2.95 μM, 17.6 μM, 30.9 μM and 7.85 μM, respectively[3].
**In Vivo**

Oxaliplatin (10 mg/kg, i.p.) significantly reduces tumor volume and apoptotic index in the nude mice bearing hepatocellular HCCLM3 tumors\(^4\). Oxaliplatin (5 mg/kg, i.v.) is effective on T-leukemia-lymphoma L40 AKR with T/C of 1.77. Oxaliplatin is efficient on intracerebrally grafted L1210 leukemia, MA 16-C xenografts, B16 melanoma xenografts, Lewis lung xenografts and C26 colon carcinoma xenografts\(^5\). Oxaliplatin induces impairment of retrograde neuronal transport in mice\(^6\).

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**PROTOCOL**

**Cell Assay**\(^3\)

Typically, cells are plated into 96-well plates on day 0 and exposed to Oxaliplatin on day 1; the sulforhodamine-B assay is carried out 48 h after Oxaliplatin exposure. The plates are incubated at 37°C in 5% CO\(_2\) and 100% relative humidity at all times except when adding Oxaliplatin and during the final assay period. The initial number of cells plated for the assay ranged from 2-20×10\(^3\) cells/50/nL/well. The numbers of cells for plating and the drug exposure time are based on pilot studies using the criteria that (a) the cells in control wells are still in the log phase of growth on the day of the assay; (b) the maximum absorbance for the untreated controls on the day of the assay is in the range of 1.0 to 1.5; and (c) cells go through >2 doublings during the drug exposure. Eight wells are used per concentration. The plates are read at 570 and/or 540 nm using a Biotek Instruments model EL309 microplate reader interfaced with an IBM PC-compatible computer.

**Animal Administration**\(^4\)

HCC tumor models produced by HCCLM3 are established in nude mice by subcutaneous injection of 5×10\(^5\) HCCLM3 cells in 0.2 mL of serum-free culture medium into the left upper flank region. Three days later, the mice are randomly assigned to receive one of the following three treatments: i) a weekly intraperitoneal (i.p.) injection of distilled water (control group, n=8); ii) a weekly i.p. injection of oxaliplatin at 5 mg/kg (low dose group, n=7); or iii) a weekly i.p. injection of oxaliplatin at 10 mg/kg (high dose group, n=7). Tumor growth is monitored by measuring two bisecting diameters of each tumor with a caliper every 5 days. The tumor volume is calculated using the formula \(V=\frac{a \times b^2}{2}\), with \(a\) as the larger diameter and \(b\) as the smaller diameter. Mice are euthanized by day 32 after oxaliplatin administration. Tumors of each group are completely removed, weighed, photographed, and fixed in 10% formalin/PBS or stored in liquid nitrogen for histological examination.

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**CUSTOMER VALIDATION**

- Proc Natl Acad Sci U S A. 2017 Mar 7;114(10):E1825-E1832.

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**REFERENCES**


