Hydroxyurea

Cat. No.: HY-B0313
CAS No.: 127-07-1
Molecular Formula: CH₄N₂O₂
Molecular Weight: 76.05
Target: DNA/RNA Synthesis; Autophagy; Apoptosis; HIV
Pathway: Cell Cycle/DNA Damage; Autophagy; Apoptosis; Anti-infection
Storage: Powder
  -20°C  3 years
  4°C    2 years
In solvent
  -80°C  6 months
  -20°C  1 month

SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (1314.92 mM; Need ultrasonic)
H₂O : 50 mg/mL (657.46 mM; Need ultrasonic)

<table>
<thead>
<tr>
<th>Preparing Stock Solutions</th>
<th>Mass Concentration</th>
<th>1 mg</th>
<th>5 mg</th>
<th>10 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 mM</td>
<td>13.1492 mL</td>
<td>65.7462 mL</td>
<td>131.4924 mL</td>
<td></td>
</tr>
<tr>
<td>5 mM</td>
<td>2.6298 mL</td>
<td>13.1492 mL</td>
<td>26.2985 mL</td>
<td></td>
</tr>
<tr>
<td>10 mM</td>
<td>1.3149 mL</td>
<td>6.5746 mL</td>
<td>13.1492 mL</td>
<td></td>
</tr>
</tbody>
</table>

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (32.87 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (32.87 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (32.87 mM); Clear solution

BIOLOGICAL ACTIVITY

Description
Hydroxyurea is a cell apoptosis inducer that inhibit DNA synthesis through inhibition of ribonucleotide reductase.

In Vitro
Hydroxyurea is used in a number of myeloproliferative, neoplastic, HIV, and non-hematological diseases[1]. Treatment of cells in primary culture with 30 μM hydroxyurea for 96 hours significantly increases the fractional HbF content. The Gγ: Aγ-globin mRNA is induced 0.30- to 8-fold in vitro[2]. Hydroxyurea has been shown to block HIV-1 reverse
transcription and/or replication in quiescent peripheral blood mononuclear cells and macrophages[3].

### In Vivo

Hydroxyurea therapy produces consistent reductions in WBC and ANC without improvement in anemia over 17 weeks. Hydroxyurea at 50mg/kg produces a reduced white blood cell count, absolute neutrophil count and no improvement in anemia compared to vehicle treated sickle cell mice[4].

### PROTOCOL

**Animal Administration**[4]

Mice: To determine whether hydroxyurea would improve anemia and/or prevent or diminish the development of organ damage in the absence of HbF induction, hydroxyurea, at doses of 25 mg/kg, 50 mg/kg, and 100 mg/kg, or vehicle is administered five days per week to SCD mice[4].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

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### REFERENCES


