GNE-781

Cat. No.: HY-108696
CAS No.: 1936422-33-1
Molecular Formula: C₂₇H₃₃F₂N₇O₂
Molecular Weight: 525.59
Target: Epigenetic Reader Domain; Histone Acetyltransferase
Pathway: Epigenetics
Storage: -20°C, stored under nitrogen
* In solvent : -80°C, 6 months; -20°C, 1 month (stored under nitrogen)

SOLVENT & SOLUBILITY

In Vitro

DMSO: 100 mg/mL (190.26 mM; Need ultrasonic)

<table>
<thead>
<tr>
<th>Solvent Concentration</th>
<th>Mass (mg/mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 mM</td>
<td>1.9026 mL</td>
</tr>
<tr>
<td>5 mM</td>
<td>9.5131 mL</td>
</tr>
<tr>
<td>10 mM</td>
<td>19.0262 mL</td>
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</tbody>
</table>

Preparing Stock Solutions

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<td>1 mM</td>
<td>1.9026 mL</td>
<td>9.5131 mL</td>
<td>19.0262 mL</td>
</tr>
<tr>
<td>5 mM</td>
<td>0.3805 mL</td>
<td>1.9026 mL</td>
<td>3.8052 mL</td>
</tr>
<tr>
<td>10 mM</td>
<td>0.1903 mL</td>
<td>0.9513 mL</td>
<td>1.9026 mL</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: ≥ 1.67 mg/mL (3.18 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 1.67 mg/mL (3.18 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 1.67 mg/mL (3.18 mM); Clear solution

BIOLOGICAL ACTIVITY

Description
GNE-781 is an orally active, highly potent and selective CBP inhibitor with an IC₅₀ of 0.94 nM in TR-FRET assay. GNE-781 also inhibits BRET and BRD4(1) with IC₅₀S of 6.2 nM and 5100 nM, respectively. GNE-781 displays antitumor activity in an MOLM-16 AML xenograft model[1].

IC₅₀ & Target
IC₅₀: 0.94 nM (CBP), 6.2 nM (BRET), 5100 nM (BRD4(1))[1]

In Vitro
GNE-781 is a highly advanced potent and selective bromodomain inhibitor of cyclic adenosine monophosphate response element binding protein, binding protein (CBP). GNE-781 reduces FOXP3 (forkhead box P3) transcript levels.
Examination of a subset of bromodomains reveals that GNE-781 is exquisitely selective for CBP/P300 and is remarkably selective for CBP (5425-fold) and P300 (4250-fold). GNE-781 demonstrates an appropriate balance of cell potency, selectivity (5425-fold over BRD4(1)) [1].

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

In Vivo

GNE-781 (3-30 mg/kg; p.o.; twice daily for 21 days) has tumor growth inhibition (%TGI) is 73%, 71%, and 89% at 3, 10, and 30 mg/kg, respectively in SCID beige mice with MOLM-16 AML xenografts[1]. GNE-781 decreases Foxp3 transcript levels in a dose dependent manner. GNE-781 (3-30 mg/kg) suppresses MYC at doses as low as 3 mg/kg at 2 and 8 h, with maximal suppression at 10 and 30 mg/kg at 2 h (87% and 88% inhibition, respectively)[1].

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PROTOCOL

Animal Administration [1]

Mice[1]  
Twelve female CD-1 mice are used. All animals are 6-9 weeks old at the time of study and weighed between 20 and 35 g. Animals (n=3 per dosing route) are dosed with 10 or GNE-781 at 1 mg/kg iv (in propyl ethylene glycol 400 (35% v/v) and water (65% v/v)) or 5 mg/kg po (suspended in 0.5% w/v methylcellulose, 0.2% w/v Tween 80). Food and water are available ad libitum to all animals. Serial blood samples (15 μL) are collected by tail nick at 0.033, 0.083, 0.25, 0.5, 1, 3, 8, and 24 h after the intravenous administration and 0.083, 0.25, 0.5, 1, 3, 8, and 24 h after the oral administration. All blood samples are diluted with 60 μL of water containing 1.7 mg/mL EDTA and kept at -80 °C until analysis[1].

Rats[1]  
Twelve male Sprague-Dawley rats are used. All animals are 6-9 weeks old at the time of study and weighed between 200 and 300 g. Animals (n=3 per dosing route) are dosed with 10 or GNE-781 at 1 mg/kg iv (in propyl ethylene glycol 400 (35% v/v) and water (65% v/v)) or 5 mg/kg po (suspended in 0.5% w/v methylcellulose, 0.2% w/v Tween 80). Food and water are available ad libitum to animals in the iv groups. Animals in po groups are fasted overnight and food withheld until 4 h postdose. Approximately 250 μL of blood are collected via the catheter at 0.033, 0.083, 0.25, 0.5, 1, 2, 4, 8, and 24 h after the intravenous or oral administration. All blood samples are collected into tubes containing 5 μL of 0.5 M K₂EDTA and processed for plasma. Samples are centrifuged (2500g for 15 min at 4°C) within 1 h of collection, and plasma samples are kept at -80 °C until analysis[1].

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REFERENCES


Caution: Product has not been fully validated for medical applications. For research use only.

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