ACY-738

Cat. No.: HY-19327
CAS No.: 1375465-91-0
Molecular Formula: C₁₄H₁₄N₄O₂
Molecular Weight: 270.29
Target: HDAC
Pathway: Cell Cycle/DNA Damage; Epigenetics
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 : ≥ 32 mg/mL (118.39 mM)
*a “≥” means soluble, but saturation unknown.*

Preparing Stock Solutions

<table>
<thead>
<tr>
<th>Solvent Concentration</th>
<th>Mass 1 mg</th>
<th>Mass 5 mg</th>
<th>Mass 10 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 mM</td>
<td>3.6997 mL</td>
<td>18.4986 mL</td>
<td>36.9973 mL</td>
</tr>
<tr>
<td>5 mM</td>
<td>0.7399 mL</td>
<td>3.6997 mL</td>
<td>7.3995 mL</td>
</tr>
<tr>
<td>10 mM</td>
<td>0.3700 mL</td>
<td>1.8499 mL</td>
<td>3.6997 mL</td>
</tr>
</tbody>
</table>

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

BIOLGICAL ACTIVITY

Description ACY-738 is a potent, selective and orally-bioavailable HDAC6 inhibitor, with an IC₅₀ of 1.7 nM; ACY-738 also inhibits HDAC1, HDAC2, and HDAC3, with IC₅₀s of 94, 128, and 218 nM.

IC₅₀ & Target

<table>
<thead>
<tr>
<th>IC₅₀ &amp; Target</th>
<th>HDAC6 1.7 nM (IC₅₀)</th>
<th>HDAC1 94 nM (IC₅₀)</th>
<th>HDAC2 128 nM (IC₅₀)</th>
<th>HDAC3 218 nM (IC₅₀)</th>
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</table>

In Vitro ACY-738 (2.5 μM) increases the acetylated (lysine 40) fraction of α-tubulin in RN46A-B14 cells[1]. ACY-738 (10 μM) induces cell death comparable to LBH589 and FK228[3].

In Vivo ACY-738 (5 mg/kg) leads to significant increase in α-tubulin acetylation in whole-brain lysates. ACY-738 (50 mg/kg) fails to produce an enhancement of locomotor activity in WT mice tested in a home cage environment[1]. ACY-738 (5 mg/kg) reaches a maximum plasma concentration of 1310 ng/mL at 0.0830 h following treatment. ACY-738 (5 mg/kg BW) alters BM B cell differentiation, but shows no significant effect on IgG and C3 deposition in NZB/W mice. ACY-
ACY-738 (20 mg/kg) significantly attenuates the severity of proteinuria in NZB/W F1 mice. ACY-738 (5 mg/kg) shows a significant decrease in anti-dsDNA production in NZB/W mice as they aged. ACY-738 (5, 20 mg/kg) attenuates sera IL-1β production as the NZB/W mice aged. ACY-738 (5 mg/kg) significantly reduces glomerular IL-6 and IL-10 mRNA levels by more than 50% while treatment with 20 mg/kg ACY-738 reduced IL-6 and IL-10 mRNA to non-detectable levels[2].

**PROTOCOL**

**Animal Administration[2]**

Mice are injected i.p. 5 days/week with the vehicle control (DMSO), ACY-738 treatment at 5 mg/kg (low-dose), or ACY-738 treatment at 20 mg/kg (high-dose) beginning at 22-weeks-of-age until euthanasia at 38 weeks-of-age. The total volume injected is 80 μL. Proteinuria and weight are measured every 2 weeks and blood is collected every four weeks for sera analysis. Proteinuria is measured by a standard semi-quantitative test using Siemens Uristix dipsticks. Results are quantified and scored as follows: dipstick reading of 0 mg/dL = 0, trace = 1, 30-100 mg/dL = 2, 100-300 mg/dL = 3, 300-2000 mg/dL = 4, and 2000 + mg/dL = 5[2].

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

**REFERENCES**


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

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