**LMK-235**

**Cat. No.:** HY-18998  
**CAS No.:** 1418033-25-6  
**Molecular Formula:** C₁₅H₂₂N₂O₄  
**Molecular Weight:** 294.35  
**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

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**SOLVENT & SOLUBILITY**

**In Vitro**
DMSO: $\geq 30$ mg/mL (101.92 mM)  
*"$\geq$" means soluble, but saturation unknown.*

<table>
<thead>
<tr>
<th>Preparing Stock Solutions</th>
<th>Solvent Concentration</th>
<th>Mass (mL)</th>
<th>1 mg</th>
<th>5 mg</th>
<th>10 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 mM</td>
<td>3.3973 mL</td>
<td>16.9866 mL</td>
<td>33.9732 mL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 mM</td>
<td>0.6795 mL</td>
<td>3.3973 mL</td>
<td>6.7946 mL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 mM</td>
<td>0.3397 mL</td>
<td>1.6987 mL</td>
<td>3.3973 mL</td>
<td></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: $\geq 2.08$ mg/mL (7.07 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)  
   Solubility: $\geq 2.08$ mg/mL (7.07 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil  
   Solubility: $\geq 2.08$ mg/mL (7.07 mM); Clear solution

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**BIOLOGICAL ACTIVITY**

**Description**
LMK-235 is a potent and selective HDAC4/5 inhibitor, inhibits HDAC5, HDAC4, HDAC6, HDAC1, HDAC2, HDAC11 and HDAC8, with IC₅₀ of 4.22 nM, 11.9 nM, 55.7 nM, 320 nM, 881 nM, 852 nM and 1278 nM, respectively, and is used in cancer research.

**IC₅₀ & Target**
IC₅₀: 4.22 nM (HDAC5), 11.9 nM (HDAC4), 55.7 nM (HDAC6), 320 nM (HDAC1), 881 nM (HDAC2), 852 nM (HDAC11), 1278 nM (HDAC8)\(^1\)

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\(^1\) Product Data Sheet
**In Vitro**

LMK-235 shows cytotoxic activity against human ovarian cancer cell lines A2780 and A2780 CisR, with IC\textsubscript{50}s of 0.49 \(\mu\)M and 0.32 \(\mu\)M, respectively. LMK-235 inhibits HDAC in A2780 and A2780 CisR cell lines, with IC\textsubscript{50}s of 0.65 \(\mu\)M and 0.32 \(\mu\)M, respectively. LMK-235 produces a higher reduction in cell viability in comparison to the combination of cisplatin and vorinostat in all cell lines\[1\]. LMK-235 (0, 0.625, 1.25, 2.5, 5, 10, and 20 \(\mu\)M) reduces the proliferation of BC cells in a dose- and time-dependent manner. LMK-235 (0-800 nM) also inhibits the growth of BC cells. Moreover, LMK-235 synergizes with bortezomib in BC cell lines\[2\]. LMK235 (2, 20 nM) decreases in HDAC4 nuclear accumulation in Cdkl5-/-Y NPCs, completely restores the reduced number of neurons generated from Cdkl5-/-Y NPCs. LMK235 also restores histone 3 acetylation in Cdkl5-/-Y NPCs. LMK235 causes a notable increase in the isoform IV, but does not affect BDNF isoforms I or II\[3\].

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

**In Vivo**

LMK235 (5 and 20 mg/kg) restores survival and maturation of postmitotic granule neurons in Cdkl5-/-Y mice. LMK235 also restores synapse development in the dentate gyrus and hippocampus of Cdkl5-/-Y mice. Furthermore, LMK235 restores hippocampus-dependent learning and memory in Cdkl5-/-Y mice\[3\].

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**PROTOCOL**

**Cell Assay**\[1\]

The rate of cell survival under the action of test substances is evaluated by an improved MTT assay. The assay is based on the ability of viable cells to metabolize yellow 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) to violet formazan that can be detected spectrophotometrically. In brief, A2780, Cal27, Kyse510, and MDA-MB-231 cell lines are seeded at a density of 5000, 7000, 8000, and 10 000 cells/well in 96-well plates. After 24 h, cells are exposed to increased concentrations of the test compounds. Incubation is ended after 72 h, and cell survival is determined by addition of MTT solution (5 mg/mL in phosphate buffered saline). The formazan precipitate is dissolved in DMSO. Absorbance is measured at 544 and 690 nm in a FLUOstar microplate reader\[1\].

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

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**CUSTOMER VALIDATION**

- Cancer Biol Ther. 2018;19(9):825-834.

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**REFERENCES**


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

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