TD-198946

**Cat. No.:** HY-15642  
**CAS No.:** 364762-86-7  
**Molecular Formula:** C₂₇H₂₂N₄O₃S  
**Molecular Weight:** 482.55  
**Target:** Others  
**Pathway:** Others  
**Storage:**  
<table>
<thead>
<tr>
<th>Condition</th>
<th>Temp</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Powder</td>
<td>-20°C</td>
<td>3 years</td>
</tr>
<tr>
<td></td>
<td>4°C</td>
<td>2 years</td>
</tr>
<tr>
<td>In solvent</td>
<td>-80°C</td>
<td>6 months</td>
</tr>
<tr>
<td></td>
<td>-20°C</td>
<td>1 month</td>
</tr>
</tbody>
</table>

**SOLVENT & SOLUBILITY**

**In Vitro**  
DMSO: ≥ 28 mg/mL (58.03 mM)  
*“≥” means soluble, but saturation unknown.*

<table>
<thead>
<tr>
<th>Preparing Stock Solutions</th>
<th>Solvent Concentration</th>
<th>Mass 1 mg</th>
<th>Mass 5 mg</th>
<th>Mass 10 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 mM</td>
<td>2.0723 mL</td>
<td>10.3616 mL</td>
<td>20.7232 mL</td>
</tr>
<tr>
<td></td>
<td>5 mM</td>
<td>0.4145 mL</td>
<td>2.0723 mL</td>
<td>4.1446 mL</td>
</tr>
<tr>
<td></td>
<td>10 mM</td>
<td>0.2072 mL</td>
<td>1.0362 mL</td>
<td>2.0723 mL</td>
</tr>
</tbody>
</table>

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

**BIOLICAL ACTIVITY**

**Description**  
TD-198946, a thienoindazole derivative, is a potent chondrogenic agent.

**In Vitro**  
TD-198946 is a potent chondrogenic agent. TD-198946 strongly induces chondrogenic differentiation without promoting hypertrophy in cell and metatarsal organ cultures. TD-198946 induces stronger Col2a1 promoter activity than insulin in ATDC5 cells. In C3H10T1/2 cells, ATDC5 cells and primary mouse chondrocytes, TD-198946 dose-dependently stimulates endogenous expression of the chondrocyte markers Col2a1 and Acan, with maximum effects around 1-10 μM[1].

**In Vivo**  
When administered directly into the joint space, TD-198946 successfully prevents and repaires degeneration of the articular cartilage. TD-198946 exerts its effect through the regulation of Runx1 expression, which is downregulated in both mouse and human OA cartilage compared with normal tissue[1]. TD-198946 has disease-modifying effects on progressed osteoarthritis. TD-198946 may prevent the progression of osteoarthritis by acting on the remaining chondrocytes rather than repairing damaged cartilage, it may be most effective as a therapeutic during the early or...
middle stages of osteoarthritis, before the articular cartilage is fully eroded\(^2\). Cartilaginous cell-sheets are generated by culturing mouse and canine costal chondrocytes and human mesenchymal stem cells with TD-198946 on temperature-responsive dishes. The transplanted cell-sheets are then successfully used to promote the reconstruction of permanent cartilage, with no evidence of chondrocyte hypertrophy in the knee articular cartilage defects created in mice and canines\(^3\).

**PROTOCOL**

**Animal Administration**\(^1\)

Mice: Each of the prevention and repair models had two groups: (1) TD-198946-treated animals and (2) saline-treated animals. In all the mice tested the left knee joints underwent the operation and the right knee joints are sham-operated. Mice are re-anaesthetised and given a 10 µL intra-articular injection of TD-198946 or saline immediately after surgery (prevention model) or 4 weeks following surgery (repair model) every 5 days for 8 or 4 weeks, respectively\(^1\).

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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