Teriparatide

Cat. No.: HY-P0059
CAS No.: 52232-67-4
Molecular Formula: C₁₈₁H₂₉₁N₅₅O₅₁S₂
Molecular Weight: 4117.72
Target: Others
Pathway: Others
Storage: Powder -80°C 2 years
-20°C 1 year
In solvent -80°C 6 months
-20°C 1 month

Solvent & Solubility

In Vitro

H₂O : ≥ 50 mg/mL (12.14 mM)
* “≥” 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>0.2429 mL</td>
<td>1.2143 mL</td>
<td>2.4285 mL</td>
</tr>
<tr>
<td>5 mM</td>
<td>0.0486 mL</td>
<td>0.2429 mL</td>
<td>0.4857 mL</td>
</tr>
<tr>
<td>10 mM</td>
<td>0.0243 mL</td>
<td>0.1214 mL</td>
<td>0.2429 mL</td>
</tr>
</tbody>
</table>

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

BIOLOGICAL ACTIVITY

Description

IC₅₀ & Target
IC₅₀: 2 nM (PTH)[1].

In Vivo
Trabecular bone calcium and dry weight of the distal femur increased significantly in Teriparatide-treated animals. The increase in trabecular calcium compared with vehicle control occurred as early as 1 week after initiation of treatment with a 35% and 45% increase, respectively, for 10 μg/kg and 40 μg/kg Teriparatide. Similar results were observed for trabecular dry weight. After 4 weeks of treatment with 10 mg/kg or 40 mg/kg Teriparatide, trabecular calcium increased significantly by 70% and 123%, respectively, compared with the vehicle and by 73%[1]. The 4-week Teriparatide administration increase the pore ratio, number, and density as well as the cortical area, thickness, and bone mineral content (BMC), without significant influencing the volumetric bone mineral density (BMD). The 4-week Teriparatide administration + 8-week vehicle administration decrease the pore ratio, number, and
density as well as the cortical area and thickness, compared with the 4-week Teriparatide administration, but the pore ratio, cortical area, and thickness are still higher compared with the 12-week vehicle administration. The 4-week Teriparatide administration + 8-week higher-dose IBN administration increase the cortical area, thickness, BMC, and volumetric BMD and decrease the pore ratio, but not the pore number or density, compared with the 4-week Teriparatide administration + 8-week vehicle administration[2].

PROTOCOL

Animal Administration[1][2]

Rats[1]

Teriparatide is administered daily to 4-week-old male rats for 1, 2, or 4 weeks with different concentrations (10, 40 μg/kg). At each time point, longitudinal growth, expressed as maximal femur length, is not statistically different between treated and control rats or between the two different treatment groups. Midfemur diaphyseal widths also do not differ between groups[1].

Rabbits[2]

Forty-two female New Zealand white rabbits (17-21 weeks old) are used throughout the study. After 10 days of adaptation to their new environment, the rabbits (18-22 weeks old) are randomized into six groups of 7 animals each using the stratified weight method, as follows: 4-week vehicle administration group (4W-Veh), 4-week Teriparatide (TPTD) administration group (4W-Teriparatide: 20 μg/kg, subcutaneously [s.c.] daily), 12-week vehicle administration group (12W-Veh), 4-week Teriparatide administration + 8-week vehicle administration group (4W-Teriparatide + 8W-Veh), 4-week Teriparatide administration + 8-week lower-dose IBN administration group (4W-Teriparatide + 8W-IBN(L): 20 μg/kg of IBN, s.c., every 4 weeks), and 4-week Teriparatide administration + 8-week higher-dose IBN administration group (4W-Teriparatide + 8W-IBN(H): 100 μg/kg of IBN, s.c., every 4 weeks)[2].

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

REFERENCES
