Cannabinoids and Bone: Friend or Foe?

Aymen Idris MSc. PhD.

Institute of Genetics and Molecular Medicine
University of Edinburgh
Adult mice lacking CB1 receptors have high peak trabecular bone mass

Adult mice lacking CB1 receptors have low osteoclast number

Bone marrow cultures from CB1 knockout mice have low number of osteoclasts.

Bone marrow stem cells → Osteoclast precursors → M-CSF → RANK-L → Osteoclast count

**Osteoclast Number**

<table>
<thead>
<tr>
<th>Osteoclast count</th>
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<tbody>
<tr>
<td>500</td>
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<tr>
<td>400</td>
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<td>300</td>
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<td>200</td>
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wt CB1 KO

Cannabinoid receptor blockers inhibit osteoclast formation, polarization and bone resorption

Anandamide (CB1 activator)

AM251 (CB1 blocker)

TRAcP
Actin-rings
Resorption

control
vehicle
vehicle

Anandamide (CB1 activator)

AM251 (CB1 blocker)

AM251 (CB1 blocker)

AM251 (CB1 blocker)

CB1 knockout mice from CD1 backgrounds are protected against ovariectomy-induced bone loss

Cannabinoid receptor blockers prevent bone loss following ovariectomy in mice

Cannabinoid receptor blockers prevent bone loss following ovariectomy in mice

Bone volume

Osteoclast number

Resorption area

Sham Ovariectomy Ovariectomy AM251 CB1 blocker

Blocking cannabinoid receptors on the skeleton:

*less osteoclast*

*less bone destruction*

*High bone mass & protection from bone loss*