CRI Scientists Discover New Bone-Forming Growth Factor That Reverses Osteoporosis In Mice

A team of scientists at the Children's Medical Center Research Institute at UT Southwestern (CRI) discovered a new bone-forming growth factor, Osteolectin (Clec11a), which reverses osteoporosis in mice and has implications for regenerative medicine.

Background

Osteoporosis

Characterized By

Increased fracture risk

Decreased bone mass

Treatment Options

Antiresorptive agents and estrogen reduce the rate of bone loss.

Teriparatide (PTH) is the only agent approved to promote new bone growth.

Two-year limit due to risk of osteosarcoma (bone cancer).

Osteolectin

Certain bone marrow and bone cells make Osteolectin.

The Study

CRI researchers conducted three experiments to discover the role of Osteolectin (1 and 2) and determine whether treatment with Osteolectin could reverse bone loss due to osteoporosis (3).

1. Human bone marrow stromal stem cells transplanted into mice.

2. Osteolectin gene deleted in mice.

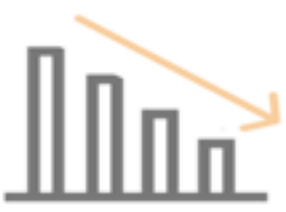
3. Mice were treated with Osteolectin or placebo.

3. Osteolectin deficent mice were treated with Osteolectin or PTH.

The Results

1. *Osteolectin promotes the formation of new bone from skeletal stem cells in the bone marrow in vivo.*

2. *Deletion of Osteolectin causes bone loss and symptoms of osteoporosis.*



3. *Osteolectin-treated mice had significantly increased bone growth vs untreated mice.*

Osteolectin

- Potential application as therapeutic treatment for osteoporosis.
- Future applications in regenerative medicine.

CHILDREN'S MEDICAL CENTER
RESEARCH INSTITUTE
AT UT SOUTHWESTERN

Learn more about CRI: http://cri.utsw.edu