Method of Treating Osteoporosis using Vessel Dilator

Researchers at the University of South Florida have developed a novel method for the treatment of skeletal dysplasias by using vessel dilator. They have discovered that cardiac hormone vessel dilator can be utilized to stimulate the proliferation of osteoblasts thereby aiding in the treatment of achondroplasia, short stature and osteoporosis.

One in 26,000 births results in achondroplasia, a common cause of dwarfism caused by an autosomal dominant genetic disorder. Osteoporosis is a common disease in adults with current treatments such as bisphosphonates, parathyroid hormone, calcitonin and 1, 25-dihydroxy vitamin D all working via inhibiting osteoclasts. Current treatment for osteoporosis inhibits the activity of osteoclasts, preventing break-down of old bone. Stimulating osteoblasts for the formation of new healthy bone would be a beneficial advance in the treatment of osteoporosis.

Our researchers have discovered that the cardiac hormone vessel dilator stimulated the proliferation of osteoblasts, which results in the formation of new bone. Vessel dilator exhibited biologic effects 12 times longer than C-type natriuretic peptide in human osteoblasts. These unique findings for cardiac hormone vessel dilator are useful for the treatment of achondroplastic dwarfs and other skeletal dysplasias. Examples of skeletal disorders that are treatable with the present invention include achondroplasia skeletal dysplasias and other dysplasias, short stature, osteopenia, osteoporosis, osteomalacia, hypoparathyroidism, tumor associated osteomalacia, rickets, osteogenesis imperfecta, osteitis fibrosa cystic secondary to hyperparathyroidism, Paget’s Disease, and osteitis deformans, short stature, and osteoporosis.

This technology provides a novel and efficient treatment strategy for treatment of various skeletal dysplasias and is directly applicable to the field of medicine.

ADVANTAGES:

- Novel treatment for skeletal dysplasias and various skeletal disorders such as osteoporosis
- Stimulates osteoblasts to form new healthy bone

Stimulation of Osteoblasts Using Vessel Dilator

Figure: Vessel dilator enhanced the proliferation of human osteoblasts over a concentration range of 10 nM to 10 pM (p<0.01 or less) when evaluated by Mann-Whitley test. The 100 pM and 10 pM concentrations in the figure are in the circulating physiologic range of vessel dilator.

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