How to build bone: Separate bone formation from bone destruction

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Treatments for osteoporosis (a disease characterized by reduced bone density, which leads to an increased risk of fracture) need to increase the amount and/or quality of bone. As bone formation is tightly coupled to bone destruction, researchers looking to develop new approaches to build bone in individuals with osteoporosis need to identify ways to separate the two processes. Natalie Sims and colleagues, at St. Vincent's Institute, Melbourne, Australia, have now identified one way to do this in mice.

In the study, the molecule oncostatin M (OSM) was found to induce distinct functions in mice upon binding to two different cell surface proteins. When OSM bound OSMR it stimulated the production of cells that destroy bone. Consistent with this, mice lacking OSMR were found to have increased bone density. However, when OSM bound LIFR it blocked production of a protein that inhibits bone formation.

Importantly, OSM acting via LIFR did not stimulate the production of cells that destroy bone. These data indicate the existence of a pathway by which bone formation can be stimulated independently of bone destruction.

More information: Oncostatin M promotes bone formation independently of resorption when signaling through leukemia inhibitory factor receptor in mice. View this article at: www.jci.org/articles/view/4056 … ac1b87b02dc3a7eb8e5a

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