

# Dual action polyclonal antibody may offer more effective, safer protection against osteoporosis

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A new study suggests that a polyclonal antibody that blocks follicle-stimulating hormone (FSH) in mice without ovaries might offer a more effective way to prevent or arrest osteoporosis than currently available treatments.

The study used a mouse model of menopause to show that an injection of a polyclonal antipeptide antibody enhances [bone regeneration](#) by simultaneously slowing [bone destruction](#) and building bone, say researchers at the Mount Sinai School of Medicine, New York. In addition, the monoclonal antibody is likely to be safer because it is cleared from the blood and is not retained in bone.

Results from the study are published online August 20 in the journal [Proceedings of the National Academy of Sciences](#).

"Bone loss in women begins very early, at least two to three years before a woman's last period and within eight to ten years, a woman will lose 50% of her lifetime bone loss," says the study's senior investigator, Mone Zaidi, MD, Professor of Medicine and of Structural and [Chemical Biology](#), at Mount Sinai School of Medicine in New York. "It occurs painlessly, without notice up to a point where women fracture."

Zaidi, who is director, of the Mount Sinai Bone Program, at Mount Sinai School of Medicine, New York, is the senior investigator of the research

that developed the polyclonal antipeptide antibody to FSH and tested it in mice whose ovaries were removed. Peptides are short chains of [amino acids](#), and the FSH antibody is a highly specific antibody.

"A few years ago, we showed that FSH [follicle stimulating hormone] directly regulates bone by bypassing the estrogen axis," says Zaidi. FSH rises early in menopause, stimulates bone removal and negatively regulates bone formation. "By blocking FSH with the FSH-specific polyclonal antibody, we were able to block [bone resorption](#) by osteoclasts [cells that break down bone] and stimulate bone formation through osteoblasts cells [cells that build bone]."

Zaidi summed up the research team's goal: "Our aim is to find a way to prevent osteoporosis rather than simply treat established disease using medicines that are well tolerated. We believe that a future humanized monoclonal antibody to FSH is likely to be safer than existing treatments because it will not reside in the bone."

Provided by The Mount Sinai Hospital

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