

New treatment aids weight loss, improves diabetes in monkeys

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But how it might work in humans remains to be seen.

(HealthDay)—A new, lab-created antibody that mimics the action of a naturally occurring molecule causes weight loss in monkeys, researchers report.

The engineered antibody also appears to improve [insulin sensitivity](#), which could fight [type 2 diabetes](#), and it decreases levels of [triglycerides](#), a blood fat that contributes to hardening of the [arteries](#).

"The results we describe in animal models are profound and very encouraging," said study senior author Yang Li, scientific director at [Amgen](#), Inc., in Thousand Oaks, Calif. "While we're excited about these findings, we're still evaluating the results."

Li said it's important to remember these findings were in monkeys and only in a preclinical setting. It's not yet clear how this treatment might act in humans.

The study was funded by Amgen, the developer of the new treatment. The findings are published in the Nov. 28 issue of *Science Translational Medicine*.

Obesity and its frequent companion, type 2 diabetes, are growing problems in the United

States that threaten to overwhelm the health care system if they continue to increase, according to the U.S. [Centers for Disease Control and Prevention](#). Obesity treatments generally aren't effective in the long term, and while medications are available for type 2 diabetes, many people with the disease aren't able to achieve blood sugar levels low enough to avoid complications, according to the [American Diabetes Association](#).

The current study began by looking at a molecule called fibroblast growth factor 21 (FGF21). This molecule has garnered a lot of research interest lately because it appears to have many positive effects on obesity and type 2 diabetes, according to the study.

In the body, FGF21 is induced during fasting or starvation. Scientists are still trying to understand how FGF21 causes beneficial changes, but suspect it may activate the less common but more metabolically active brown fat.

Developing FGF21 into a treatment is challenging, Li said, because the molecule isn't stable in the blood. That means any treatment developed from the natural protein might require frequent injections, he said.

In the current research, Li and his colleagues took a different approach. Instead of looking at FGF21, the researchers attempted to find other, more stable ways to activate the same pathways activated by FGF21.

The researchers engineered an alternative in the lab—an antibody called mimAb1. They tested the new antibody on 10 obese monkeys and compared them to another 10 obese monkeys in a control group.

The monkeys in the treatment group received two injections—one the first week and another the third week. Five to six weeks after the first injection the

monkeys had lost 10 percent of their body weight. The reductions in body weight were maintained at least nine weeks after the second injection.

What's more, the [weight loss](#) appeared to occur even without a significant reduction in calories, Li said.

In addition to weight loss and improved insulin sensitivity, the animals' abdominal circumference and body-mass index (BMI) decreased. BMI is a measure of body fat based on height and weight.

"When we tested mimAb1 in the [animal model](#), we saw a lot of beneficial changes. The results were quite encouraging," Li said. He added that they didn't see any significant side effects, including low [blood sugar levels](#).

Dr. Spyros Mezitis, an endocrinologist at Lenox Hill Hospital in New York City, said the study was well done, but it's very preliminary.

"There is promise here. This pathway has beneficial effects when turned on, and needs to be looked into further," Mezitis said. "We have to make sure it works the same way in humans, and that it's safe. This might take years to pan out."

He said it's also possible that although this particular treatment may not be the answer for human obesity or diabetes, it may provide more clues into the mechanisms behind these conditions.

More information: Read more about current ways to maintain a healthy weight from the [U.S. National Heart, Lung, and Blood Institute](#).

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