

New way to lose fat, keep the lean

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Researchers reporting in the February 3rd issue of *Cell Metabolism* may have a new way to trick the body into consuming more energy. The target in this case is an enzyme that indirectly controls the activity of what the researchers refer to as the "energy master switch." It boils down to this: When you give mice a chemical that blocks the function of the enzyme known as Fyn kinase, they almost immediately begin burning more fat.

"When there is an imbalance between what we eat and what we burn," the outcome is obesity, said Claire Bastie of the Albert Einstein College of Medicine and [Neuroscience](#). "And the problem of obesity is not going away. This is a new mechanism to help the body to burn extra energy."

Bastie's team earlier showed that mice lacking Fyn kinase altogether burn more fatty acids and expend more energy to become leaner. They also showed other metabolic improvements, including increased insulin sensitivity. Those effects were the result of higher levels of the master energy switch AMPK in their [fat](#) and [muscle tissue](#).

Those findings suggested that the enzyme might offer a useful target for a new kind of weight loss drug. Now, the researchers add support for that idea by showing that chemical inhibition of Fyn kinase with an [experimental drug](#) known only as SU6656 does have considerable metabolic benefits for mice. Ultimately, the animals appear to become increasingly fit as they lose fat and keep the lean.

The researchers further detailed exactly how the Fyn kinase works its

magic. It acts on another component of the energy pathway, which leads to a change in AMPK levels.

Bastie said that SU6656 itself isn't an ideal drug candidate for clinical trials of the approach in humans. That's because Fyn kinase and AMPK both have effects in the brain as well as in fat and muscle. Scientists would need a drug that hits those molecular players only where you wanted it to. "Our next goal is to design something extremely specific to muscle and adipose," Bastie said.

She said she wants to find out what Fyn kinase and AMPK are doing in the brain, where she suspects they may play some role in appetite control. She also wants to find out what normally controls Fyn [kinase](#) levels, noting that it may be a fatty acid or some other nutrient.

Provided by Cell Press

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