

# Mechanism that converts white fat to brown identified

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An international team of researchers led from Karolinska Institutet have, in experiments on mice, pinpointed a mechanism for the conversion of energy-storing white fat into energy-expending brown fat. The study is published in the *Journal of Experimental Medicine*.

Obesity is a major global health issue, affecting all age groups. Obesity increases the risk of several serious human diseases, including cardiovascular disease, type 2 diabetes and cancer. Despite this knowledge, effective drugs for the treatment of obesity and related metabolic disease are lacking.

Scientists differentiate between [white adipose tissue](#), which constitutes most human fat and which stores surplus energy, and [brown adipose tissue](#), which generates heat by consuming energy. One possible way of tackling potential obesity, suggest researchers, is to stimulate the conversion of parts of the [white fat](#) into brown.

## Stimulating the formation of blood vessels in white adipose tissue

In a new study conducted on obese mice, a research team led by Professor Yihai Cao Karolinska Institutet and their colleagues at the University of Connecticut and Qingdao University stimulated the formation of [blood vessels](#) in white adipose tissue by blocking the receptor molecule for a growth factor known as VEGFR1, an effect that

was achieved in one group of mice by means of a drug, and on another through genetic modification. The result was an increase in the conversion of white fat to brown, as well as a reduction in obesity and improved sensitivity to insulin.

"Our discoveries can hopefully help us to develop new drugs for the treatment of [obesity](#) and diabetes," says Yihai Cao, professor in vascular biology at the Department of Microbiology, Tumor and Cell Biology, Karolinska Institutet.

**More information:** Takahiro Seki et al. Ablation of endothelial VEGFR1 improves metabolic dysfunction by inducing adipose tissue browning, *The Journal of Experimental Medicine* (2018). [DOI: 10.1084/jem.20171012](#)

Provided by Karolinska Institutet

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