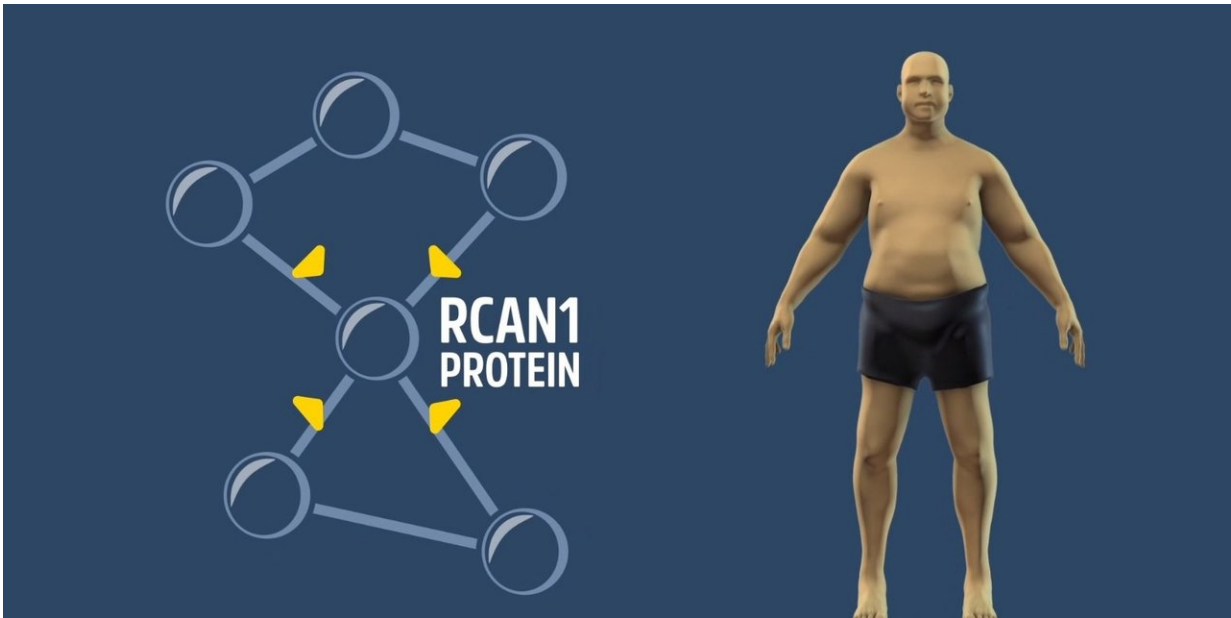


Gene that lets you eat as much as you want holds promise against obesity

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When a single gene known as RCAN1 was removed in mice and they were fed a high fat diet, they failed to gain weight, even after gorging on high fat foods for prolonged periods. The international team behind the study are hopeful a similar approach that inhibits this gene will also be effective with humans. Credit: Flinders University

It sounds too good to be true, but a novel approach that might allow you to eat as much food as you want without gaining weight could be a reality in the near future.

When a [single gene](#) known as RCAN1 was removed in mice and they were fed a [high fat diet](#), they failed to gain weight, even after gorging on high fat foods for prolonged periods.

The international team behind the study are hopeful a similar approach that inhibits this gene will also be effective with humans to combat obesity and serious diseases like diabetes.

Led by Professor Damien Keating at Flinders University, the study used a huge genetic screen in rodents to identify novel genetic candidates that may cause obesity, potentially paving the way for new drug therapies.

"We know a lot of people struggle to lose weight or even control their [weight](#) for a number of different reasons. The findings in this study could mean developing a pill which would target the function of RCAN1 and may result in [weight loss](#)," Professor Keating says.

Obesity is a major global health epidemic, resulting in increased risk of serious diseases like type 2 diabetes, and heart disease, but avenues for effective therapeutic treatments are lacking.

There are two types of fat in the [human body](#)- brown fat burns energy, while white fat stores energy.

Professor Keating says blocking RCAN1 helps to transform unhealthy white fat into healthy brown fat, presenting a potential treatment method in the fight against obesity.

"We have already developed a series of drugs that target the protein that this gene makes, and we are now in the process of testing them to see if they inhibit RCAN1 and whether they might represent potential new anti-obesity drugs,"

"In light of our results, the drugs we are developing to target RCAN1 would burn more calories while people are resting. It means the body would store less fat without the need for a person to reduce food consumption or exercise more."

Two thirds of Australian adults and a quarter of children are either overweight or obese, and the statistics are just as concerning in Britain and the US.

"We looked at a variety of different diets with various timespans from eight weeks up to six months, and in every case we saw health improvements in the absence of the RCAN1 gene."

The researchers say these findings open up a potentially simple treatment but further studies are required to determine if they translate the same results to humans.

"Our research is focused on understanding how cells send signals to each other and how this impacts health and the spread of disease".

"We really want to pursue this, it's exciting and we have research funding from the Australian government through the National Health and Medical Research Council to continue to explore viable options. These results show we can potentially make a real difference in the fight against [obesity](#)."

More information: David Rotter et al, Regulator of Calcineurin 1 helps coordinate whole-body metabolism and thermogenesis, *EMBO reports* (2018). [DOI: 10.15252/embr.201744706](https://doi.org/10.15252/embr.201744706)

Provided by Flinders University

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