

Home / Medical research
Home / Cancer



OCTOBER 22, 2018

Targeting a hunger hormone to treat obesity

by Catherine Cardinal, University of Montreal



Credit: CC0 Public Domain

About 64 per cent of Canadian adults are overweight or obese, according to Health Canada. That's a problem, because obesity promotes the emergence of chronic diseases such as type 2 diabetes, heart disease and some cancers.

Start connecting with your friends today.

Go to Facebook

To address the issue, researchers are trying to develop a pharmacological solution capable of interfering with the hormones behind weight gain. Those that regulate appetite are prime targets, including ghrelin.

By blocking the binding of ghrelin to its receptor with a drug, one could theoretically reduce a person's feeling of hunger.

But ghrelin and its receptor also stimulate gastrointestinal motility and secretion of growth hormone, as well as having an impact on mood and behavior – both undesirable side effects.

There is hope however:

With colleagues at the University of Copenhagen, Université de Montréal professor Michel Bouvier and his team at the Institute for Research in Immunology and Cancer have discovered a strategy to specifically tackle hunger.

Find a (path)way

In their study, published in the *Proceedings of the National Academy of Sciences*, the researchers identified that a particular signaling pathway downstream of the receptor, the one involving the Gαq/11 protein, was responsible for hunger.

By specifically blocking this signaling pathway without interfering with the others, a drug could therefore effectively fight obesity while limiting the side effects. Trouble is, this is only partially true.

The molecule YIL781, for instance, prevents some functions of the receptor, but not all of them. Instead of blocking the signaling pathway involving the Gαq/11 protein, it activates it instead, thereby stimulating hunger.

Researchers clearly demonstrated that it is this particular signaling pathway that allows the ghrelin receptor to stimulate hunger, using mice unable to produce the Gαq/11 protein in the cells of their hypothalamus.

The appetite of these mice remained unchanged when administered YIL781. On the other hand, normal mice ate three times more, on average.

Since it stimulates hunger, the drug YIL781 is unsuitable for treating obesity. However, this molecule has demonstrated that the ghrelin receptor can be partially turned on, providing hope for future research.

+ Explore further

Potential obesity treatment targets the two sides of appetite: Hunger and feeling full

More information: Franziska Mende et al. Translating biased signaling in the ghrelin receptor system into differential in vivo functions, *Proceedings of the National Academy of Sciences* (2018). DOI: 10.1073/pnas.1804003115

Provided by University of Montreal

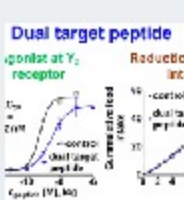
100 shares Facebook Twitter Email Feedback to editors

Start connecting with your friends today.

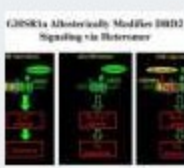
Go to Facebook



Related Stories



Potential obesity treatment targets the two sides of appetite: Hunger and feeling full
MAY 13, 2015



Appetite accomplice: Ghrelin receptor alters dopamine signaling
JAN 25, 2012



Appetite-controlling molecule could prevent 'rebound' weight gain after dieting
FEB 15, 2018



Blocking release of the hormone ghrelin may mediate low blood sugar effect
AUG 22, 2016

A new drug to help young patients with genetic obesity
MAY 09, 2018

We recommend

Two sets of neurons discovered that control thirst in mice
Editage, Editage Insights

Combining opioid peptides and Nav1.7 blockers can obstruct pain
Editage, Editage Insights

A new mitochondrial-derived hormone suppresses obesity and insulin resistance
Editage, Editage Insights

MRM Proteomics Collaborating With Exactis to Develop MALDI Assays for Guiding Cancer Treatment
Adam Bonislawski, 360Dx

Yangfei Kongliu Formula, a compound Chinese herbal medicine, combined with cisplatin, inhibits growth of lung cancer cells through transforming growth factor-β1 signaling pathway
Shui-je Shen et. al.-hong Zhang, Xiao-xia Gu, Shui-ju Jiang, Ling-jun Xu, Journal of Integrative Medicine

Clinical and experimental research in antituberculosis drug-induced hepatotoxicity: a review
Udhaya Lavinya Baskaran, Evan Prince Sabina, Journal of Integrative Medicine

Powered by TREND MD



User comments

Please sign in to add a comment. Registration is free, and takes less than a minute. [Read more](#)

Sign in [Forgot Password Registration](#)



Phys.org
Phys.org internet news portal provides the latest news on science



Tech Xplore
Tech Xplore covers the latest engineering, electronics and technology advances



ScienceX
Science X Network offers the most comprehensive sci-tech news coverage on the web

Newsletters

Subscribe

Science X Daily and the Weekly Email Newsletter are free features that allow you to receive your favorite sci-tech news updates in your email inbox

Follow us



- [Top](#)
[Home](#)
[Search](#)
[Mobile version](#)
- [Help](#)
[FAQ](#)
[About](#)
[Contact](#)
- [Science X Account](#)
[Sponsored Account](#)
[Newsletter](#)
[RSS feeds](#)
- [Android app](#)
[iOS app](#)
[Push notification](#)