

Scientists reveal new insight into tackling obesity

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Obesity has become one of the most significant challenges to human health. But now scientists at the University of Aberdeen Rowett Institute have discovered a tiny group of brain cells that could be harnessed to

tackle obesity according to a new study published in *Cell Metabolism*.

The team's research has seen them unlock the role of these cells in current and emerging obesity medications that mimic our brain chemical called serotonin.

Lead scientist, Professor Heisler, Chair in Human Nutrition, at the University of Aberdeen's Rowett Institute said: "We set out to discover how appetite is controlled and this led us to a particular part of the brain. This part of the brain is called the nucleus of the solitary tract and it is really important in vital functions that keep us alive, including integrating [food intake](#) information from our gut.

"In this crucial brain area, we found a small group of cells that control appetite.

"We used new sophisticated techniques that allowed us to turn on these cells with drugs, and by doing this, were able to reduce food intake.

"We then discovered that the new obesity medication Lorcaserin that is prescribed in the USA employs these cells to decrease food intake.

"We asked ourselves – how does it work? Since these cells are found in one of the two places in the brain that make important brain hormones called pro-opiomelanocortin (POMC) peptides that we already know are essential to regulate our appetite and body weight, we thought, maybe this is how this works and went on to test it.

"By turning POMC peptide production off only in this brain area, we found that POMC is key to these particular obesity drugs working effectively over the first few hours.

"And the other group of POMC cells plays a role in the medication's

effect after that.

"What these drugs do is spur POMC neurons into action, which mounts a relay of signals through the brain that let us know we have had enough to eat."

Professor Heisler continued: "Today, approximately 60 percent of people in the UK are overweight and 1 in 4 are clinically obese. Because obesity is linked to serious medical illnesses such as heart disease, cancer and diabetes, we urgently need to discover new strategies to tackle [obesity](#) to improve health in the group of people where diet and exercise alone have not been effective.

"Our discovery opens the door to new medications that could be developed to control [appetite](#) and improve health."

More information: Giuseppe D'Agostino et al. Nucleus of the Solitary Tract Serotonin 5-HT_{2C} Receptors Modulate Food Intake, *Cell Metabolism* (2018). [DOI: 10.1016/j.cmet.2018.07.017](https://doi.org/10.1016/j.cmet.2018.07.017)

Provided by University of Aberdeen

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