

New target receptor discovered in the fight against obesity

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This is an image of a weight scale. Credit: CDC/Debora Cartagena

The team of scientists from King's College London and Imperial College London tested a high-fat diet, containing a fermentable carbohydrate, and a control diet on mice and looked at the effect on food intake of those with and without the FFAR2 receptor.

The results showed that mice fed the diet containing fermentable

carbohydrate were protected against obesity. This protection was lost however, when the FFAR2 receptor was not present. Indeed, those with the receptor showed an increase of 130% in the satiety inducing gut hormone peptide YY, as well as an increased density of cells containing PYY, leading to an increased feeling of fullness.

Lead author of the study, Gavin Bewick from King's College London said: "Obesity is currently one of the most serious global threats to human health, determined by genetic background, diet, and lifestyle. We know that supplementing your diet with non-digestible carbohydrates reduce appetite and body weight gain, but in this study we demonstrate for the first time the essential role of the FFAR2 receptor in enabling specific dietary constituents to reduce [food intake](#) and protect against obesity.

"With this discovery, we can start to look at whether we can use diet or pharmaceutical means to change the cellular make-up of the gut in order to treat a host of disorders."

Professor Gary Frost, co-lead author from the Department of Medicine at Imperial said: "This a major step forward in understanding the relationship between [diet](#) and appetite regulation. Until a few years ago dietary fibre was a thought of as inert, and having very little effect on physiology. So the fact it actually has a major impact on cells that help control appetite regulation in the colon is amazing."

He added: "Our challenge now is to translate this into a technology that we can apply to humans. We need to understand how we can use the knowledge and insight gained to develop food systems that are attractive to a large percentage of the population."

The study is published in the *Nature Reviews Endocrinology*.

Provided by King's College London

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