

# Breakthrough in regulating fat metabolism

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Scientists at Warwick Medical School have made an important discovery about the mechanism controlling the body's 'fat switch', shedding new light on our understanding of how proteins regulate appetite control and insulin secretion.

This research, led by Professor Victor Zammit, Head of Metabolic and Vascular Health at Warwick Medical School, found that the enzyme known as 'Carnitine palmitoyltransferase 1A' (CPT1) has a switch which is thrown depending on the composition and curvature of its [cellular membrane](#). This is the first time such a mechanism has been described and may possibly be unique, reflecting the importance of this protein to [cellular function](#).

CPT1 is the key [protein](#) that regulates fatty acid oxidation in the liver and is critical for metabolism. Its activity determines whether individuals suffer from fatty liver in one extreme or ketosis in the other.

Professor Zammit explained: "Knowing that the CPT1 enzyme can switch and what controls it will ultimately lead to a better understanding of why some people appear to have a speedy metabolism and others struggle to curb their appetite.

"We are making great inroads to understanding the science behind our [metabolism](#) and how at [cellular level](#) it changes according to the influence of different factors – be they nutritional or hormonal."

The importance of this work on clinical practice is that, having

discovered the molecular mechanism, it should now be possible to design drugs that flick the switch of CPT1 in one way or the other, depending on the requirements of individual patients and the tissue that needs to be affected. For example, drugs can be developed for patients suffering from diabetic keto acidosis, a condition when insufficient insulin caused the body to start breaking down fat, so that the enzyme is inhibited to oxidize fewer fatty acids.

"This would be a major breakthrough in tackling the obesity crisis we now face," added Professor Zammit.

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Provided by University of Warwick

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