A gimmick-free weight-loss pill in the works

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A Université de Montréal research team is developing a pill composed of leptin, the protein that tells our brain to stop eating.

"Mice deprived of leptin will not stop eating. They become so big they have trouble moving around," says Mod'se Bendayan, a pathology professor at the Université de Montréal Faculty of Medicine who has studied the leptin protein extensively.

Leptin regulates appetite in mammals and its levels decrease when fasting and rise during meals. It has been proven to be an appetite suppressant when administered intravenously to pathologically obese people.

Postdoctoral student Philippe Cammisotto is leading the charge for a leptin-based, appetite suppressing pill with Dr. Bendayan and Émile Levy, a professor from the Department of Nutrition. "Taken orally, such a pill would provide obese people with the sensation of being full. They would eat less and in turn lose weight," says Dr. Cammisotto.

"We hope to start animal testing in 2010," says Bendayan. "The molecule is easy to synthesize and the protocol is ready."

After decades of building his reputation in fundamental research, Bendayan is happy to collaborate on something more tangible. "Obesity is a big problem in our society, no pun intended," says Bendayan. "To develop medication to combat obesity would be a great way for our laboratory to contribute to public health."

The new pill is being created based on a startling Université de Montréal discovery from 2006: leptin isn't only secreted by fatty tissues. "From the first bite of any meal, leptin levels skyrocket in the bloodstream. Yet this has nothing to do with the leptin stored in the fatty tissues," says Bendayan. "In the lab, we proved that up to 80 percent of cells in our stomach also produce leptin. Those are the ones that regulate appetite."

The Université de Montréal finding led to a different understanding of how the protein works, since leptin alone can't survive in an acidic stomach without assistance. Indeed, leptin protects itself with an accomplice that acts as its bodyguard and accompanies the protein through the digestive system until it can be absorbed into the bloodstream.

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