

A Rare Disease Could Lead to a New Understanding of Fat Metabolism

A rare inherited metabolism disorder, neutral lipid storage disorder, was first described in 1953. Individuals with this disorder store excessive fat in unusual places such as skin, liver, and muscle, and suffer related health problems. In 2001, scientists announced that the disease was caused by mutations in the gene for the protein, CGI-58.

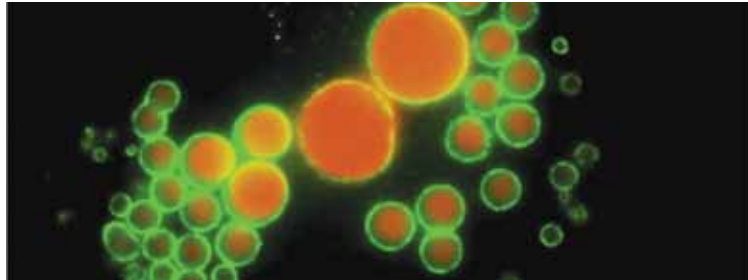
In 2001, Dawn Brasaemle began a research project to identify all of the proteins that are on lipid droplets in fat cells. CGI-58 was one of about 40 proteins she found on the droplets. She began to study the protein on a hunch that it might be significant. Her hunch was right: she identified an important link between CGI-58 and fat metabolism. Since fat metabolism plays a role in the onset of type II diabetes and cardiovascular disease, this finding could lead to important new discoveries about these diseases.

The mystery of exactly how CGI-58 works has yet to be uncovered. Scientists know what happens to people when CGI-58 does not function properly, but they don't know how it is doing what it is doing. Using a state-of-the-art mass spectrometer to answer this question, Brasaemle can identify and quantify unique lipids with extreme precision. These lipids might provide essential clues to the mystery of CGI-58 function.

The prevalence of diabetes type II is soaring, and cardiovascular disease is the leading cause of death among people with the disease. With a comprehensive understanding of how proteins might affect the onset of cardiovascular disease, and by studying proteins that could present targets for drugs that would fight the disease, researchers will be able to stem the tide of these diseases. Support the fight against diabetes type II and cardiovascular disease by funding Dr. Brasaemle's research. Please contact The Office of Development at 732-932-9000, ext. 576 or development@sebs.rutgers.edu for more information.

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