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GTDF: A promising therapeutic tool for lifestyle diseases

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Dr Sabayasachi Sanyal, principal scientist, CDRI and their team have discovered an adiponectin-mimicking molecule which can cure metabolic disorders caused due to adiponectin deficiency. Adiponectin is a hormone which is involved in regulating glucose levels as well as fatty acid breakdown. Levels of the hormone are inversely correlated with body fat percentage in adults. Dr Sanyal explained, "type II diabetes being a "sugar disease", is as much a "fat disease", where elevated blood level of glucose and lipids including cholesterol, triglyceride, LDL, and free fatty acids play an enormously important role in the pathology of this disease."

In this context, he elaborated on the therapeutic promises of GTDF. One of the major advantages with this compound lies in its ability to convert white adipose tissue to brown adipose. Brown adipose are present at negligible levels in adult humans and are metabolically highly active. The brown adipose tissue has a high capacity to burn fat inside them by an enzymatic process called beta oxidation, and is particularly useful for non-shivering thermogenesis during cold. Thus, conversion of white adipose to brown adipose necessarily burns fat inside the tissue and the fatty acid load in the circulation goes down. That GTDF, in addition to lowering total cholesterol, frees fatty acids and triglycerides elevates the good cholesterol HDL indicates a drastically favorable shift in a lipid profile. This is beneficial for both type 2 diabetes and overall cardiovascular health.

GTDF protects pancreatic beta cells from diabetic stress induced death and improves insulin-secretion. It enhances the capacity of skeletal muscles to use fat as a source of energy, thereby causing efficient utilization of excess fat. GTDF thus essentially mimics the beneficial effects of endurance exercise (like marathon running).