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Diabetes and Adiponectin Regulation

Adiponectin is a hormone exclusively expressed in adipocytes (fat cells). It increases the rate of fatty acid oxidation and decreases the lipid content of muscle, playing an important role in regulating insulin sensitivity and energy homeostasis. In type 2 diabetes, its level in serum is reduced. It is thus important to understand how the expression of adiponectin is regulated. Basal expression of a gene depends on its proximal region, the promoter. To achieve full activation of adiponectin gene expression a major factor, CCAAT/enhancer binding protein (C/EBPa), is required. It was shown that, in the first non-coding region of the adiponectin gene (intron I), several short DNA sequences (CCAAT) are essential for C/EBPa to fully activate adiponectin gene expression. Defining the endogenous activators of this transcriptional factor gives a better understanding of the processes leading to the reduction of adiponectin production in type 2 diabetes.

For more information, please read the entire article:

Liping Qiao, Paul S. MacLean, Jerome Schaack, David J. Orlicky, Christian Darimont, Michael Pagliassotti, Jacob E. Friedmann, and Jianhia Shao. C/EBPa Regulates Human adiponectin Gene Transcription Through an Intronic Enhancer. Diabetes 54, 1744-1754, 2005.