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Lipid Metabolism, Genes, and their Regulation by Natural Compounds



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Abstract

Obesity is a worldwide public health problem. Genes involved in lipid metabolism have been found to be under the control of major signalling events embedded in AMPK, PGC1- alpha, mTOR, Sirtuins and Sestrins. These signalling “switches” can respond both to environmental conditions, physical exercise as well as to biofactors. Prevention and therapeutic intervention on obesity can take advantage of the present molecular knowledge related to fat metabolism, its genetic regulation and its modification by life style changes. Millions of people are affected, both in industrialized and developing countries. Obesity is caused by multiple genetic and environmental factors and it is associated with a number of secondary pathologies, such as diabetes, chronic inflammatory processes, hypertension and degenerative diseases. Understanding the molecular mechanisms involved in adipogenesis and body weight regulation is a major effort in a number of laboratories.