Michael Philip Nova, Human Genet Embryol 2016, 6:3(Suppl)
http://dx.doi.org/10.4172/2161-0436.C1.002

Nutritional genetics in diabetes and obesity management

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Type-2 diabetes (T2D) and obesity are complex disorders that constitute major public health problems. The evidence for familial aggregation of both T2D and obesity is substantial. To date, more than 150 genetic loci are associated with the development of monogenic, syndromic or multifactorial forms of T2D or obesity; many within lipid and carbohydrate metabolism pathways. SNPs located in or near *FTO, MC4R, MC3R, POMC, LEP, LEPR, PLIN1, APOA5, LIPC, FABP2, INSIG2, IRS1, GIPR, ADBR2, ADRB3, UCP1, RETN, ADIPOQ, IL6, PPARG, TCF7L2* and *CLOCK*, among others, are implicated in both diabetes and obesity gene networks, pleomorphic with nutritional and metabolic traits. A personalized nutritional approach, based not only on phenotypic traits but also on genetic make-up, may help to control body weight and obesity. Recent advances in nutrigenetics, bioinformatics and genome-wide association metabolomics studies are set to unleash a revolution in personalized nutrition. In this symposium, we discuss the evidence concerning the genetic contribution to individual risk of T2D and obesity and explore the potential role of nutritional and environmental mechanisms. We also explain how genetics, epigenetics and environment are likely to interact to define the individual risk of disease; through analyzing the results of a number of recent human clinical trial studies that use genetics to personalize treatment plans for obesity, metabolic syndrome and diabetes management. The aim of these studies was to determine the impact of a targeted, precision treatment program on reducing a patient's future risk of metabolic syndrome (MetS).

Biography

Michael Philip Nova is the Chief Innovation Officer and Founding Team Member of Pathway Genomics. USA. He is the inventor of all wellness genetic tests and also the Pathway-IBM/Watson mobile application: OME. His scientific career began at the Salk Institute with Nobel Laureate Roger Guillemin, researching the genetics of growth factors. He was the Founder/CEO of wireless drug discovery company, Discovery Partners Inc. He is an IBM and Metagenics Advisory Board Member; the 2005 World Economic Forum (WEF) Technology Pioneer Award Winner and the Physician of record on the first person to have their entire genome sequenced by Illumina (2009). He has 35 issued patents and likes to surf in Indonesia.

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