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Nutrigenomics Perspective to Diabetes

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Abstract

Diabetes Mellitus, regarded as a silent killer, has been demonstrated to be a prime global health concern with a projected rise in prevalence from 171 million in 2010 to 366 million in 2030. Correspondingly, dietary management has shown to be a cornerstone modality in the attainment of good glycemic control in diabetes, and Nutrition/Diet remains a key player in diabetes prevention and management. In this light, of course, evidences from prospective observational studies, clinical trials and experimental findings have reported ameliorating ability of a number foods and nutrient on diabetes. However, a major concern is the genetic variability of individuals and their responses to these functional foods. Therefore, it has become necessary to understand how nutrients act at the molecular level which in turn involves a cascade of nutrient-related interactions at the gene, protein and metabolic levels. Overall, a Nutrigenomic approach provides; a snapshot showing genes that are switched on/off (the genetic potential) at any given moment, and the method to determine the influence of nutrients on gene/protein expression. Nutrigenomic has opened a new future to screen the genetic background, to monitor the transcriptome, proteome and metabolome and to ultimately develop dietary strategies which are targeted to supply the optimum nutrition and therapeutics for single individuals. Fundamental new approach to nutrition research and novel experimental techniques like DNA microarray technology and quantitative real time Polymerase Chain Reaction (PCR) have successfully evaluated the interactions between diet and genes measured as changes in genetic expression. Nutrigenomics improves an understanding of how nutrients modifies expression of adipokines particularly, are those related to diabetes; leptin, adiponectin, resistin, visfatin, interleukins, and tumor necrosis factor-α (TNF-α), resulting to insulin resistance, β-cell dysfunction and then diabetes. Therefore, the present research aims to explore this issue.

Biography

Nwawuba Stanley U, a sound biochemist and a astute researcher, holds a bachelor's degree in biochemistry and a master's degree in Nutritional Biochemistry. He is a member of the Nigerian Society of Biochemistry and Molecular Biology. He has designed, prepared and published compelling articles relating to diabetes both in the capacity as a key author and as a co-author. His interest in Diabetic research is overwhelming and his focus is on nutrition and diabetes. Correspondingly, he is currently working on an article that will explicitly explain the genetics of diabetes mellitus with focus on the multiple gene mutations. His distinctive research input on diabetes has received attention and has indeed proven to be significant to fellow researchers and scientists working in the same field.

Publications

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