Nutrigenetics, which is a branch of nutritional genomics, focuses on the role of genetic susceptibility to diseases as well as on the link between genetic variants and response to diet [85,86].Moreover, the deleterious effect of CLOCK 3111TC on waist circumference was only found with high saturated fatty acid intakes (>11.8%) [71].The interplay between gene variants in circadian machinery and diet demonstrated by some intervention studies described above may help to design effective, personalized nutritional strategies based on the identification of specific allele carriers.The CC carriers of CRY1 rs2287161 that ate high amounts of carbohydrates showed higher insulin resistance when compared to G carriers whose values of model assessment of insulin resistance (HOMA–IR) were independent of carbohydrate intake, remaining constant [87].The authors suggested that the additive effect of SIRT1 and CLOCK variants on resistance to weight loss could be related to the chronotype of the subject, higher plasma levels of ghrelin, and less adherence to Mediterranean diet patterns.An association between this variant combined with other SNPs in linkage disequilibrium (i.e., rs1801260, rs3736544, rs4864548 and rs3749474) and lower hyperglycemia and decreased risk of T2DM has also been reported [71,88].CRY1 rs2287161 represents an example of gene–diet interaction for insulin resistance .[in Mediterranean and North American populations [87