Role of Taste Receptor Gene TAS2R38 and Fat Sensor Protein CD36 in Supertasting Ability and Childhood Obesity

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The objective of this study was to elucidate the genetic basis of super tasting ability and establish associations with childhood obesity. Obesity, which is associated with an increased risk of many chronic diseases, including diabetes, cardiovascular diseases, and cancer, has become a major health problem worldwide. Obesity is increasingly prevalent among children and adolescents while taste sensitivity varies greatly in individuals and has been shown to strongly influence food choice and satiety. Our previous data exhibited the correlation between satiety and tasting ability, showing that non-tasters had higher amounts of leptin and BMI (body mass index). A group of 50 children, aged 6-18 years, signed an ethics committee approved informed consent with assent from their parents to participate in the study. Study involved anthropometric, taste perception measurement and SNP (single nucleotide polymorphism) genotyping. Taste perception was measured directly by Phenylthiourea (PTC) and SNP genotyping was done by mass array on DNA samples collected by buccal swabs. Associations of various SNP loci with obesity and tasting ability were determined by measuring the P-value & odd ratios. Associations were observed between three out of the four tasting ability related genes with BMI related genes. Four out of five BMI related genes showed significant relationship with obesity. The strongest association with obesity was found with FTO and CD36 SNPs. This is the first time reporting allele frequency data for rs713598, rs17817964, rs1558902 in the subjects of the Mexican ancestry (MEX; source SNPedia). We have identified five out of the eleven SNPs that would need further examination to link the BMI associated SNPs to obesity. Significant associations were observed between tastin

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