



**CALIFORNIA STATE SCIENCE FAIR  
2015 PROJECT SUMMARY**

<b>Name(s)</b> <b>Japmeet Sandhu; Ashima Thusu</b>	<b>Project Number</b> <b>S0525</b>
<b>Project Title</b> <b>Role of Taste Receptor Gene TAS2R38 and Fat Sensor Protein CD36 in Supertasting Ability and Childhood Obesity</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> Our primary goal is determine if tasting ability is correlated to obesity in terms of our genetic makeup. Last year we found that nontasters had higher amounts of leptin and higher BMI#. This year we are investigating deeper into how genetics play a role in the predisposition of tasting and obesity.</p> <p><b>Methods/Materials</b> 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 included completion of questionnaire, medical examination, anthropometric measurements. Anthropometric measurements included weight, height. All instruments were validated and standard procedures were followed for collecting data. Analysis of both parametric and non-parametric data will be adopted to address the objectives of the study using statistical software Sigma plot where appropriate. The intensity of taste perception was measured directly by Phenylthiourea (PTC strips-Precision Laboratories FL). Cognitive eating behaviors were evaluated using study designed questionnaires.</p> <p><b>Results</b> Associations of various SNP loci with obesity and tasting ability in children: Associations were determined by measuring the significant odd ratios (OR) which were observed between three out of the four tasting ability related genes with obesity related genes. Four out of five BMI associated genes showed significant relationship with obesity. The strongest association with obesity was found with FTO and CD36 SNPs ( at 3.45 OR). The associations, although showing a trend, are not statistically significant due to the smaller data set.</p> <p><b>Conclusions/Discussion</b> This is the first time reporting allele frequency 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 investigation to link the BMI associated SNPs to obesity. Significant associations were observed between tasting ability and tasting ability related genes: rs10246939, rs1726866, and BMI associated SNPs and obesity: rs713598, rs3211908, rs17817964, rs9939609, rs1558902.</p>	
<b>Summary Statement</b> We set out to establish a genetic link of tasting ability and obesity.	
<b>Help Received</b> Used lab equipment at Universal Biopharma Research Institute Inc. under the supervision of Dr. Amardeep Khushoo	