

Apurva Subramanian
Does the TAST2R38 Gene Affect Body Fat Composition?

The purpose of this experiment is to determine the correlation between body fat and the sense of taste as measured by the ability to taste the bitter substance propylthiouracil. It is hypothesized that genetically predisposed tasters need lesser quantities of food to feel satiated. Non-tasters, though, need greater quantities of food to feel the same level of satisfaction. This would lead to supertasters having a lower body fat percentage. A positive correlation would give insight to diet counselors, who could then educate non-tasters on developing a sense of satisfaction by eat less. Visitor participants at the Denver Museum of Nature and Science were test subjects and asked to taste propylthiouracil; their intensity of taste was measured. DNA samples were collected through a cheek swab by volunteers at the Museum; the cheek swabs were purified and the TAS2R38 gene was identified. Out of the entire data set, samples from the database of the Denver Museum of Nature and Science between the ages from 18-30 were randomly selected. The relevant DNA samples were retrieved, and then concentrations of the DNA strength were analyzed using a spectrometer. The DNA sample concentrations were normalized by dilution prior to sending for sequencing by an external lab. In the population that was selected for analyses, no correlation existed between the presence of TAS2R38 gene and body fat composition since a confidence level of only 90% was reached. In the sample population, those that could not taste this bitter substance had a 2% lower body fat percentage.