CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY

Name(s)

Alberto Ruiz

Project Number

35537

Project Title

Tracking Ancient Ancestry though DNA

Abstract

Objectives/Goals

The objective is to reveal through DNA that our human spices arose over 100,000 years ago in Africa from a single founding population and that every single human being can trace their ancestry back to this founding population showing that all humans are share a unique genetic relationship to each other.

Methods/Materials

Informed consent was received by 25 students and their parents to participate in having their Mitochondrial DNA extracted from their cheek cells using a saline solution. The DNA was amplified using Polymerase Chain Reaction. Gel electrophoresis was done to see how much amplified DNA I received and sent the samples off to the lab to be sequenced. The results were posted online. I looked for Single nucleotide polymorphisms (SNP). SNPs are identifiable with a haplogroup. When each haplogroup was found, the SNP, age of the group, area it arose, and from what haplogroup it descended form was documented.

Results

46% are members of haplogroup D, 24% were in haplogroup H, 8% were in haplogroup B, and the rest were unique and spread evenly by 4% among haplogroups A, B, C, L, M, N, T, U, and X. The results I obtained displayed that the haplogroups are descendants of one another and can be traced back to one founding population. Individuals in haplogroups D, X, U, L, and A are all descendants of haplogroup M. Haplogroup M is a descendent of haplogroup L, the founding population.

Conclusions/Discussion

Due to the fact that haplogroups are descendants from one another a pattern of decendence is created leading to the founding human population. Wall share a genetic relationship to each other. We are all members of the human species regardless of the physical differences. Race is simply a way of classifying all the diversity of our species. We are all one diverse, big family.

Summary Statement

My project is about how DNA contains the answers to our human ancestry and how we are all related to one another.

Help Received

Used lab equitment at Mount Diablo High School under the supervison of my biotechnology teacher Colin Jones. Professor John Riggs of UC Davis consulted with me about futher steps I could take to help advance my project. My dad helped me construc my boar. I used sciencebuddies.com to help me answer

Preliminary