CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY

Name(s)

Jan M. Humphrey

Project Number

22499

Project Title

A Link to the Future

Abstract

Objectives/Goals

Given three linked loci, yellow body (y), a rough eye known as echinus (ec), and cut wings (ct), what is their frequency of recombination and thus the distance between them, and what is their sequence along the chromosome?

Methods/Materials

Drosophila melanogaster were used as experimental subjects. Test crosses were performed and the results were evaluated.

Results

The distances expressed in terms of percent of recombination have been determined as y - ec = 5.4, y - ct = 24.9, and ec - ct = 20.3. This shows that the sequence along the chromosome is y, ec, ct.

Conclusions/Discussion

The genes are arranged in a linear fashion along the chromosome and the frequency of recombinatit between them reflects their relative positions. The frequency of recombination can also be used as a measure of distance between the pairs of genes, and their linear distribution along the length of a chromosome can form the basis of a genetic map.

Summary Statement

My project is about the frequency of recombination between specific gene loci in Drosophila melanogaster.

Help Received

I received help from local high schools and college in specific problem areas.

Preliminary