CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY

Name(s)	Project Number
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Project Title

The Effect of Ultraviolet Light on DNA Degradation

Abstract

Objectives/Goals

My objective was to determine the rate of DNA degradation when exposed to Ultraviolet light.

Methods/Materials

Different samples of lambda DNA was exposed to different time frames of Ultraviolet light (15 minutes, 30 minutes, 60 minutes, 6 hours, and 12 hours.) Half of the samples from each trial were reacted with the Hind III restriction enzyme. I then used gel electrophoresis to collect my data.

Results

My data, unfortunately, was inconclusive. I saw somewhat three different types of banding pattern's with my Gel's after electrophoresis. I did not have enough variance in data to accurately determine a rate of degradation when exposed to UV light.

Conclusions/Discussion

Due to the fact that I did not have much data at this point in my research, I can only truly talk about my plan for what I would like to do with further research. In order to do this, I need to figure out what I did not do so well so I can fix it and not make the same mistake again. For example, due to the way Ethidium Bromide attaches to the DNA, I was not able to see the DNA at a certain point. I could have gotten some very interesting data, however I just missed it due to my procedures. I will look at possible different ways of collecting my data with further research. I also want to add more trials between the 1 hour and 6 hour marks, for there was a drastic change between the two. I just am not quite sure on what specifically happened when during that 5 hour window.

Summary Statement

I wanted to determine the rate in which DNA degrades when exposed to UV light.

Help Received

Redwood High School donated lab and lab materials. I received help when I needed clarification on a topic when writing my experimental design. I would interview Mr. Skip Lovelady at Redwood High School, or Dr. Nik Chmiel, PhD at BioRad laboratories. I performed all lab work and collected data