CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY

Name(s)

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Project Number

S0404

Project Title

Studying the GST-Y10 Protein: Is the C-domain Resonsible for Histone Interaction?

Abstract

Objectives/Goals

The NAP1 protein is the protein that assembles nucleosomes and organizes DNA inside the nucleus of cells. The aim of this experiment is to determine whether the GST-Y10 protein has the ability to bind histones. The experiment will consist of two major steps; creating the GST-Y10 protein and a pull down assay using the produced protein and histones.

Methods/Materials

The GST-Y10 protein is made by binding the Y10 and GST protein together. The Y10 protein is a fragment of the NAP1 protein that codes for the C-Domain. The C-domain is believed to do most of the work that the protein carries out with respect to histone binding. This Y10 protein is obtained from yeast cells, whose NAP1 protein is very similar to that of humans.

After the protein is created a test will be run to see if it interacts with histones. The test will be a pull down assay. The results of the pull down assay will show whether the GST-Y10 protein can interact with histones and give the final answer to the experiment.

Conclusions/Discussion

The results of this experiment showed that the histones do interact with the GST-Y10 protein.

This science fair project was carried out with the use of the Dutnall Laboratory at the University of California, San Diego. All procedures involving undiluted ethidium bromide and unpolymerized acrylamide were carried out by a qualified supervisor. This experiment was performed with the assistance of Professor Robert Dutnall and the graduate students in his laboratory.

Summary Statement

This project is to see whether the C-Domain of the Nucleosome Assembly Protein is the section of the protein that is responsible for histone bonding.

Help Received

Professor Robert Dutnall provided facility. Joon Huh supervised experimentation. Mother helped with designing display. Mrs. Fenster edited and gave feedback on report and display.