CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY

Name(s)
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Project Number
J1414

Project Title
Antibiotic Resistance in Selected Cell Lines

Abstract

Objectives/Goals
The Objective of this experiment was to determine the resistance of two strains of Chinese Hamster Ovary cells to the antibiotic Geneticin. My hypothesis was that the strain called CHO-M1 would be more resistant to geneticin because this strain had been treated to make it resistant to Geneticin.

Methods/Materials
Three plates of each strain of CHO cells were grown in each of eight dilutions of Geneticin. These plates were fixed with methanol and stained with Crystal Violet. Next the number of colonies with more than 50 cells were counted and from these counts a cloning efficiency was derived.

Results
The results of this experiment were that CHO-K1 cells could not survive in concentrations of Geneticin above 500 mcg/ml. However CHO-K1 cells could survive at concentrations of Geneticin up to 2000 mcg/ml, but at much lower cloning efficiencies.

Conclusions/Discussion
My hypothesis was supported, CHO-M1 cells did have a higher cloning efficiency than that of CHO-K1 cells after exposure to Geneticin. In fact the Geneticin was virtually useless against the CHO-M1 cells. Therefor my conclusion is that microbes that are resistant to antibiotics are a important health hazard because they are difficult to treat.

Summary Statement
In this project we cultured Chinese Hamster Ovary cells, exposed them to an antibiotic and measured the effect.

Help Received
Used lab facilities at Molecular Devices Corp. under the supervision of Carole Crittenden.