Lab 13: DNA Fingerprinting Using Gel Electrophoresis

pp. C39 - C41

~Good luck on finals and a great break~

GOALS:

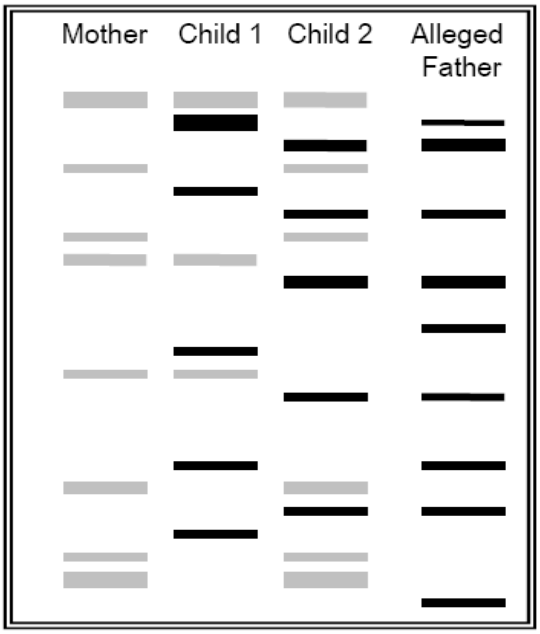
• Understand the protocol used in gel electrophoresis
• Be able to identify the restriction sites in a DNA sequence, if you are given the enzyme recognition sequence
• Be able to identify the relatedness between individuals, given the electrophoresis results of their DNA (cut with restriction enzymes)

KEY TERMS:

DNA profile analysis/DNA profiling/DNA fingerprinting
restriction cutting site/enzyme recognition sequence/restriction cleavage site
agarose gel
electrophoresis
restriction enzyme

I. INTRODUCTION:

The figure below is an example of a typical paternity test, showing the DNA profiles of the mother, her two children and an alleged father. The bands in the children that were inherited from the mother (colored grey for illustration purposes) align with the mother's bands. The remainder of the bands have must therefore must have been inherited from the father.



RESULTS of band comparisons:

Child 1: does not have bands that align with the father. Consequently, child 1 is NOT the child of the alleged father.

Child 2: does have bands that align with the alleged father. Also, the bands are of the same intensity (thickness) as the paternal bands. Consequently, child 2 is very likely the child of the alleged father.

II.DNA PATERNITY TESTING (EDVOTEK Simulation):

p. C39 - C41: Use the bottom of C41 to draw the results. Come up to the front desk in groups of four to load a new gel with your instructor. You may be asked to complete another step of the gel electrophoresis procedure listed on the bottom of C39.

III. WORKSHEET:

-COMPLETE AND HAND IN YOUR WORKSHEET
-You can work with other students in lab to complete the worksheet